Brooks Channel Flood Control Project

Conditional Letter of Map Revision (CLOMR)

October 2015

CITY OF NORTH LAS VEGAS
DEPARTMENT OF PUBLIC WORKS

MWH

BUILDING A BETTER WORLD

October 5, 2015

Federal Emergency Management Agency
LOMC Clearinghouse
847 South Pickett Street
Alexandria, VA 22304-4605

Subject: Conditional Letter of Map Revision Application
Brooks Channel Flood Control Project, North Las Vegas Nevada

To Whom This May Concern:

On behalf of the City of North Las Vegas, MWH Americas, Inc. is pleased to submit the attached application for a Conditional Letter of Map Revision for the Special Flood Hazard Area (SFHA) approximate Zone "A" encompassing a portion of Losee Road and the Brooks Channel located within the limits of the City of North Las Vegas. The pertinent Zone "A" is depicted on Flood Insurance Rate Map (FIRM) Number 32003C2160F. This submittal includes FEMA forms MT-2 Form 1, MT-2 Form 2, MT-2 Form 3, a detailed engineering hydrology and hydraulics report, and a CD containing pertinent hydraulic model runs.

As described in the attached report, the current flood zone is modified to be contained within the proposed channel. If you have any questions regarding the CLOMR application or supporting documentation, I can be reached at directly at 702-821-4376 or Raul.Valdez@mwhglobal.com.

Respectfully submitted,

MWH Americas, Inc.

Raul V. Valdez, P.E., CFM

Project Engineer

Enc: 1. Engineering Report
2. Data CD

Cc: Dan Le, P.E., CFM (CNLV)
Jarah Parke, P.E., PMP, CFM (MWH)

U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 1660-0016
Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

☒ CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

☐ LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301 480287	City of Katy Harris County	TX TX	48473C 48201C	0005D 0220G	02/08/83 09/28/90
320007	CITY OF NORTH LAS VEGAS	NV	32003C	2160F	11/16/11

2. a. Flooding Source: UNAMED ALONG BROOKS CHANNEL TRIBUTARY TO CENTRAL FREEWAY CHANNEL

   b. Types of Flooding: ☒ Riverine ☐ Coastal ☐ Shallow Flooding (e.g., Zones AO and AH)
   ☐ Alluvial fan ☐ Lakes ☐ Other (Attach Description)

3. Project Name/Identifier: BROOKS CHANNEL FLOOD CONTROL PROJECT

4. FEMA zone designations affected: A (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

   a. The basis for this revision request is (check all that apply)

   ☒ Physical Change ☐ Improved Methodology/Data ☐ Regulatory Floodway Revision ☐ Base Map Changes
   ☐ Coastal Analysis ☒ Hydraulic Analysis ☒ Hydrologic Analysis ☐ Corrections
   ☐ Weir-Dam Changes ☐ Levee Certification ☐ Alluvial Fan Analysis ☐ Natural Changes
   ☒ New Topographic Data ☐ Other (Attach Description)

   Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

Structures: ☒ Channelization ☐ Levee/Floodwall ☐ Bridge/Culvert

☐ Dam ☐ Fill ☐ Other (Attach Description)

6. ☒ Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☐ Yes Fee amount: $____

☒ No, Attach Explanation

Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm for Fee Amounts and Exemptions.

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: RAUL VALDEZ, PE, CFM	Company: MWH AMERICAS, INC.	
Mailing Address: 3010 WEST CHARLESTON BOULEVARD LAS VEGAS, NEVADA 89102	Daytime Telephone No.: 702-821-4376	Fax No.: 702-878-7833
	E-Mail Address: RAUL.VALDEZ@MWHGLOBAL.COM	
Signature of Requester (required): Raul Valdez	Date: 10/5/2015	

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: DAN LE, PE, CFM	Community Name: CITY OF NORTH LAS VEGAS	
Mailing Address: 2250 LAS VEGAS BOULEVARD NORTH NORTH LAS VEGAS, NEVADA 89030	Daytime Telephone No.: 702-633-1932	Fax No.: 702-649-4696
	E-Mail Address: LED@CITYOFNORTHLASVEGAS.COM	
Community Official's Signature (required):	Date: 10/8/15	

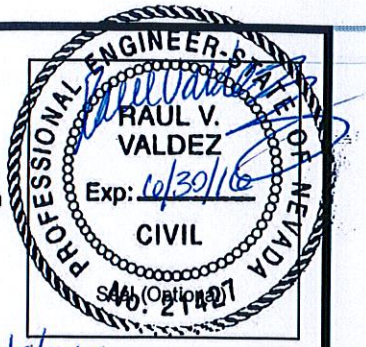
CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: RAUL VALDEZ, PE, CFM	License No.: NEVADA 21427	Expiration Date: 06/30/16	
Company Name: MWH AMERICAS, INC.	Telephone No.: 702-821-4376	Fax No.: 702-848-7833	
Signature: Raul Valdez	Date: 10/5/2015	E-Mail Address: RAUL.VALDEZ@MWHGLOBAL.COM	

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)	Required if ...
☒ Riverine Hydrology and Hydraulics Form (Form 2)	New or revised discharges or water-surface elevations
☒ Riverine Structures Form (Form 3)	Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam
☐ Coastal Analysis Form (Form 4)	New or revised coastal elevations
☐ Coastal Structures Form (Form 5)	Addition/revision of coastal structure
☐ Alluvial Fan Flooding Form (Form 6)	Flood control measures on alluvial fans



10/5/2015

FEMA CLOMR application fee explanation, to accompany form MT2-Form 1

A Review fee has not been submitted with this CLOMR Application because:

- In accordance with Section 72.5 of the NFIP regulations, review and processing fees are not required for "map changes based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective Flood Insurance Rate Map (FIRM)"

U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016
Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

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ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: UNAMED TRIBUTARY ALONG BROOKS CHANNEL TO CENTRAL FREEWAY CHANNEL

Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply)

☐ Not revised (skip to section B) ☒ No existing analysis ☐ Improved data
☐ Alternative methodology ☒ Proposed Conditions (CLOMR) ☐ Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/FIS (cfs)	Revised (cfs)
Brooks Chan @ Cen Fwy Chn	0.82	NONE	869

3. Methodology for New Hydrologic Analysis (check all that apply)

☐ Statistical Analysis of Gage Records ☒ Precipitation/Runoff Model → Specify Model: HEC-1 (USACOE)
☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters), and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Is the hydrology for the revised flooding source(s) affected by sediment transport? ☐ Yes ☒ No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation..

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.)	
			Effective	Proposed/Revised
Downstream Limit*	TIE INTO CEN.FWY CHANNEL	10+11.50	NONE-ZONE "A"	1915.80
Upstream Limit*	MAYFLOW CT.	33+98.92	NONE-ZONE "A"	1976.41

*Proposed/Revised elevations must tie-into the Effective elevations within 0.5 foot at the downstream and upstream limits of revision.

2. Hydraulic Method/Model Used: HEC-RAS (USACOE)

3. Pre-Submittal Review of Hydraulic Models*

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS.

4.

Models Submitted	Natural Run		Floodway Run		Datum
Duplicate Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
Corrected Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
Existing or Pre-Project Conditions Model	File Name: BrooksFGAnalysis.prj	Plan Name:	File Name:	Plan Name: 26	NAVD88
Revised or Post-Project Conditions Model	File Name: BrooksFGAnalysis.prj	Plan Name:	File Name:	Plan Name: 25	NAVD88
Other - (attach description)	File Name:	Plan Name:	File Name:	Plan Name:	

* For details, refer to the corresponding section of the instructions.

☐ Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A **certified topographic work map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

☒ Digital Mapping (GIS/CADD) Data Submitted (preferred)

Topographic Information: SEE ATTACHED CERTIFIED TOPOGRAPHIC WORK MAP

Source: BROOKS CHAN ALIGNMENT, PROVIDED BY CNLV Date: 4/15/2014

Accuracy: BROOKS CHAN TOPO=+/-1-FT, COUNTY TOPO=+/-5-FT

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach **a copy of the effective FIRM and/or FBFM**, at the same scale as the original, annotated to show the boundaries of the revised 1%-and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%-and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area on revision.

☒ Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) increase? ☐ Yes ☒ No

   a. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:

   - The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
   - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.

   b. Does this LOMR request cause increase in the BFE and/or SFHA compared with the effective BFEs and/or SFHA? ☐ Yes ☒ No

   If Yes, please attach **proof of property owner notification and acceptance (if available)**. Elements of and examples of property owner notifications can be found in the MT-2 Form 2 Instructions.

2. Does the request involve the placement or proposed placement of fill? ☐ Yes ☒ No

   If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.

3. For LOMR requests, is the regulatory floodway being revised? ☐ Yes ☒ No

   If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being established. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)

4. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA).

For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA. Please see the MT-2 instructions for more detail.

* Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

O.M.B. NO. 1660-0016
Expires February 28, 2014

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Flooding Source: UNAMED TRIBUTARY ALONG BROOKS CHANNEL TO CENTRAL FREEWAY CHANNEL

Note**:** Fill out one form for each flooding source studied.

A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

Channelization.....complete Section B
Bridge/Culvert.....complete Section C
Dam.....complete Section D
Levee/Floodwall.....complete Section E
Sediment Transport.....complete Section F (if required)

Description Of Modeled Structure

1. Name of Structure: BROOKS CHANNEL

   Type (check one): ☒ Channelization ☐ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Along Brooks Channel Alignment, between North 5th Street & UPRR Tracks

   Downstream Limit/Cross Section: 10+11.50

   Upstream Limit/Cross Section: 25+01.48

2. Name of Structure: BROOKS CHANNEL LOSEE CROSSING

   Type (check one): ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Along Brooks Channel Alignment, beneath Losee Road Crossing

   Downstream Limit/Cross Section: 15+29.80

   Upstream Limit/Cross Section: 16+67.40

3. Name of Structure: _____

   Type (check one) ☐ Channelization ☐ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: _____

   Downstream Limit/Cross Section: _____

   Upstream Limit/Cross Section: _____

NOTE: FOR MORE STRUCTURES, ATTACH ADDITIONAL PAGES AS NEEDED.

B. CHANNELIZATION

Flooding Source: UNAMED TRIBUTARY ALONG BROOKS CHANNEL TO CENTRAL FREEWAY CHANNEL

Name of Structure: BROOKS CHANNEL

1. Hydraulic Considerations

The channel was designed to carry 869 (cfs) and/or the 100-year flood.

The design elevation in the channel is based on (check one):

☐ Subcritical flow ☐ Critical flow ☒ Supercritical flow ☐ Energy grade line

If there is the potential for a hydraulic jump at the following locations, check all that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.

☐ Inlet to channel ☒ Outlet of channel ☐ At Drop Structures ☐ At Transitions

☐ Other locations (specify): _____

2. Channel Design Plans

Attach the plans of the channelization certified by a registered professional engineer, as described in the instructions.

3. Accessory Structures

The channelization includes (check one):

☐ Levees [Attach Section E (Levee/Floodwall)] ☐ Drop structures ☐ Superelevated sections

☐ Transitions in cross sectional geometry ☐ Debris basin/detention basin [Attach Section D (Dam/Basin)] ☐ Energy dissipator

☐ Weir ☐ Other (Describe):

4. Sediment Transport Considerations

Are the hydraulics of the channel affected by sediment transport? ☐ Yes ☒ No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

C. BRIDGE/CULVERT

Flooding Source: UNAMED TRIBUTARY ALONG BROOKS CHANNEL TO CENTRAL FREEWAY CHANNEL

Name of Structure: BROOKS CHANNEL LOSEE CROSSING

1. This revision reflects (check one):

☐ Bridge/culvert not modeled in the FIS

☐ Modified bridge/culvert previously modeled in the FIS

☐ Revised analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure (e.g., HEC-2 with special bridge routine, WSPRO, HY8): HEC-RAS
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structures. Attach justification.

3. Attach plans of the structures certified by a registered professional engineer. The plan detail and information should include the following (check the information that has been provided):

☒ Dimensions (height, width, span, radius, length)
☒ Shape (culverts only)
☒ Material
☐ Beveling or Rounding
☐ Wing Wall Angle
☐ Skew Angle
☒ Distances Between Cross Sections
☐ Erosion Protection
☐ Low Chord Elevations – Upstream and Downstream
☐ Top of Road Elevations – Upstream and Downstream
☒ Structure Invert Elevations – Upstream and Downstream
☒ Stream Invert Elevations – Upstream and Downstream
☐ Cross-Section Locations

4. Sediment Transport Considerations

Are the hydraulics of the structure affected by sediment transport? ☐ Yes ☒ No

If Yes, then fill out Section F (Sediment Transport) of Form 3. If no, then attach an explanation.

D. DAM/BASIN

Flooding Source: _____
Name of Structure: _____

1. This request is for (check one): ☐ Existing dam/basin ☐ New dam/basin ☐ Modification of existing dam/basin

2. The dam/basin was designed by (check one): ☐ Federal agency ☐ State agency ☐ Private organization ☐ Local government agency

   Name of the agency or organization: _____

3. The Dam was permitted as (check one): ☐ Federal Dam ☐ State Dam

   Provide the permit or identification number (ID) for the dam and the appropriate permitting agency or organization

   Permit or ID number _____ Permitting Agency or Organization _____

   a. ☐ Local Government Dam ☐ Private Dam

   Provided related drawings, specification and supporting design information.

4. Does the project involve revised hydrology? ☐ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).

   Was the dam/basin designed using critical duration storm? (must account for the maximum volume of runoff)

   ☐ Yes, provide supporting documentation with your completed Form 2.

   ☐ No, provide a written explanation and justification for not using the critical duration storm.

5. Does the submittal include debris/sediment yield analysis? ☐ Yes ☐ No

   If Yes, then fill out Section F (Sediment Transport). If No, then attach your explanation for why debris/sediment analysis was not considered?

6. Does the Base Flood Elevation behind the dam/basin or downstream of the dam/basin change? ☐ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2) and complete the table below.

FREQUENCY (% annual chance)	Stillwater Elevation Behind the Dam/Basin FIS	REVISED
10-year (10%)	_____	_____
50-year (2%)	_____	_____
100-year (1%)	_____	_____
500-year (0.2%)	_____	_____
Normal Pool Elevation	_____	_____

7. Please attach a copy of the formal Operation and Maintenance Plan

E. LEVEE/FLOODWALL

1. System Elements

a. This Levee/Floodwall analysis is based on (check one): ☐ upgrading of an existing levee/floodwall system ☐ a newly constructed levee/floodwall system ☐ reanalysis of an existing levee/floodwall system

b. Levee elements and locations are (check one):

☐ earthen embankment, dike, berm, etc. Station _____ to _____
☐ structural floodwall Station _____ to _____
☐ Other (describe): Station _____ to _____

c. Structural Type (check one): ☐ monolithic cast-in place reinforced concrete ☐ reinforced concrete masonry block ☐ sheet piling ☐ Other (describe): _____

d. Has this levee/floodwall system been certified by a Federal agency to provide protection from the base flood?

☐ Yes ☐ No

If Yes, by which agency? _____

e. Attach certified drawings containing the following information (indicate drawing sheet numbers):

1. Plan of the levee embankment and floodwall structures. Sheet Numbers: _____
2. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. Sheet Numbers: _____
3. A profile of the BFE, closure opening outlet and inlet invert elevations, type and size of opening, and kind of closure. Sheet Numbers: _____
4. A layout detail for the embankment protection measures. Sheet Numbers: _____
5. Location, layout, and size and shape of the levee embankment features, foundation treatment, Floodwall structure, closure structures, and pump stations. Sheet Numbers: _____

2. Freeboard

a. The minimum freeboard provided above the BFE is:

Riverine

3.0 feet or more at the downstream end and throughout	☐ Yes	☐ No
3.5 feet or more at the upstream end	☐ Yes	☐ No
4.0 feet within 100 feet upstream of all structures and/or constrictions	☐ Yes	☐ No

Coastal

1.0 foot above the height of the one percent wave associated with the 1%-annual-chance stillwater surge elevation or maximum wave runup (whichever is greater).	☐ Yes	☐ No
2.0 feet above the 1%-annual-chance stillwater surge elevation	☐ Yes	☐ No

Please note, occasionally exceptions are made to the minimum freeboard requirement. If an exception is requested, attach documentation addressing Paragraph 65.10(b)(1)(ii) of the NFIP Regulations.

If No is answered to any of the above, please attach an explanation.

b. Is there an indication from historical records that ice-jamming can affect the BFE? ☐ Yes ☐ No

If Yes, provide ice-jam analysis profile and evidence that the minimum freeboard discussed above still exists.

3. Closures

a. Openings through the levee system (check one): ☐ exists ☐ does not exist

If opening exists, list all closures:

Channel Station	Left or Right Bank	Opening Type	Highest Elevation for Opening Invert	Type of Closure Device

(Extend table on an added sheet as needed and reference)

Note: Geotechnical and geologic data

In addition to the required detailed analysis reports, data obtained during field and laboratory investigations and used in the design analysis for the following system features should be submitted in a tabulated summary form. (Reference U.S. Army Corps of Engineers [USACE] EM-1110-2-1906 Form 2086.)

4. Embankment Protection

a. The maximum levee slope land side is: _____

b. The maximum levee slope flood side is: _____

c. The range of velocities along the levee during the base flood is: _____ (min.) to _____ (max.)

d. Embankment material is protected by (describe what kind): _____

e. Riprap Design Parameters (check one): ☐ Velocity ☐ Tractive stress
Attach references

Reach	Sideslope	Flow Depth	Velocity	Curve or Straight	Stone Riprap			Depth of Toedown
					D_{100}	D_{50}	Thickness	
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								

(Extend table on an added sheet as needed and reference each entry)

f. Is a bedding/filter analysis and design attached? ☐ Yes ☐ No

g. Describe the analysis used for other kinds of protection used (include copies of the design analysis):

Attach engineering analysis to support construction plans.

5. Embankment And Foundation Stability

a. Identify locations and describe the basis for selection of critical location for analysis:
_____

☐ Overall height: Sta.: _____, height _____ ft.

☐ Limiting foundation soil strength:

Strength ϕ = _____ degrees, c = _____ psf

Slope: SS = _____ (h) to _____ (v)

(Repeat as needed on an added sheet for additional locations)

b. Specify the embankment stability analysis methodology used (e.g., circular arc, sliding block, infinite slope, etc.):
_____

c. Summary of stability analysis results:

E. LEVEE/FLOODWALL (CONTINUED)

5. Embankment And Foundation Stability (continued)

Case	Loading Conditions	Critical Safety Factor	Criteria (Min.)
I	End of construction		1.3
II	Sudden drawdown		1.0
III	Critical flood stage		1.4
IV	Steady seepage at flood stage		1.4
VI	Earthquake (Case I)		1.0

(Reference: USACE EM-1110-2-1913 Table 6-1)

d. Was a seepage analysis for the embankment performed? ☐ Yes ☐ No

If Yes, describe methodology used:

e. Was a seepage analysis for the foundation performed? ☐ Yes ☐ No

f. Were uplift pressures at the embankment landside toe checked? ☐ Yes ☐ No

g. Were seepage exit gradients checked for piping potential? ☐ Yes ☐ No

h. The duration of the base flood hydrograph against the embankment is _____ hours.

Attach engineering analysis to support construction plans.

6. Floodwall And Foundation Stability

a. Describe analysis submittal based on Code (check one): ☐ UBC (1988) ☐ Other (specify): _____

b. Stability analysis submitted provides for: ☐ Overturning ☐ Sliding If not, explain: _____

c. Loading included in the analyses were: ☐ Lateral earth @ P_A = _____ psf; P_p = _____ psf

☐ Surcharge-Slope @ _____, ☐ surface _____ psf

☐ Wind @ P_w = _____ psf

☐ Seepage (Uplift); _____ ☐ Earthquake @ P_{eq} = _____ %g

☐ 1%-annual-chance significant wave height: _____ ft.

☐ 1%-annual-chance significant wave period: _____ sec.

d. Summary of Stability Analysis Results: Factors of Safety.
Itemize for each range in site layout dimension and loading condition limitation for each respective reach.

Loading Condition	Criteria (Min)		Sta	To	Sta	To
	Overturn	Sliding	Overturn	Sliding	Overturn	Sliding
Dead & Wind	1.5	1.5				
Dead & Soil	1.5	1.5				
Dead, Soil, Flood, & Impact	1.5	1.5				
Dead, Soil, & Seismic	1.3	1.3				

(Ref: FEMA 114 Sept 1986; USACE EM 1110-2-2502)
Note: (Extend table on an added sheet as needed and reference)

E. LEVEE/FLOODWALL (CONTINUED)

6. Floodwall And Foundation Stability (continued)

e. Foundation bearing strength for each soil type:

Bearing Pressure	Sustained Load (psf)	Short Term Load (psf)
Computed design maximum		
Maximum allowable		

f. Foundation scour protection ☐ is, ☐ is not provided. If provided, attach explanation and supporting documentation:

Attach engineering analysis to support construction plans.

7. Settlement

a. Has anticipated potential settlement been determined and incorporated into the specified construction elevations to maintain the established freeboard margin? ☐ Yes ☐ No

b. The computed range of settlement is _____ ft. to _____ ft.

c. Settlement of the levee crest is determined to be primarily from : ☐ Foundation consolidation ☐ Embankment compression ☐ Other (Describe): _____

d. Differential settlement of floodwalls ☐ has ☐ has not been accommodated in the structural design and construction.

Attach engineering analysis to support construction plans.

8. Interior Drainage

a. Specify size of each interior watershed:

Draining to pressure conduit: _____ acres
Draining to ponding area: _____ acres

b. Relationships Established

Ponding elevation vs. storage	☐ Yes	☐ No
Ponding elevation vs. gravity flow	☐ Yes	☐ No
Differential head vs. gravity flow	☐ Yes	☐ No

c. The river flow duration curve is enclosed: ☐ Yes ☐ No

d. Specify the discharge capacity of the head pressure conduit: _____ cfs

e. Which flooding conditions were analyzed?

• Gravity flow (Interior Watershed)	☐ Yes	☐ No
• Common storm (River Watershed)	☐ Yes	☐ No
• Historical ponding probability	☐ Yes	☐ No
• Coastal wave overtopping	☐ Yes	☐ No

If No for any of the above, attach explanation.

e. Interior drainage has been analyzed based on joint probability of interior and exterior flooding and the capacities of pumping and outlet facilities to provide the established level of flood protection. ☐ Yes ☐ No If No, attach explanation.

g. The rate of seepage through the levee system for the base flood is _____ cfs

h. The length of levee system used to drive this seepage rate in item g: _____ ft.

E. LEVEE/FLOODWALL (CONTINUED)

8. Interior Drainage (continued)

i. Will pumping plants be used for interior drainage? ☐ Yes ☐ No

If Yes, include the number of pumping plants: _____ For each pumping plant, list:

	Plant #1	Plant #2
The number of pumps		
The ponding storage capacity		
The maximum pumping rate		
The maximum pumping head		
The pumping starting elevation		
The pumping stopping elevation		
Is the discharge facility protected?		
Is there a flood warning plan?		
How much time is available between warning and flooding?		

Will the operation be automatic? ☐ Yes ☐ No

If the pumps are electric, are there backup power sources? ☐ Yes ☐ No

(Reference: USACE EM-1110-2-3101, 3102, 3103, 3104, and 3105)

Include a copy of supporting documentation of data and analysis. Provide a map showing the flooded area and maximum ponding elevations for all interior watersheds that result in flooding.

9. Other Design Criteria

a. The following items have been addressed as stated:

Liquefaction ☐ is ☐ is not a problem

Hydrocompaction ☐ is ☐ is not a problem

Heave differential movement due to soils of high shrink/swell ☐ is ☐ is not a problem

b. For each of these problems, state the basic facts and corrective action taken:

Attach supporting documentation

c. If the levee/floodwall is new or enlarged, will the structure adversely impact flood levels and/or flow velocities floodside of the structure?
☐ Yes ☐ No Attach supporting documentation

d. Sediment Transport Considerations:

Was sediment transport considered? ☐ Yes ☐ No

If Yes, then fill out Section F (Sediment Transport). If No, then attach your explanation for why sediment transport was not considered.

10. Operational Plan And Criteria

a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☐ No

b. Does the operation plan incorporate all the provisions for closure devices as required in Paragraph 65.10(c)(1) of the NFIP regulations?
☐ Yes ☐ No

c. Does the operation plan incorporate all the provisions for interior drainage as required in Paragraph 65.10(c)(2) of the NFIP regulations?
☐ Yes ☐ No If the answer is No to any of the above, please attach supporting documentation.

E. LEVEE/FLOODWALL (CONTINUED)

11. Maintenance Plan

Please attach a copy of the fomal maintenance plan for the levee/floodwall

12. Operations and Maintenance Plan

Please attach a copy of the formal Operations and Maintenance Plan for the levee/floodwall.

CERTIFICATION OF THE LEVEE DOCUMENTION

This certification is to be signed and sealed by a licensed registered professional engineer authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.10(e) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: _____ License No.: _____ Expiration Date: _____

Company Name: _____ Telephone No.: _____ Fax No.: _____

Signature: _____ Date: _____ E-Mail Address: _____

F. SEDIMENT TRANSPORT

Flooding Source: _____

Name of Structure: _____

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the Base Flood Elevation (BFE); and/or based on the stream morphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including scour and deposition) to affect the BFEs, then provide the following information along with the supporting documentation:

Sediment load associated with the base flood discharge: Volume _____ acre-feet

Debris load associated with the base flood discharge: Volume _____ acre-feet

Sediment transport rate _____ (percent concentration by volume)

Method used to estimate sediment transport: _____

Most sediment transport formulas are intended for a range of hydraulic conditions and sediment sizes; attach a detailed explanation for using the selected method.

Method used to estimate scour and/or deposition: _____

Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport: _____

Please note that bulked flows are used to evaluate the performance of a structure during the base flood; however, FEMA does not map BFEs based on bulked flows.

If a sediment analysis has not been performed, an explanation as to why sediment transport (including scour and deposition) will not affect the BFEs or structures must be provided.

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Brooks Channel Flood Control Project

Conditional Letter of Map Revision

Prepared for:

CITY OF NORTH LAS VEGAS
PUBLIC WORKS DEPARTMENT

October 2015

Prepared By:

MWH AMERICAS, INC.

Jarah Parke, P.E., CFM, PMP
Raul Valdez, P.E., CFM

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- *B-2: Ultimate Condition 100-Year HEC-1 Model*

Appendix C – Hydraulic Analyses and Calculations

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- *C-2: Existing Condition HY8 Analysis for Downstream Tail Water Elevation at UPRR Embankment*
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- *C-4: Proposed Condition Dual Crossing Calculations for Downstream Tail Water Elevation at UPRR Embankment*
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Appendix D – Reference Material*

- *D-1: Louis Berger Group (LBG), 90% Technical Drainage Study for the North 5th Street Improvements, Losee Road to Cheyenne Avenue; March 2012**
- *D-2: Central Freeway Channel 100-Year HEC-1 Model**

Appendix E – Proposed Construction Plans

Appendix F – Environmental Screening Assessment and Permits

- *F-1: Section 8 Environmental Screening Report*
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Appendix G – Notification Letter to Residents

Appendix H – Data CD

Single Asterisk (*) Denotes appendix material is only included electronically on the attached Data CD

1.0 Introduction

1.1 Background

This technical report presents a hydrologic and hydraulic analysis performed in support of the Brooks Channel Flood Control Project Conditional Letter of Map Revision (CLOMR). The CLOMR is being submitted to the Federal Emergency Management Agency (FEMA) by the City of North Las Vegas (CNLV). Brooks Channel Flood Control Project consists of construction of both storm drain infrastructure and open channel within public right of way. Improvements span from 112-feet west of Losee Road and extend easterly 635-feet to an existing Union Pacific Rail Road (UPRR) track embankment. A new storm drain culvert crossing is proposed beneath Losee Road, the UPRR embankment, as well as a confluence structure within an existing channel adjacent to Interstate-15 (I-15), herein referred to as the Central Freeway Channel (see **Figure 1** in **Appendix A**).

The alignment of Brooks Channel is currently categorized as a Special Flood Hazard Area (SFHA) "Zone A" per **Figure 2** in **Appendix A**, (Federal Emergency Management Agency (FEMA) Flood Insurance Map (FIRM) Panel Number 32003C2160F.

Improvements proposed with this CLOMR are categorized as Clark County Regional Flood Control District (CCRFCD) facilities: LVBR 0011, LVBR 0005, and LVBR 0000 per the Las Vegas Valley Master Plan Update (MPU) of 2013 (see **Figure 1A** in **Appendix A**).

1.2 Objectives

Proposed infrastructure improvements have been developed to accomplish the following primary objectives:

- Upsize the existing RCB storm drain crossing located below Losee Road to convey 100-year flows.
- Reconstruct the existing and deteriorated trapezoidal channel located east of Losee Road, all the way to the UPRR embankment to increase capacity and convey 100-year flow.
- Construct an additional storm drain crossing beneath the UPRR embankment to convey the 100-year flow.
- Collect additional surface flows within Losee Road via a proposed storm drain system and convey them below grade into Brooks Channel.

- Contain the Flood Zone within the proposed open channel facility, thereby removing adjacent commercial and industrial properties from the SFHA.

1.3 Review of Historic Flood Insurance Studies

Historic FEMA Flood Insurance Studies (FIS) were reviewed to determine if a 100-year discharge rate has been previously quantified for the SFHA "Zone A" along the Brooks Channel alignment. Specifically, the following FIS' were reviewed:

- FIS for Clark County Nevada, and Incorporated Areas Volume 1 and 2, dated November 2011 (covers City of North Las Vegas, Community Number 320007).

- FIS for City of North Las Vegas 1983 (Community Number 320007).

After reviewing the aforementioned FIS', it was determined that a 100-year discharge rate has not been established for this Zone A.

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2.0 Design Criteria

2.1 Hydrology

The Brooks Channel Flood Control Project was designed based on the ultimate condition 100-year flood. Peak discharge flows tributary to Brooks Channel were determined by referencing previous hydrology studies performed near the project alignment, as well as by performing a detailed hydrology analysis for remaining tributary watershed area. The CCRFCD Hydrologic Criteria and Drainage Design Manual (HCDDM) was referenced while preparing the design hydrology for additional tributary area.

All hydrologic calculations and analyses are provided in **Appendix B**.

2.1.1 Land Use

Several sources of information were utilized to categorize the land use types within the tributary Brooks Channel watershed such as county aerial photography, MPU land use GIS layers, and site investigations. The majority of the watershed is entirely developed with commercial development, roads, and graded areas. Although minor outlying parcels were observed to be undeveloped in current aerial photography, for the purposes of the curve number calculations in this report it is assumed that the entire watershed is 100 percent developed.

2.1.2 Soils

The delineated watershed area is located within the Soil Survey of the Las Vegas Valley Area, Nevada, Part of Clark County (Soil Survey No. NV 788). Information for Soil Survey NV 788 was obtained from the United States National Resources Conservation Service (NRCS). Specifically, the watershed sub basins are encompassed within the following soil types:

- 200 - Glencarb silt loam
- 301 – Las Vegas gravelly fine sandy loam, 2 to 4 percent slopes
- 302 – Las Vegas McCarran – Grapevine complex, 0 to 4 percent slopes
- 380 – Skyhaven Very fine sandy loam, 0 to 4 percent slope

Refer to **Figure 3** in **Appendix A** for the Soils Map depicting soil boundaries encompassing drainage sub basins.

2.1.3 Curve Numbers

Composite curve number calculations were performed for each delineated sub basin. The composite curve number is determined by the weighted method, which requires multiplying the land use percentage for each sub basin by the corresponding land use type curve number for each soil type found with the delineation boundary. Land use curve numbers were referenced from

the HCDDM Tables 602 and 602A. Composite curve number calculations are provided in **Appendix B**.

2.1.4 Design Precipitation

Design precipitation depths were referenced from the National Oceanic and Atmospheric Administration (NOAA) Atlas Map (Figures 503, 506, and 513 of the HCDDM). All delineated sub basin areas are geographically located within the McCarran Airport Rainfall Area. As such, a 6-hour, 100-year precipitation depth of 2.77 inches was utilized. The precipitation depths mentioned above were not adjusted by HCDDM Table 501 factors since the sub basins are located within the McCarran Airport Rainfall Area.

2.1.5 Depth Area Reduction Factors

Depth area reduction factors (DARF's) were utilized in the hydrologic analysis to adjust runoff flow. The DARF's were referenced from Table 502 of the HCDDM and summarized in **Table 2.1** below:

Table 2-1: DARF Summary

Cumulative Drainage Area (sq mi)	DARF
0.0 – 0.49	1.000
0.50 - 0.71	0.980
0.72 – 0.78	0.976
0.79 – 0.82	0.974

2.1.6 Storm Distribution

The design storm for the Project is referenced from Table 503 of the HCDDM. This particular storm is characterized as the 6-hour, 100-year frequency rainfall event. A 100-year recurrence interval is defined as having 1.0 percent chance of being equaled or exceeded in any given year. Specifically, the "SDN3" distribution was modeled since the area of the tributary watershed is characterized as 0.82-square miles and SDN3 applies to drainage areas less than 8 square miles.

2.1.7 Sub Basin Delineations

The drainage watershed tributary to Brooks Channel was divided into sub basins based on examination of the available topography and field reconnaissance investigations. In addition, the watershed hydrology and sub basin delineation produced for the *North 5th Street Improvements; Losee Road to Cheyenne Avenue Project* by the Louis Berger Group (LBG), dated March 2012 was referenced during preparation of the Brooks Channel hydrology. Refer to **Figure 4** within **Appendix A** for the Ultimate condition basin map. Reference material from the LBG March 2012 study is provided in **Appendix D**.

2.1.8 Time of Concentration and Lag Time

Time of concentration (T_c) is the time required for water to flow from the most remote part of the drainage sub basin to the outlet point. In the SCS method, the time of concentration is used to determine the time to peak of the unit hydrograph, and subsequently the peak runoff and volume. Specifically, time of concentration consists of an initial overland flow time (T_i) plus the time of travel (T_t) in storm sewers, paved gutters, roadside drainage ditches, or drainage channels. Initial overland flow time can be estimated with terrain slope and surface cover. Travel time can be estimated from the hydraulic properties of ditches, gutters, or channels. Equations utilized to calculate initial overland flow time, travel time, time of concentration, and lag time are presented below:

Initial Overland Time: $T_i = 1.8\ (1.1 - K)L_o^{1/2} / S^{1/3}$

Where:

- K is flow resistance *(K = 0.0132CN – 0.39)*
- CN is curve number (explained in subsequent section)
- L_o is length of overland flow
- S is average basin slope in percent

Travel Time: $T_t = [L_1 /(V_1)] + [L_2 /(V_2)]$

Where:

- L_1 is the first 500-feet of travel distance
- L_2 is the travel distance in feet.
- V_1 is the average velocity of the flow in feet per second $(V = CS^{1/2})$ for L_1
- V_2 is the average velocity of the flow in feet per second $(V = CS^{1/2})$ for L_2

The velocity equation (V) is based on Manning's Equation. The "C" coefficient is a function of the factors in Manning's Equation, where:

- S is average basin slope in feet per feet
- $C = [1.49R^{2/3}]/n$
- n is Manning's Roughness Coefficient
- R is hydraulic radius in feet *(R = A/P)*

- A = flow area in square feet
- P = wetter perimeter in feet

Two different "C" coefficients are approximated for use in the travel time equation. A "C" coefficient of 14.8 represents wide channel flow assuming a hydraulic depth, D, of 0.25 feet and a Manning's n coefficient of 0.04 for undeveloped conditions. A "C" coefficient of 29.4 represents wide channel flow assuming a hydraulic depth, D, of 0.7 feet and a Manning's n coefficient of 0.04 for undeveloped conditions. For sub basins analyzed in this study, the first 500 feet of the travel time length (L_1) uses the low "C" coefficient and the remaining travel time length (L_2) uses the larger "C" coefficient. The travel time calculation calculates the travel time separately for the L_1 and L_2 portions of the basin and adds them together to give the total travel time for the basin.

Time of concentration was found by adding the initial overland time and travel time.

Time of Concentration: $T_C = T_i + T_t$

Time of concentration was subsequently converted to lag time. Lag time is equal to the lag (in hours) between the center of mass of rainfall excess and the peak unit hydrograph. Lag time can be approximated by the following empirical equation:

Lag Time: $T_{LAG} = T_C \times 0.60$

The time of concentration and lag time computations for all sub basins were performed using the equations listed above, which were referenced from the HCCDM and Standard Form 4 computation sheet. Detailed computations are provided in **Appendix B**.

2.1.9 Hydrologic Routing

The Muskingum-Cunge methodology was used for hydrologic routing in HEC-1. Specifically, the Muskingum-Cunge methodology requires the following input parameters: segment length, Manning's roughness coefficient, slope, bottom width, side slope, and reach geometry description (trapezoidal, rectangular, or circular).

2.1.10 Computer Modeling

The rainfall-runoff hydrologic modeling analysis presented herein was prepared using the United States Army Corps of Engineers (USACOE) Hydrologic Engineering Center's HEC-1 Version 4.0 software. Specifically, the analysis utilizes the Soil Conservation Service (SCS) Dimensionless Unit Hydrograph methodology. This particular methodology was published by the SCS in 1985 and is well accepted throughout in Southern Nevada. In summary, the HEC-1 software provides rainfall runoff flow rates and volumes from sub basin drainage areas after rainfall losses from depression storage and infiltrations are taken into account.

2.1.11 Hydrology Results

Results from the HEC-1 model for the 100-year storm peak runoff flow rates for both sub basins and combination points are summarized in **Table 2-2**.

Table 2-2: Hydrology Peak Flow Summary

BASIN ID	(Q100) CFS	GENERAL LOCATION
CP1A	480	End of Mayflower Cul-de-Sac
PCP3A	521	Immediately West of North 5th Street within Brooks Channel
PCP3B	525	Immediately North-East of North 5th Street and Brooks Avenue Intersection
CP5a	221	West half of Losee Road at low point
CP5b	36	East half of Losee Road at low point
CP6	758	West of Losee Road at Channel Crossing
CP6A	820	East of Losee Road at Channel Crossing
CP7	869	Immediately West of UPRR Embankment/Crossing
CPFWC2*	3,915	Flow within Central Freeway Channel, located upstream of Brooks Channel Confluence
CPFWC4*	4,276	Flow within Central Freeway Channel, located downstream of Brooks Channel Confluence

* Results of the *Final Technical Memorandum No.1 - Central Freeway Channel Hydrology and Hydraulics Technical Memorandum,* dated December 2013 (*Freeway Channel TM-1*)

3.0 Proposed Flood Control Channel and Storm Drain

This section describes in detail the proposed channel and storm drain system for Brooks Channel Flood Control Project. A set of construction plans is provided in **Appendix E**.

3.1 Brooks Channel at Losee Road Crossing

A dual 9' x 3' high RCB is proposed beneath Losee Road to convey flows from the Brooks Channel below the street. The dual 9' x 3' replaces an existing 8' x 3' RCB. The new dual RCB begins at "BR" Station 11+55.38 and continues to "BR" Station 12+90.10. A concrete encasement cap will be constructed to protect the existing shallow Losee Road sanitary sewer. The invert elevations of the proposed dual RCB will match existing.

3.2 Brooks Channel Upstream of Losee Crossing

The channel upstream of Losee Road is proposed to be widened from 12 to 20-feet rectangular in order to connect with the widened Brooks Channel Losee Road crossing. Widening begins at "BR" Station 10+43.34 and continues immediately upstream of Losee Road at Station 11+55.38. The channel wall height will match that of the existing walls (approximately 6-feet) at station "BR" 10+43.34 and tapers down to a height of 5-feet max.

3.3 Brooks Channel Downstream of Losee Road

The geometry for the channel downstream of the Losee Road crossing is proposed to be modified to a 43' wide rectangular section in order to accommodate the two 9'x3' RCBs conveying flows from Brooks Channel as well as the outlet of the 7'x3'RCB from the local Losee Road Storm Drain Facility. The maintenance access ramp tying into the channel is also proposed to be reconstructed into a rectangular section that ties into the reconstructed channel. The rectangular channel section gradually transitions into an 18' wide by 4.75' high rectangular channel section downstream of the maintenance ramp tie in point from "BR" Station 13+72.07 to "BR" Station 16+57.52.

The side walls of the 18' wide rectangular channel vary in height from 4.75' to 9' between stations "BR" 16+57.52 to "BR" 17+60.46 in order to match the grade to the north and south of the channel as well as connect to the proposed culvert headwall. The channel width begins to transition at station "BR" 17+60.46 from 18' to 27' wide to match the new headwall with entrances to both the 8-foot diameter steel pipe storm drain crossing and the 8' x 4' RCB

extension. A side channel drainage notch is provided in the southern channel wall between stations "BR" 16+75.14 to "BR" 16+85.14 in order to provide positive drainage for parcel APN# 139-14-202-011, which is located south of the channel. In addition to the drainage notch, grading of a drainage swale is proposed within this property to properly convey flows into the channel.

3.4 Brooks Confluence at Central Freeway Channel

The existing Brooks Channel geometry changes downstream of the Losee Road crossing from a rectangular to trapezoidal shape (8-foot wide bottom with varying side slopes, 1.5H:1V to 2H:1V). The trapezoidal channel is concrete lined for 375-feet to the east of Losee and then transitions to an earthen channel. In general, the first 190-feet of concrete lining within the trapezoidal section appears to be in fair condition. The remaining segment of the lining is in poor condition and heavily deteriorated. Heavy and intrusive vegetation exists through the earthen segment of the channel, immediately upstream of the UPRR crossing. As the alignment approaches the UPRR tracks, the channel geometry varies and is irregular. An existing 8-foot x 4-foot RCB culvert with headwall convey flows within the channel beneath the UPRR tracks and discharges into the Central Freeway Channel. The culvert discharges the flow with a concrete 90 degree bend structure that protrudes within the existing Central Freeway Channel. An existing UPRR access road crosses the entrance to the 8' x 4' RCB, creating a wide channel section before the sudden constriction at the crossing.

Based on the complexity of removing and replacing the existing RCB crossing, the existing 8' x 4' RCB culvert is protected in place and one 8' diameter parallel steel pipe storm drain crossing is proposed. The new 8' diameter steel pipe storm drain crossing would be installed by jack and bore or other appropriate tunneling construction methods. The existing 8' x 4' RCB is proposed to be extended by 20' to the west where both culvert upstream inlets are tied in with a new concrete headwall at the edge of the UPRR right of way.

Due to the additional storm drain crossing, the Central Freeway Channel geometry is proposed to be reconfigured at the confluence to accept both incoming culverts. The channel confluence wall heights account for freeboard based on hydraulics and flow regime. The confluence geometry is described as follows beginning from upstream to the downstream end:

- Existing trapezoidal channel is transitioned into a 32' wide by 12' high rectangular channel section; the rectangular channel ties into the existing 8' x 4' RCB outlet structure vein wall

- The 32' wide by 12' high rectangular channel tapers to a 40' wide by 12' high channel section downstream of the 8' x 4' RCB outlet.

- The 40' wide by 12' high rectangular channel transitions into a 50' wide by 12' high rectangular channel section downstream of the new 8-foot diameter steel pipe storm drain side channel

- The 50’ wide by 12’ high rectangular channel transitions back to the existing trapezoidal channel geometry.

3.5 Losee Road Local Storm Drain

The Brooks Channel crossing beneath Losee Road is located within a low point (sag vertical curve) that becomes heavily inundated with runoff during storm events. To alleviate flooding within this area, a local storm drain system is proposed extending northeasterly for approximately 417-linear feet. On grade curb and grate inlets are sized and proposed north east of the low point to capture a portion of the 10-year flow in order to achieve dry lane. The storm drain outlet ties into a proposed shared headwall with the proposed Losee Road dual 9’ x3’ RCB crossing.

The local storm drain facility consists of the following facilities:

- 233-linear feet of 7-foot wide by 3-foot high RCB extending northeasterly within Losee Road
- 85-linear feet of 36” RCP
- 71-linear feet of 30” RCP
- 197-linear feet of 24” RCP
- 31-linear feet of 18” RCP
- Three on grade inlets are connected to the local storm drain system and sidewalk under drains to drain the low point.

4.0 CLOMR Hydraulics

A HEC-RAS analysis was prepared for Brooks Channel for both the existing and proposed conditions. The hydraulic software model utilized for analysis of the Brooks Channel alignment is the U.S. Army Corps of Engineers (USCOE) HEC-RAS. The Losee Road Storm Drain was modeled using Water Surface Pressure Gradient (WSPG) developed by the Los Angeles County Flood Control District. WSPG utilizes the energy equation methodology for closed conduit flow and the standard step method for open channel flow. The following Manning's Roughness coefficients were utilized in the analyses:

Table 4-1: Roughness Coefficient Summary

Surface Condition	Manning's Roughness Coefficient "n"
Concrete Pavement & Pipe	0.013
Clean Earth	0.025
Rip Rap	0.035
Earth with heavy grass and vegetation	0.050

A data CD is provided in **Appendix H**, which includes all electronic files for the hydraulic models performed with this CLOMR, as well as the existing and proposed SFHA boundary files in DWG and SHP format.

4.1 Existing Condition Channel Hydraulics

A HEC-RAS (file: *BrooksFGAnalysis.prj Plan-26*) analysis was performed for the Brooks Channel alignment starting at the Mayflower Cul-de-Sac and extending east to the UPRR track embankment. Clark County Nevada geographic information system (GIS) 5- and 25-foot interval topography from 2005 was used to cut the HEC-RAS cross sections. County topography was supplemented with additional spot cross section surveys for the concrete portions of the channel between North 5th Street and the UPRR tracks. This existing condition analysis was run using a mixed flow regime with the ultimate condition flows determined in the hydrology analysis. The boundary conditions are normal depth based on bed slope at the upstream end and a computed tail water elevation at the downstream end. A downstream boundary condition water surface elevation was computed by performing an HY8 culvert analysis of the existing 8'x4' RCB crossing beneath the UPRR tracks.

The runoff flow rate within the existing Central Freeway Channel was referenced from the *Freeway Channel TM-1*.

The water surface boundary extent and base flood elevation (BFE) results reported by HEC-RAS were exported and transposed to **Figures 5** within **Appendix A**. All pertinent channel analyses and culvert calculations are provided in **Appendix C**.

4.2 Proposed Condition Channel Hydraulics

In the proposed condition, it is assumed that the Brooks Channel has been constructed, along with the 96" diameter steel pipe underneath the rail road and the accompanying Central Freeway Channel confluence structure. The headwater at the entrance for both the 8'x4' RCB and the 96" diameter steel pipe was calculated by performing energy loss calculations. Each barrel conveys a portion of the Brooks Channel watershed peak flow. The portion of flow conveyed within each barrel is determined based on the energy losses for each conduit required to create an equal upstream headwater elevation across the entrance headwall.

The tail water for the improved crossing energy loss calculations is referenced from the WSPG analysis for Central Freeway Channel. The confluence geometry at the Brooks Channel junction is incorporated into the Central Freeway Channel Analysis WSPG to determine the crossing tail water elevation. It is assumed that that the Cheyenne Avenue interchange culvert crossing is upsized according to the CCRFCD MPU Facility LV 0051, as well as the channel segment from Cheyenne Avenue to the Brooks Channel confluence (Facility LV 0079). **Figure 8** provided in **Appendix A** depicts the confluence channel station/cross section locations. Two separate junction cards are modeled in WPSG, one for each of the crossings.

Since the Brooks and Central Freeway Channel watershed peak within 30 minutes of each other, the WSPG hydraulic analysis is modeled under two scenarios:

1. WSPG Model "*FWCI1.out*": Brooks Channel Watershed peak flow through improved UPRR crossing (Q100 = 869 cfs); Freeway Channel watershed attenuated flow through improved confluence (Q100 = 2,357 cfs.

2. WSPG Model "*FWCI2.out*" Brooks Channel Watershed attenuated flow through improved crossing (Q100 = 551 cfs); Freeway Channel watershed peak flow through improved confluence (Q100 = 3,915 cfs).

Results from the confluence WSPG hydraulic analyses are presented in **Table 4-2**.

Table 4-2: Improved Central Freeway Channel Water Surface Elevation at Brooks Channel Confluence Summary

Scenario	WSPG Model	Crossing Facility	WSPG Station	Freeway Channel Water Surface Elevation (NAVD 88 Datum, feet)	Flow Depth (ft)
1	FWCI1.out	Ex 8'x4' RCB	67+72.84	1912.32	7.91
		96" Diameter Pipe	67+17.21	1912.24	7.93
2	FWCI2.out	Ex 8'x4' RCB	67+72.84	1914.43	10.02
		96" Diameter Pipe	67+17.21	1914.59	10.28

Similar to the channel confluence analysis, two separate scenarios were analyzed for the improved crossing energy loss calculations.

1. Brooks Channel watershed peak flow through the improved crossing; Central Freeway Channel watershed attenuated flow through improved confluence.

2. Brooks Channel Watershed attenuated flow through improved crossing, Central Freeway Channel watershed peak flow through improved confluence.

Results from the energy loss computations are presented in **Table 4-3**.

Table 4-3: Improved Central Freeway Channel Water Surface Elevation at Brooks Channel Confluence Summary

Scenario	Crossing Facility	UPRR Crossing Headwater Elevation (NAVD 88 Datum, feet)	UPRR Crossing Headwater Elevation (NAVD 88 Datum, feet)
1	Ex 8-foot by 4-foot RCB	1915.40	7.56
	96" Diameter Pipe	1915.70	7.07
2	Ex 8-foot by 4-foot RCB	1915.80	7.97
	96" Diameter Pipe	1915.80	7.43

The worst case computed UPRR culvert crossing headwater elevation (1915.80-feet) is used as the downstream boundary condition for the post improvement Brooks Channel HEC-RAS analysis (*BrooksFGAnalysis.prj Plan-25*). The post improvement Brooks Channel HEC-RAS analysis cross sections reflect the proposed channel geometry.

Based on the proposed condition, the storm flows are contained within the channel. The proposed condition and BFE's resulting from the HEC-RAS analysis are summarized in **Figure 6** and a comparison in BFE between existing and proposed conditions is summarized in Section 4.4 of this report. An annotated FEMA FIRM is provided as **Figure 7.** All aforementioned figures are provided in **Appendix A**. Pertinent WSPG and channel analyses along with drop

inlet calculations, lateral analyses, and street normal depth calculations are provided in **Appendix C**.

4.3 Proposed Condition Local Storm Drain

In the proposed condition, it is assumed that the storm drain system is constructed within Losee Road. A WSPG analysis (*LOSSD100.out*) was performed for the Losee Road storm drain system. The downstream boundary condition for the Losee Road storm drain is referenced from the Brooks Channel HEC-RAS analysis. **Figure 9** in **Appendix A** depicts the location of the storm drain system and summarizes inlet interception capacities. Pertinent storm drain analyses, drop inlet calculations, and street normal depth calculations are provided in **Appendix C**.

4.4 Pre and Post Construction Comparison

The results of both existing versus proposed conditions BFE's are summarized in **Table 4-3** below:

Table 4-3: BFE Summary

HEC-RAS Reference Number	HEC-RAS Cross Section	Existing Condition BFE (feet NAVD88)	Proposed Condition BFE (feet NAVD88)	BFE Difference (feet)
1	3398.92	1976.41	1976.41	0.00
2	3373.92	1975.72	1975.76	0.04
3	3348.92	1974.98	1975.01	0.03
4	3323.92	1974.18	1974.16	-0.02
5	3298.92	1975.16	1975.18	0.02
6	3273.6	1975.18	1975.21	0.03
7	3248.92	1975.18	1975.21	0.03
8	3223.92	1975.17	1975.2	0.03
9	3210.22	1975.14	1975.16	0.02
10	3198.92	1975.10	1975.05	-0.05
11	3173.92	1974.98	1974.98	0.00
12	3148.92	1974.62	1974.62	0.00
13	3098.95	1968.32	1968.32	0.00
14	3073.97	1963.45	1963.45	0.00
15	3048.96	1958.55	1958.55	0.00
16	3023.98	1954.97	1954.97	0.00
17	2998.98	1954.29	1954.29	0.00
18	2973.99	1952.83	1952.83	0.00
19	2948.99	1951.86	1951.86	0.00
20	2923.99	1951.45	1951.45	0.00
21	2898.97	1951.45	1951.45	0.00

HEC-RAS Reference Number	HEC-RAS Cross Section	Existing Condition BFE (feet NAVD88)	Proposed Condition BFE (feet NAVD88)	BFE Difference (feet)
22	2874.04	1951.42	1951.42	0.00
23	2849.1	1950.85	1950.85	0.00
24	2824.82	1949.75	1949.75	0.00
25	2799.78	1948.93	1948.93	0.00
26	2774.63	1948.21	1948.21	0.00
27	2750.44	1948.23	1948.23	0.00
28	2725.42	1947.23	1947.23	0.00
29	2700.17	1945.80	1945.8	0.00
30	2675.8	1946.78	1946.78	0.00
31	2650.79	1946.73	1946.73	0.00
32	2626.19	1946.40	1946.4	0.00
33	2601.78	1946.20	1946.2	0.00
34	2576.59	1945.95	1945.95	0.00
35	2551.36	1945.38	1945.38	0.00
36	2526.44	1943.55	1943.55	0.00
37	2501.48	1937.68	1937.68	0.00
38	2485.61	1930.78	1930.78	0.00
39	2399.9	1929.90	1929.86	-0.04
40	2376.49	1929.79	1929.75	-0.04
41	2351.49	1929.55	1929.52	-0.03
42	2301.49	1929.06	1929.03	-0.03
43	2276.48	1928.85	1928.82	-0.03
44	2226.48	1928.33	1928.31	-0.02
45	2201.48	1928.06	1928.04	-0.02
46	2176.48	1927.80	1927.79	-0.01
47	2151.48	1927.59	1927.58	-0.01
48	2126.48	1927.29	1927.29	0.00
49	2101.47	1927.03	1927.02	-0.01
50	2076.46	1926.75	1926.75	0.00
51	2051.45	1926.61	1926.61	0.00
52	2026.52	1926.31	1926.3	-0.01
53	2001.52	1926.01	1926.01	0.00
54	1976.52	1925.73	1925.72	-0.01
55	1951.52	1924.81	1924.81	0.00
56	1876.56	1927.82	1924.67	-3.15
57	1851.56	1927.86	1924.38	-3.48
58	1826.56	1927.87	1924.19	-3.68
59	1801.56	1927.89	1923.88	-4.01
60	1776.56	1927.91	1923.57	-4.34
61	1751.58	1927.94	1922.98	-4.96
62	1726.57	1927.80	1922.47	-5.33

HEC-RAS Reference Number	HEC-RAS Cross Section	Existing Condition BFE (feet NAVD88)	Proposed Condition BFE (feet NAVD88)	BFE Difference (feet)
63	1701.57	1926.51	1922.55	-3.96
64	1667.4	1927.22	1921.79	-5.43
65	1529.8	1923.23	1919.87	-3.36
66	1501.53	1921.42	1919.65	-1.77
67	1476.5	1920.21	1918.67	-1.54
68	1451.37	1922.75	1917.69	-5.06
69	1426.37	1922.82	1917.08	-5.74
70	1401.35	1922.86	1916.5	-6.36
71	1376.2	1922.87	1915.92	-6.95
72	1351.17	1922.92	1915.35	-7.57
73	1326.16	1922.94	1914.77	-8.17
74	1301.14	1922.95	1914.21	-8.74
75	1276.14	1922.96	1913.66	-9.3
76	1251.15	1922.97	1913.11	-9.86
77	1226.18	1922.97	1912.55	-10.42
78	1201.34	1922.97	1912.01	-10.96
79	1151.6	1922.97	1911.94	-11.03
80	1101.71	1922.97	1915.56	-7.41
81	1076.62	1922.97	1915.68	-7.29
82	1051.67	1922.97	1915.72	-7.25
83	1034.38	1922.97	1915.8	-7.17

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5.0 Environmental Screening Analysis and Permits

An environmental screening analysis report (environmental report) was prepared by Newfields on behalf the City of North Las Vegas for the Brooks Channel Flood Control Project. This environmental report was submitted to the United States Army Corps of Engineers (USACOE) as part of the formal request for a 404 Permit. The USACOE distributed the 404 permit application and environmental report to other federal and state agencies, such as the U.S. Fish and Wildlife Services (USFWS) and the Nevada State Historic Preservation Office (SHPO) for review and comment. After the 30 day review period by the copied federal and state agencies, the USACOE responded by issuing the 404 Permit (File No. SPK-2014-00276-SG) in June of 2014. A copy of the USACOE 404 Permit and the Newfields environmental report is included in the attached CD as **Appendix F**.

6.0 Notification to Property Owners

A notification letter has been sent to property owners adjacent to the Brooks Channel alignment which may be affected by widening and shifting of the base (1-percent-annual-chance) floodplain. The notification letter is provided in both English and Spanish. This notification letter has been mailed to property owners by the City of North Las Vegas Project Manager (Mr. Dan Le, PE, CFM) overseeing the Brooks Channel Flood Control Project. A copy of the notification letter is attached as **Appendix G**.

7.0 Conclusion

The Brooks Channel Flood Control Project and Central Freeway Channel segments LV 0051 and LV 0079 **(shown in Figure X)**, when constructed, will remove the existing SFHA "Zone A" depicted on Panel Number 32003C2160F located along the channel alignment, between Losee Road Crossing and the UPRR tracks. The proposed BFE's are substantially lower when compared to the existing BFE's.

The portion of the SFHA "Zone A" located east and west of Losee Road Crossing is mapped incorrectly as shown in the FEMA FIRM number 32003C2160F. The 100-year HEC-RAS hydraulic analysis model for the existing conditions indicated the 8'x3' RCB at the Losee Road crossing creates a back water effect causing water to flood Losee Road, overtopping both curbs and affecting a larger area than previously mapped. The proposed conditions indicate the dual

9’x3’ RCB culverts and channel improvements contain the 100-year projected flows within the Brooks Channel.

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8.0 References

Clark County Regional Flood Control District (CCRFCD) *Hydrologic Criteria Drainage Design Manual* (HCCDM). 1999

Clark County Regional Flood Control District (CCRFCD) *Las Vegas Valley Master Plan Update* (MPU). 2008

Louis Berger Group (LBG), *90% Technical Drainage Study for the North 5th Street Improvements, Losee Road to Cheyenne Avenue*. March 2012.

MWH Americas, Inc., *Brooks Channel Design Hydrology Technical Memorandum (TM) No. 1*. August 2012

National Resources Conservation Service (NRCS), *Soil Survey of the Las Vegas Valley Area (Soil Survey No. 788).* 1988

MWH Americas, Inc., *Final Technical Memorandum No. 1 Central Freeway Channel Hydrologic/ Hydraulic Analysis Memorandum*. December 2013

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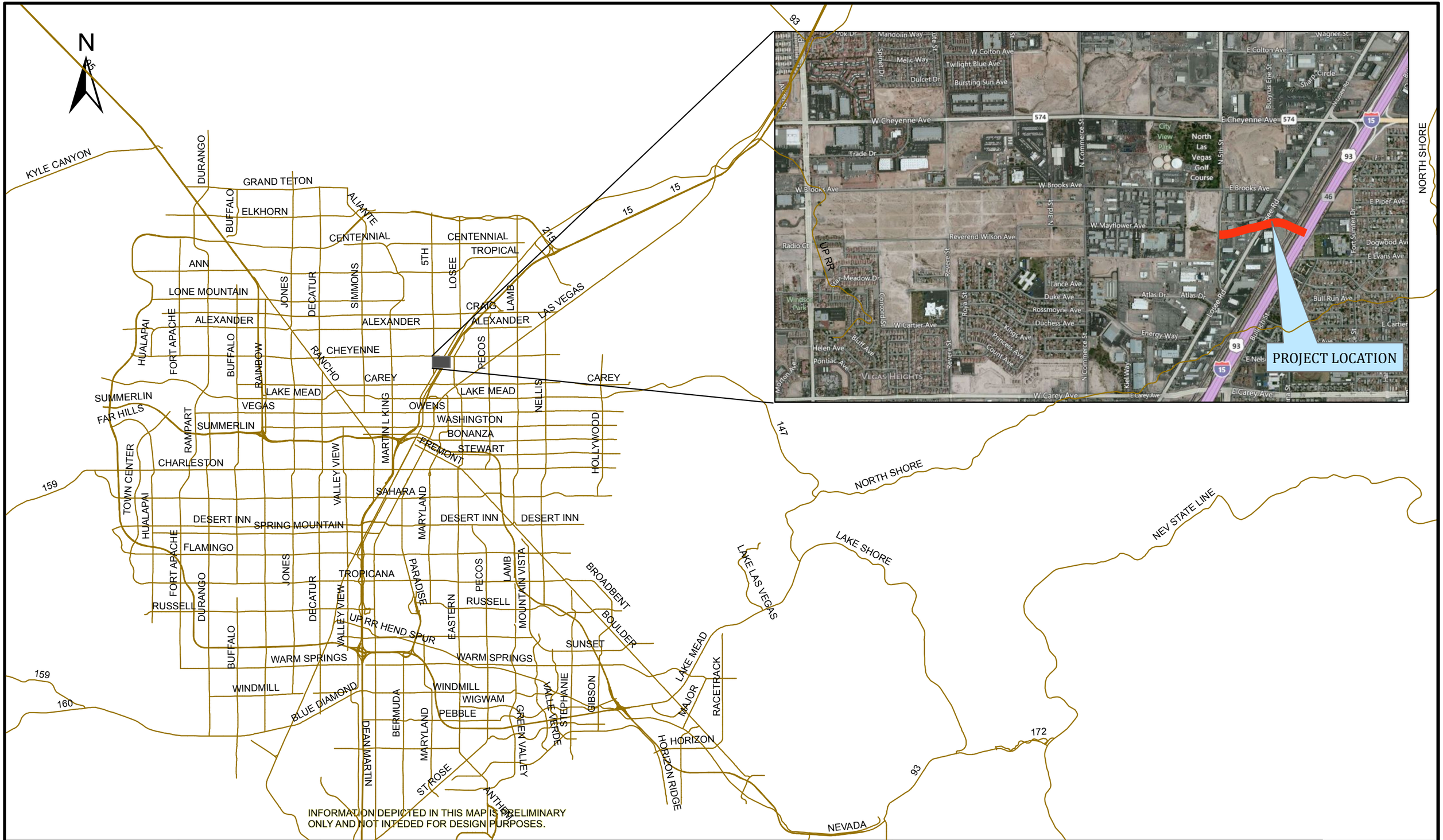
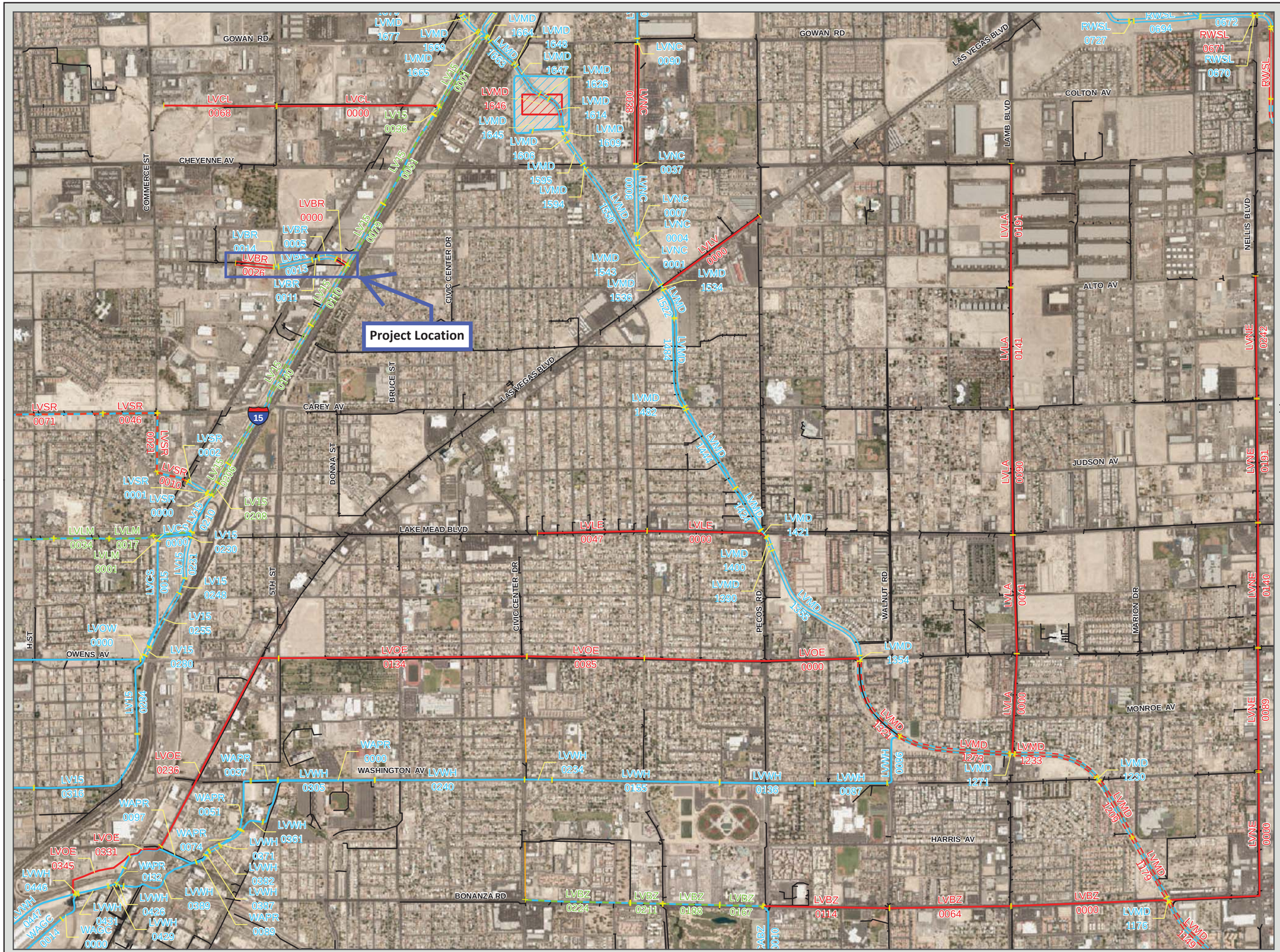
Appendix A



INFORMATION DEPICTED IN THIS MAP IS PRELIMINARY ONLY AND NOT INTENDED FOR DESIGN PURPOSES.

MWH BUILDING A BETTER WORLD	Scale: 1" = 16,500'	Drawn By: SM	**City of North Las Vegas** **Brooks Flood Control Channel**
	Job #: BROOKS CHAN	Checked By: RV	**Figure 1:** **Location Map**
	Date: 08/06/12	Designed By: N/A	



REGIONAL FLOOD CONTROL DISTRICT

2013
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

FIGURE F- 27
FLOOD CONTROL FACILITIES

LEGEND

- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Local Proposed Facilities
- Detention Basin

- Stormdrain
- Lined Channel
- Unlined Channel
- Levee/Dike
- Natural Wash/Floodway
- ID-Mile Separator

Remove & Replace/Parallel Facilities

Category A	Category B
Channel	Channel
Stormdrain	Stormdrain

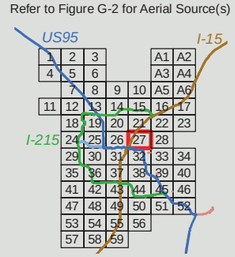
REPORT - FIGURE 1A
SHEET 1 OF 2

N

0 500 1,000 2,000 3,000
Feet

Scale: 1 inch = 2,000 feet

Refer to Figure G-2 for Aerial Source(s)



ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
CABZ		CEDAR AVENUE - BONANZA						
0010	E	60" RCP	1450					0.30
LV15		FREEWAY CHANNEL						
0000	E	Conc Chnl 24.5'W 10'D 1.5:1 SS (Replace w/ LV150001)	1800	4778	2CLV1E-3	CWEST4	11.12	0.18
0001	P0	Conc Chnl 20'W 10'D 1.5:1 SS (Replaces LV150000)	1859	4778	2CLV1E-3	CWEST4	11.12	0.12
0035	E	Conc Chnl 20'W 10'D 1:1 SS (Replace w/ LV150036)	200	4301	2CLV1D-5	CWEST4	10.22	0.18
0036	P0	Conc Chnl 20'W 10'D 1.5:1 SS (Replaces LV150035)	799	4301	2CLV1D-5	CWEST4	10.22	0.16
0050	E	2: 8' X 10' RCB (Replace w/ LV150051)	2200	4301	2CLV1D-5	CWEST4	10.22	0.75
0051	P0	2: 13' X 10' RCB (Replaces LV150050)	1504	4301	2CLV1D-5	CWEST4	10.22	0.75
0078	E	Conc Chnl 20'W 10'D 1:1 SS (Replace w/ LV150079)	1600	4301	2CLV1D-5	CWEST4	10.22	0.18
0079	P0	Conc Chnl 20'W 10'D 1.5:1 SS (Replaces LV150078)	1608	4301	2CLV1D-5	CWEST4	10.22	0.14
0109	E	Conc Chnl 20'W 10'D 1:1 SS (Replace w/ LV150110)	4300	3953	CLV1D-4	CWEST4	9.42	0.18
0110	P0	Conc Chnl 15'-20'W 10'D 1.5:1 SS (Replaces LV150109)	1576	3953	CLV1D-4	CWEST4	9.42	0.11
0139	E	Conc Chnl 15'W 10'D 1.5:1 SS (Replace w/ LV150140)	3565	3953	CLV1D-4	CWEST4	9.42	0.18
0140	P0	Conc Chnl 15'W 10'D 1.5:1 SS (Replaces LV150139)	3565	3953	CLV1D-4	CWEST4	9.42	0.18
0190	E	Conc Chnl 20'W 10'D 1:1 SS	1500	3776	CW1C2	NW4SC	8.84	0.18
0206	P0	Conc Chnl 48'W 13'D 0:1 SS	329	3776	CW1C2	NW4SC	8.84	0.46
0208	P0	Confluence Structure 64'-48'W 10'-13'D 0:1 SS	298	3776	CW1C2	NW4SC	8.84	0.42
0210	E	3: 12' X 9' RCB	911	3123	CCVG24	NW3SC	7.07	0.25
0230	E	12' X 4.5' RCBC @ Lake Mead	177	1011	DRAILRD	NW3	5.22	1.16
0231	E	Conc Chnl 8'W 8'D 0:1 SS	900	1011	DRAILRD	NW3	5.22	2.50
0248	E	8' X 8' RCBC @ UPRR	350	1011	DRAILRD	NW3	5.22	1.34
0255	E	Conc Chnl 8'W 8'D 0:1 SS	1330	1011	DRAILRD	NW3	5.22	2.00
0280	E	Conc Chnl 30'W 8'D 0:1 SS	200	2022	CCVG10	NW3	5.22	2.00
0284	E	14' X 6' RCB	1790	1221	CVG10-C	NW3	4.84	0.50
0316	E	11' X 6' RCB	3010	985	CWA20-C	NW3	4.46	0.59
0372	E	9' X 6' RCB	1970	985	CWA20-C	NW3	4.46	0.66
LVBR		LAS VEGAS - BROOK						
0000	P1	Conc Chnl 12'W 4.5'D 2:1 SS	285	989	CLV1D-5	WEST3	0.80	2.90
0005	E	Conc Chnl 9'W 5'D 2:1 SS	375	989	CLV1D-5	WEST3	0.80	2.67
0011	E	11' X 3' RCBC @ Losee	150	989	CLV1D-5	WEST3	0.80	2.90
0013	E	Conc Chnl 12'W 4.5'D 2:1 SS	750	989	CLV1D-5	WEST3	0.80	1.50
0014	E	12' X 4' RCBC @ N. 5th St	100	989	CLV1D-5	WEST3	0.80	2.60
0026	P1	Conc Chnl 12'W 4.5'D 2:1 SS	850	989	CLV1D-5	WEST3	0.80	4.30
LVBZ		LAS VEGAS WASH - BONANZA						
0000	P1	2: 12' X 7' RCB	3400	1636	CBN15-C	SW3	2.40	0.40
0064	P1	2: 12' X 6' RCB	2630	1449	CBN12-C	SW3	2.12	0.40
0114	P1	2: 12' X 6' RCB	2740	1256	CBN10-C	SW3	1.79	0.40
0166	E	54" RCP (Replace w/ LVBZ0167)	1095	1051	CBN09	SW3	1.54	0.45
0167	P0	10' X 9' RCB (Replaces LVBZ0166)	1095	1051	CBN09	SW3	1.54	0.45
0187	E	48" RCP (Replace w/ LVBZ0188)	1235	1051	CBN09	SW3	1.54	0.71
0188	P0	9' X 9' RCB (Replaces LVBZ0187)	1235	1051	CBN09	SW3	1.54	0.71
0210	E	42" RCP (Replace w/ LVBZ0211)	704	911	CBN08	SW3	1.30	1.37
0211	P0	8' X 7' RCB (Replaces LVBZ0210)	704	911	CBN08	SW3	1.30	1.37
0223	E	36" RCP (Replace w/ LVBZ0224)	2275	722	CBN03	SW3	1.09	0.72
0224	P0	8' X 7' RCB (Replaces LVBZ0223)	2275	722	CBN03	SW3	1.09	0.72
LVCL		LAS VEGAS WASH - COLTON						
0000	P1	102" RCP	3600	1061	CLV1E-3	WEST3	0.90	1.50
0068	P1	96" RCP	2400	833	CLV1E-2	WEST3	0.71	1.70
LVCS		LAS VEGAS WASH - COMMERCE STREET						
0000	E	12' x 5' RCB	800	1330	CVG24	NW3	5.70	4.50
0015	E	12' x 5' RCB	2325	1330	CVG24	NW3	5.70	0.97
LVKC		LAS VEGAS WASH - KING CHARLES CHANNEL						
0000	E	Conc Chnl 35'W 10'D 0:1 SS	592	4633	CLV99B-7	CWEST5	13.76	0.40
0009	E	Conc Chnl 21.8'W 10'D 1.5:1 SS	3280	4633	CLV99B-7	CWEST5	13.76	0.40
LVLA		LAS VEGAS WASH - LAMB						
0000	P1	2: 13' X 9' RCB	2200	2293	CLVW03	WEST3	3.30	0.30
0041	P1	13' X 11' RCB	2600	2171	COA02	WEST3	3.07	0.58
0090	P1	13' X 11' RCB	2700	1953	CLW64-3	WEST3	2.65	0.44
0141	P1	13' X 10' RCB	2650	1680	CLW64-2	WEST3	2.12	0.38
0191	P1	12' X 9' RCB	2700	1494	CLW64-1	WEST3	1.61	0.56

ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
LVLE		LAKE MEAD DRAIN TO LAS VEGAS WASH						
0000	P1	12' X 8' RCB	2500	1030	CLV1B-2	WEST3	1.20	0.40
0047	P1	12' X 6' RCB	2400	845	CLV1B-1	WEST3	0.89	0.50
LVLM		LAS VEGAS WASH - LAKE MEAD						
0000	E	43"X 68" HERCP (Replace w/ LVLM0001)	847	994	CLM20-C	NW3SC	1.36	4.60
0001	P0	12' X 5' RCB (Replaces LVLM0000)	847	994	CLM20-C	NW3SC	1.36	4.60
0016	E	54" RCP (Replace w/ LVLM0017)	965	994	CLM20-C	NW3SC	1.36	4.38
0017	P0	12' X 5' RCB (Replaces LVLM0016)	965	994	CLM20-C	NW3SC	1.36	4.38
0033	E	60" RCP (Replace w/ LVLM0034)	1186	994	CLM20-C	NW3SC	1.36	1.62
0034	P0	12' X 5' RCB (Replaces LVLM0033)	1186	994	CLM20-C	NW3SC	1.36	1.62
0059	E	72" RCP (Replace w/ LVLM0060)	5952	994	CLM20-C	NW3SC	1.36	0.66
0060	P0	12' X 6' RCB (Replaces LVLM0059)	5952	994	CLM20-C	NW3SC	1.36	0.66
LVLV		LAS VEGAS BLVD DRAIN						
0000	P1	2: 10' X 9' RCB	2600	987	CLW075-4	WEST3	1.03	0.10
LVMD		LAS VEGAS WASH - MIDDLE						
1148	E	Earth Chnl 70'W 18'-20'D 1.5:1 SS (Replace w/ LVMD1149)	1675	13944	CCBN15-C	CLVWASH5	112.59	0.41
1149	P1	Conc Chnl 70'W 10'D 1.5:1 SS (Replaces LVMD1148)	1675	13944	CCBN15-C	CLVWASH5	112.59	0.41
1176	E	5 Span Bridge 110'W 20'D 2:1 SS @ Bonanza	120	12690	CLVW04-C	CLVWASH5	106.80	0.57
1178	E	Earth Chnl 30'W 18'-20'D 2:1 SS (Replace w/ LVMD1179)	1500	12690	CLVW04-C	CLVWASH5	106.80	0.57
1179	P1	Conc Chnl 60'W 9.5'D 2:1 SS (Replaces LVMD1178)	1500	12690	CLVW04-C	CLVWASH5	106.80	0.57
1208	E	Bank-Stab. Chnl 65'W 15'D 2:1 SS (Replace w/ LVMD1209)	1420	12690	CLVW04-C	CLVWASH5	106.80	0.32
1209	P1	Conc Chnl 60'W 10.5'D 2:1 SS (Replaces LVMD1208)	1420	12690	CLVW04-C	CLVWASH5	106.80	0.32
1230	E	4 Span Bridge 162'W 13'D @ Washington	105	12654	CCLVW03	CLVWASH5	106.53	0.73
1232	E	Bank-Stab. Chnl 48'W 8'D 2:1 SS (Replace w/ LVMD1233)	1900	12654	CCLVW03	CLVWASH5	106.53	0.73
1233	P1	Conc Chnl 90'W 8'D 0:1 SS (Replaces LVMD1232)	1900	12654	CCLVW03	CLVWASH5	106.53	0.73
1271	E	4 Span Bridge 94'W 10'-12'D 2:1 SS @ Lamb	120	11954	CCLVW01C	CLVWASH5	103.23	0.38
1272	E	Earth Chnl 80'W 10'D 2:1 SS (Replace w/ LVMD1273)	2400	11954	CCLVW01C	CLVWASH5	103.23	0.38
1273	P1	Conc Chnl 80'W 9'D 2:1 SS (Replaces LVMD1272)	2400	11954	CCLVW01C	CLVWASH5	103.23	0.38
1320	E	Gabion Chnl 100'W 10'D 2:1 SS (Replace w/ LVMD1321)	1950	8636	CCK-C1	CLVWASH5	100.94	0.38
1321	P1	Conc Chnl 80'W 7.5'D 2:1 SS (Replaces LVMD1320)	1950	8636	CCK-C1	CLVWASH5	100.94	0.38
1354	E	5 Span Bridge 110'W 7'-8'D 2:1 SS @ Owens	120	8504	2CLV1B-2	CCWEST5	78.09	0.58
1355	E	Gabion Chnl 100'W 10'D 2:1 SS	3122	8504	2CLV1B-2	CCWEST5	78.09	0.58
1390	E	Energy Dissipator	137	8291	CLW64-4	CCWEST5	76.89	0.10
1400	E	Conc Chnl 90'W 12'D 0:1 SS	173	8291	CLW64-4	CCWEST5	76.89	0.50
1421	E	2 Span Bridge 84'W 8'D @ Lake Mead	200	8291	CLW64-4	CCWEST5	76.89	0.60
1424	E	Conc Chnl 84'W 13'D 0:1 SS	1060	8291	CLW64-4	CCWEST5	76.89	0.34
1444	E	Conc Chnl 84'W 8'D 0:1 SS	2000	8291	CLW64-4	CCWEST5	76.89	0.34
1482	E	1 Span Bridge 99'W 7'D @ Carey	72	8291	CLW64-4	CCWEST5	76.89	1.00
1484	E	Conc Chnl 84'W 8'-9'D 0:1 SS	1950	8291	CLW64-4	CCWEST5	76.89	0.37
1522	E	Conc Chnl 95'W 8'D 0:1 SS	680	8241	2CLW1A-3	CCWEST5	76.53	0.53
1534	E	1 Span Bridge 72.5'W 7.5'D @ Las Vegas Blvd	120	8067	CLW1A-4	CCWEST5	74.91	0.88
1536	E	Conc Chnl 70'W 8'D 0:1 SS	455	8067	CLW1A-4	CCWEST5	74.91	0.49
1543	E	Confluence Structure	393	8067	CLW1A-4	CCWEST5	74.91	1.44
1550	E	Conc Chnl 90'W 7.5'D 0:1 SS	2150	7618	CHYPEAK	CCWEST5	73.97	0.45
1594	E	1 Span Bridge 90'W 5'D @ Cheyenne	125	7618	CHYPEAK	CCWEST5	73.97	0.71
1595	E	Conc Chnl 90'W 7'D 0:1 SS	581	7618	CHYPEAK	CCWEST5	73.97	0.40
1606	E	Transition Structure	144	7618	CHYPEAK	CCWEST5	73.97	0.40
1609	E	60' X 7.25' RCB with 2' Center Pier	222	7618	CHYPEAK	CCWEST5	73.97	0.40
1614	E	Conc Chnl 60'W 9'-11'D 0:1 SS	703	11998	CHYPKIN	CCWEST5	73.97	0.15
1626	E	Transition Structure	227	11998	CHYPKIN	CCWEST5	73.97	2.46
1643	E	64,000 cfs PMF Spillway (Replace w/ LVMD1644)		64000	CHYPKIN	CCWEST5	73.97	
1644	P1	Modify Spillway, raise height by 1' (Replaces LVMD1643)		64000	CHYPKIN	CCWEST5	73.97	
1645	E	456 ac-ft Cheyenne Peaking Basin		11998	CHYPKIN	CCWEST5	73.97	
1646	P1	Upgrade to 482 ac-ft Cheyenne Peaking Basin		11998	CHYPKIN	CCWEST5	73.97	
1647	E	Conc Chnl 120'D 10'W 0:1 SS	800	11998	CHYPKIN	CCWEST5	73.97	0.4
1648	E	3 Span Bridge 95'W 8'-10'D 2:1 SS @ Civic Center	120	11998	CHYPKIN	CCWEST5	73.97	0.70
1663	E	Conc Chnl 80'W 10'D 2:1 SS	700	11966	3C99B-7	CCWEST5	73.66	0.70
1664	E	3 Span Bridge 75'W 10'D 2:1 SS @ I-15	120	11966	3C99B-7	CCWEST5	73.66	0.70
1665	E	Transition Structure	200	7358	CLV99B-5	WEST5	48.77	0.36
1669	E	Free Span Bridge 55'W 12'D @ UPRR	40	7358	CLV99B-5	WEST5	48.77	0.36
1670	E	Conc Chnl 82'W 10'D 0:1 SS	370	7358	CLV99B-5	WEST5	48.77	1.69

ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
LVMD		LAS VEGAS WASH - MIDDLE						
1677	E	Conc Chnl 80'W 10'D 2:1 SS	119	7358	CLV99B-5	WEST5	48.77	0.37
1679	E	4 Span Bridge 100'W 12'D 2:1 SS @ Losee	120	7358	CLV99B-5	WEST5	48.77	0.37
1680	E	Conc Chnl 80'W 10'D 2:1 SS	480	7358	CLV99B-5	WEST5	48.77	0.37
LVNC		LAS VEGAS WASH - N CHANNEL						
0001	E	18' X 6' RCB	173	1182	CLW100	CWEST5	13.62	0.45
0004	E	Conc Chnl 18'-21'W 8'D 0:1 SS	216	1182	CLW100	CWEST5	13.62	1.15
0007	E	Drop Structure 18'W 2.8'D 3:1 SS	50	1182	CLW100	CWEST5	13.62	0.70
0008	E	Conc Chnl 18'W 10'D 2:1 SS	1385	1182	CLW100	CWEST5	13.62	0.70
0037	E	2: 132" CMPC @ Cheyenne	120	1182	CLW100	CWEST5	13.62	0.70
0038	P1	Conc Chnl 12'W 5.5'D 2:1 SS	2590	1182	CLW100	CWEST5	13.62	0.70
0090	E	3: 12' X 6' RCB	120	1182	CLW100	CWEST5	13.62	0.70
0091	E	14' X 6' RCAP	1325	1182	CLW100	CWEST5	13.62	0.52
LVNE		LAS VEGAS WASH - NELLIS						
0000	P1	2: 13' X 10' RCB	4675	2303	CNEL02-C	WEST3	3.39	0.20
0089	P1	13' X 12' RCB	2700	2187	CNEL01-C	WEST3	3.11	0.37
0140	P1	13' X 12' RCB	2700	2094	COA03-C	WEST3	2.83	0.37
0191	P1	12' X 11' RCB	2700	1745	CLV53-2	WEST3	2.27	0.40
0242	P1	12' X 9' RCB	2700	1367	C321A-3	WEST3	1.72	0.56
LVOE		OWENS AVENUE - EAST						
0000	P1	15' X 12' RCB	4700	2728	CK-C1	SW5	24.24	0.47
0085	P1	13' X 12' RCB	2540	2657	CG	SW5	23.92	0.62
0134	P1	12' X 11' RCB	5380	2607	CE-C	SW5	23.69	1.00
0236	P1	13' X 8' RCB	5000	2427	CH-C1	SW5	23.08	1.50
0331	P1	13' X 11' RCB	750	2369	DLVOE	SW5	22.79	0.60
0345	P1	13' X 11' RCB	1685	2369	DLVOE	SW5	22.79	0.60
LVOW		OWENS AVENUE SYSTEM						
0000	E	10' X 6' RCB	145	1089	CLM16B-C	NW3	2.40	0.76
0003	E	96" RCP	7500	1089	CLM16B-C	NW3	2.40	0.70
LVSR		LAS VEGAS WASH - SMOKE RANCH						
0000	E	Conc Chnl 22'W 8'D 0:1 SS	79	1244	CS1-C	NW3SC	1.42	2.32
0001	E	Free Span Bridge 22'W 10'D	50	1244	CS1-C	NW3SC	1.42	2.32
0002	E	Conc Chnl 22'W 8'D 0:1 SS	468	1244	CS1-C	NW3SC	1.42	2.32
0009	E	72" RCP (Replace w/ LVSR0010)	702	1244	CS1-C	NW3SC	1.42	2.32
0010	P1	10' X 6' RCB (Replaces LVSR0009)	702	1244	CS1-C	NW3SC	1.42	2.32
0020	E	60" RCP (Replace w/ LVSR0021)	1320	1244	CS1-C	NW3SC	1.42	3.03
0021	P1	10' X 5' RCB (Replaces LVSR0020)	1320	1244	CS1-C	NW3SC	1.42	3.03
0045	E	54" RCP (Replace w/ LVSR0046)	1180	1244	CS1-C	NW3SC	1.42	3.41
0046	P1	10' X 5' RCB (Replaces LVSR0045)	1180	1244	CS1-C	NW3SC	1.42	3.41
0070	E	66" RCP (Replace w/ LVSR0071)	4118	1244	CS1-C	NW3SC	1.42	0.73
0071	P1	10' X 9' RCB (Replaces LVSR0070)	4118	1244	CS1-C	NW3SC	1.42	0.73
LVWH		WASHINGTON AVENUE CHANNEL						
0086	E	3: 12' X 8' RCB	1210	3851	CLVW01-C	SW5SC	16.77	0.35
0087	E	3: 12' X 8' RCB	1560	3851	CLVW01-C	SW5SC	16.77	0.33
0136	E	3: 12' X 8' RCB	2063	3771	CQ-C	SW5SC	16.53	0.33
0155	E	3: 10' X 8' RCB	3630	3684	CP-C	SW5SC	16.28	0.68
0234	E	2: 12' X 8' RCB	600	3591	CN-C	SW5SC	15.97	0.71
0240	E	2: 12' X 8' RCB	3240	3591	CN-C	SW5SC	15.97	1.50
0305	E	12' X 8' RCB	2950	1607	(1/2) CV1-C	SW5SC	15.16	2.93
0361	E	12' X 8' RCB	548	1607	(1/2) CV1-C	SW5SC	15.16	0.90
0371	E	12' X 8' RCB	590	1607	(1/2) CV1-C	SW5SC	15.16	2.62
0382	E	Conc Chnl 50'W 10'D 0:1 SS	260	1607	(1/2) CV1-C	SW5SC	15.16	0.80
0387	E	12' X 8' RCB	125	1607	(1/2) CV1-C	SW5SC	15.16	7.43
0389	E	12' X 8' RCB	2110	1607	(1/2) CV1-C	SW5SC	15.16	0.90
0426	E	16' X 8' RCB	150	1607	(1/2) CV1-C	SW5SC	15.16	1.08
0429	E	Splitter Structure (2: 12' X 8' RCB)	190	2870	DCLC21	SW5	22.79	1.90
0431	E	3: 14.33' X 10' RCB	665	2870	DCLC21	SW5	22.79	0.15
0446	E	Junction Structure	69	2870	DCLC21	SW5	22.79	0.15
0447	E	3: 14.33' X 10' RCB	1955	4978	CCAL93	SW5	22.19	0.15

ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
RWSL		RANGE WASH - SLOAN						
0577	P1	Conc Chnl 40'W 8'D 2:1 SS (Replaces RWSL0576)	3000	5187	CCSLNL	RW4SC	8.62	0.38
0670	E	3: 10' X 7' RCBC @ Nellis	100	3178^	CCSLNL^	RW4SC	8.62	0.56
0671	P1	Add 3: 12' X 7' RCBC @ Nellis	100	2009^	CCSLNL^	RW4SC	8.62	0.56
0672	E	Conc Chnl 14'W 8'D 1.5:1 SS	1130	2924	CC47C-4	RW3SC	3.94	0.56
0694	E	Conc Chnl 10'W 8'D 1.5:1 SS	1500	1696	C47C4	RW3SC	2.40	0.56
0727	E	3: 10' X 8' RCBC	100	1601	C307E3	RW3SC	2.25	0.56
0728	E	Conc Chnl 12'W 8.5'D 1.5:1 SS	1345	1601	C307E3	RW3SC	2.25	0.56
SLEB		SLOAN CHANNEL EAST BRANCH						
0000	E	Conc Chnl 10'W 8'D 1.5:1 SS	840	1322	C310B2	RW3	1.54	0.43
WAGC		WASHINGTON AVENUE CHANNEL - GRAND CENTRAL						
0000	E	2: 12' X 4' RCB	700	557	LC21	SW3	0.60	0.20
0014	E	1: 12' X 4' RCB and 1: 11' X 4' RCB	2440	557	LC21	SW3	0.60	0.20
WAPR		WASHINGTON AVENUE CHANNEL PARALLEL						
0000	E	12' X 8' RCB	2100	1607	(1/2) CV1-C	SW5SC	15.16	2.20
0037	E	12' X 8' RCB	590	1607	(1/2) CV1-C	SW5SC	15.16	5.60
0051	E	12' X 8' RCB	1200	1607	(1/2) CV1-C	SW5SC	15.16	0.80
0074	E	12' X 8' RCB	550	1607	(1/2) CV1-C	SW5SC	15.16	1.60
0089	E	14' X 8' RCB	395	1607	(1/2) CV1-C	SW5SC	15.16	0.55
0097	E	14' X 8' RCB	1835	1607	(1/2) CV1-C	SW5SC	15.16	1.24
0132	E	2: 9' X 8' RCB	387	1607	(1/2) CV1-C	SW5SC	15.16	1.67

REPORT - FIGURE 1A
SHEET 2 OF 2

** The HEC-1 node shown identifies the controlling concentration point for the associated facility and is located upstream of this facility due to decreasing peak flow with increasing tributary area caused by storm distribution transitions, depth area reduction factors, or attenuation of flow from routing.*

*** As-built or design slopes were used when available. All other slopes are based on existing topography. The user should verify the facility slope listed prior to performing any facility specific analysis.*

^ For parallel facilities, the existing facility flow equals its normal depth capacity, and the proposed parallel facility flow equals the remaining flow (i.e., HEC-1 Node flow = existing facility normal depth capacity + proposed parallel facility flow).

REGIONAL FLOOD CONTROL DISTRICT

2013 LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

FACILITY INVENTORY
FIGURE F - 27

LEGEND

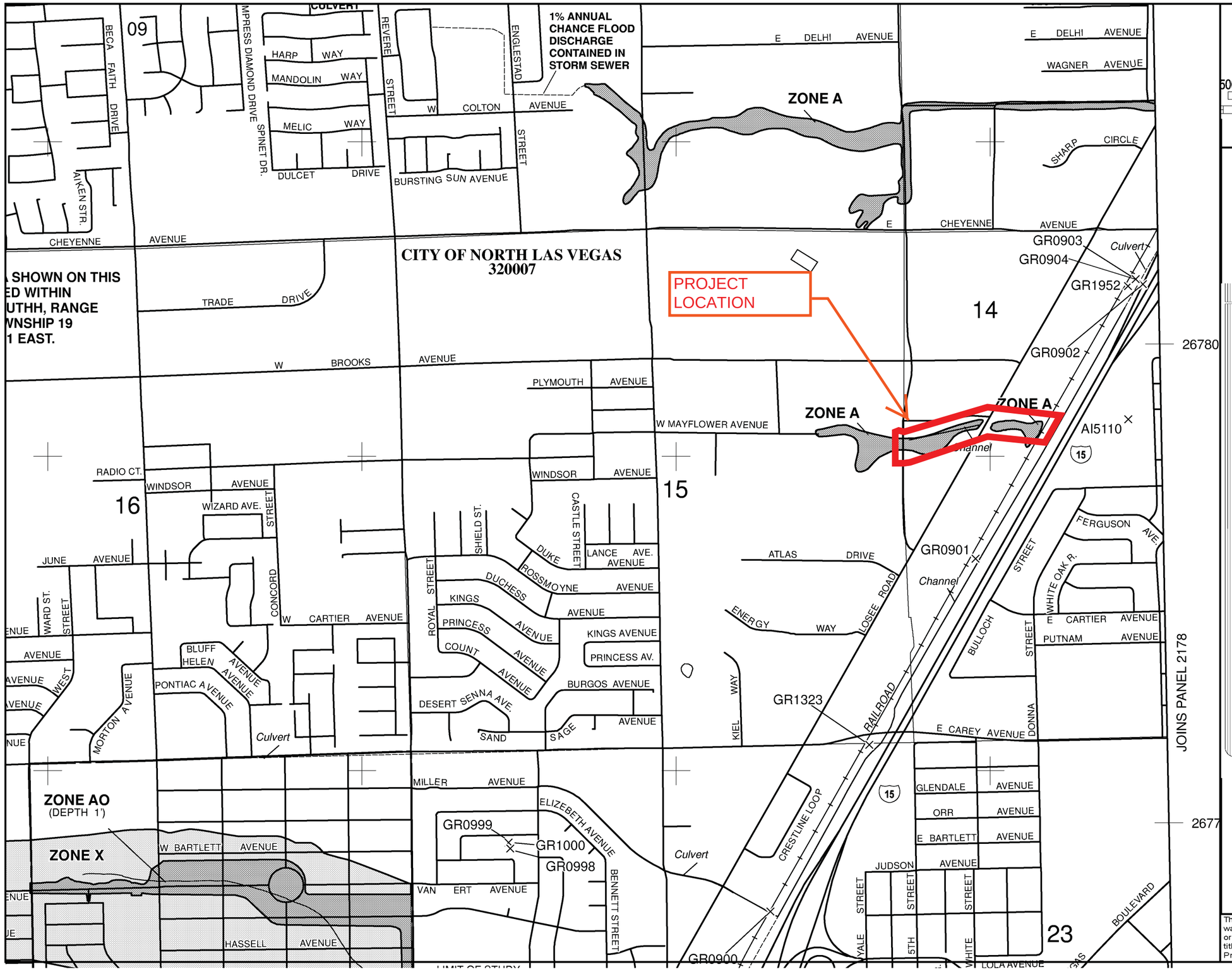
ID (Facility Identifier) AABB
Parent Stream Name
Stream Name
River Mile 0000
Distance Above Confluence with Parent Stream (Miles)
Miles in Hundredths

Existing Facility..... E
Proposed or Modified Facility..... P
Contingency Level
Category B..... P0
Master Plan..... P1
Preliminary Design..... P2
Design..... P3

Bottom Width..... W
Depth..... D
Side Slope, H:V..... SS

Construction Features

Cast in Place Concrete Pipe..... CIPCP
Corrugated Metal Arch Pipe Culvert..... CMAP
Corrugated Metal Pipe Culvert..... CMPC
High Density Polyethylene..... HDPE
Horizontal Elliptical Reinforced Concrete Pipe..... HERCP
Reinforced Concrete Arch Pipe..... RCAP
Reinforced Concrete Arch Culvert..... RCAC
Reinforced Concrete Box..... RCB
Reinforced Concrete Box Culvert..... RCBC
Reinforced Concrete Pipe..... RCP
Reinforced Concrete Pipe Culvert..... RCPC
Storm Sewer Pipe..... SSP



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2160F

FIRM

FLOOD INSURANCE RATE MAP

CLARK COUNTY, NEVADA

AND INCORPORATED AREAS

PANEL 2160 OF 4090

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLARK COUNTY	320003	2160	F
LAS VEGAS, CITY OF	325276	2160	F
NORTH LAS VEGAS, CITY OF	320007	2160	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

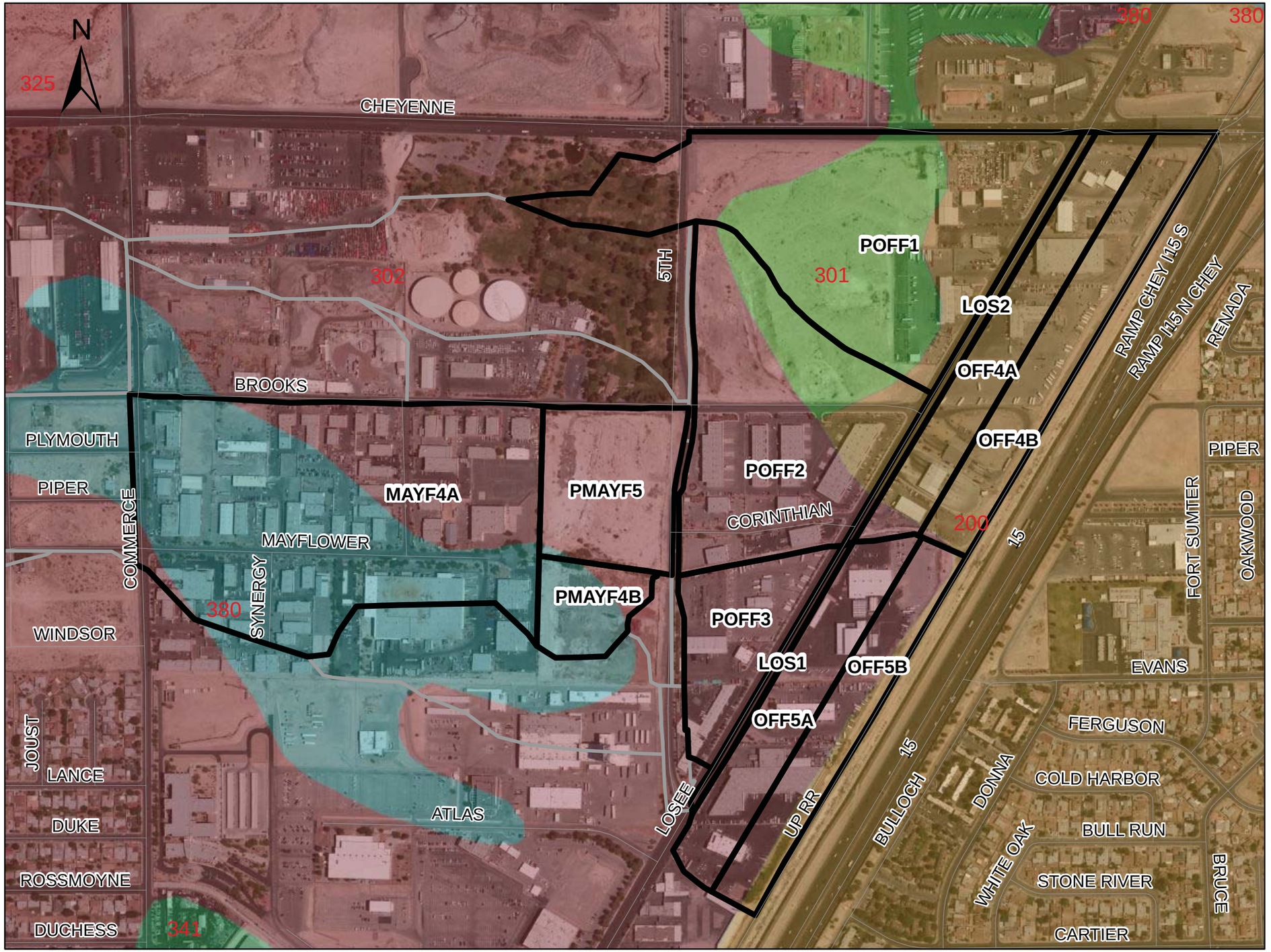
MAP NUMBER
32003C2160F

MAP REVISED
NOVEMBER 16, 2011

Federal Emergency Management Agency

FIGURE 2 - FIRM MAP

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Legend

- Basin Boundary
- Referenced Basin Boundary

Soil Types

- 200 Glencarb silt loam
- 301 Las Vegas-Gravelly fine sandy loam
- 302 Las Vegas-McCarran - Grapevine complex
- 307 Las Vegas - Skyhaven complex
- 325 Las Vegas - McCarran - Fine Sandy Loam
- 341 Paradise silt loam
- 380 Skyhaven, very fine sandy loam

MWH
BUILDING A BETTER WORLD

Scale: 1" = 500'	Drawn By: SM	City of North Las Vegas Brooks Flood Control Channel	FIGURE 3 - Ultimate Drainage Basins - Soils Map
Job #: BROOKS CHAN	Checked By: RV		
Date: 10/03/13	Designed By: N/A		

FOR CONTINUATION OF WATERSHED REFER TO REFERENCED FIGURE 4-2 (DRAINAGE STUDY FOR N. 5TH STREET IMPROVEMENTS, BY LBG)

BROOKS FLOOD CONTROL CHANNEL

Legend

- Hydrograph Combination Pts
- Flow Arrows
- Ex Storm Drain
- Basin Boundary
- Referenced Basin Boundary
- County Topography 5-ft

SUB BASIN FLOW SUMMARY

BASIN ID	AREA (AC)	(Q100) CFS	(Q10) CFS
POFF1	39.46	89	45
POFF2	29.09	75	38
POFF3	10.18	25	13
OFF4A	13.66	29	14
OFF4B	13.66	29	14
OFF5A	11.67	29	14
OFF5B	11.67	29	14
LOS1	1.33	4	2
LOS2	2.54	6	3
PMAY4B	5.02	17	8
PMAY5	11.91	38	19
PCP3A	352.00	521	241
PCP3B	352.00	525	243
CPBRKS2	38.40	71	24
CPBRKS3	44.80	72	25
CPMAYF3	224.00	368	172
CPMAY7	19.20	59	31
CP5	83.20	156	68
CP5a	108.80	221	99
CP5b	19.20	36	17
CP6	473.60	758	348
CP6A	499.20	820	378
CP7	524.80	869	400

0 100 200 400 600 800 Feet

SCALE: 1" = 200'

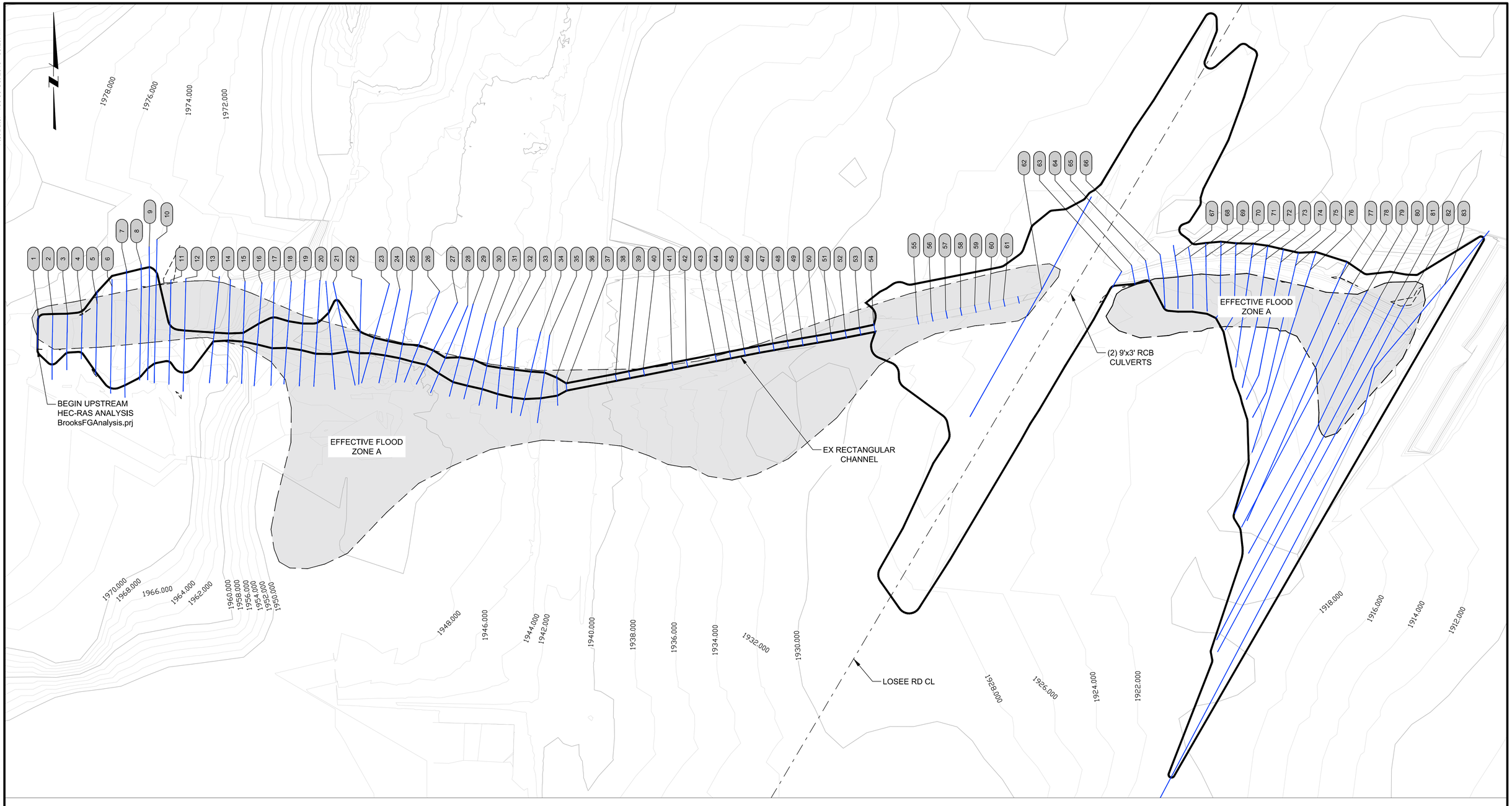
CITY OF NORTH LAS VEGAS
Your Community of Choice

MWH

FIGURE 4: ULTIMATE CONDITION DRAINAGE BASIN MAP

Plot Date: Tue 06-Oct-2015 - 03:29PM

User: natalen



NOTES:

1. FLOODZONE "A" FROM MAP 32003C2160F.
2. TOPOGRAPHY (5 & 25 FOOT INTERVAL) ADJACENT TO PROJECT AREA IS OBTAINED FROM 2005 CLARK COUNTY GIS DEPARTMENT. TOPOGRAPHY WITHIN THE PROJECT AREA HAS BEEN OBTAINED FROM THE CITY OF NORTH LAS VEGAS SURVEY DEPARTMENT.
3. DRAWING COORDINATES ARE IN THE CITY OF NORTH LAS VEGAS USER DEFINED TRANSVERSE MERCATOR PROJECTION SYSTEM.

CITY OF NORTH LAS VEGAS USER DEFINED MERCATOR PROJECTION PARAMETERS:

CENTRAL MERIDIAN = 115°05'53.002040" WEST
LATITUDE OF ORIGIN = 36°15'00.000603" NORTH
ORIGIN NORTHING = 75000.000 U.S. FEET
ORIGIN EASTING = 75000.0000 U.S. FEET
SCALE ALONG CENTRAL MERIDIAN = 1.000093468437
CONVERGENCE ANGLE = 0°17'13.033030" WEST
REFERENCE ELLIPSOID = GRS-80
SEMI-MAJOR AXIS = 20,925,604,474 U.S. FEET
FLATTENING (1/f) = 298.25722154
X TRANSLATION = 0.0000
Y TRANSLATION = 0.0000
Z TRANSLATION = 0.0000

NAVD88 BENCHMARK:
NLV011SES ELEVATION 1981.306
RIVET AND 2" ROUND ALUMINUM DISK, STAMPED NORTH LAS VEGAS BM NO. NLV0110SES, SET IN THE TOP OF CURB, LOCATED AT THE NORTHWEST CORNER OF THE INSTERSECTION OF CHEYENNE AVE. AND N. 5TH STREET.

LEGEND

EFFECTIVE FEMA FLOODPLAIN AREA

EXISTING FLOODPLAIN AREA

XXX — HEC-RAS CROSS SECTION REFERENCE NUMBER (SEE TABLE 4-2 IN CLOMR TEXT FOR STATION)

HEC-RAS CROSS SECTION

PROFESSIONAL ENGINEER — RAUL V. VALDEZ — Exp: 6-30-16 — CIVIL — No 21427 — STATE OF NEVADA — 10/06/15

REV	DATE	BY	DESCRIPTION

SCALE: 1"=80'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED R VALDEZ
DRAWN N NATALE
CHECKED J PARKE

MWH®

CITY OF NORTH LAS VEGAS

BROOKS CHANNEL FLOOD CONTROL IMPROVEMENTS
CLOMR

EXISTING CONDITION 100-YEAR
FLOOD PLAIN EXHIBIT 1

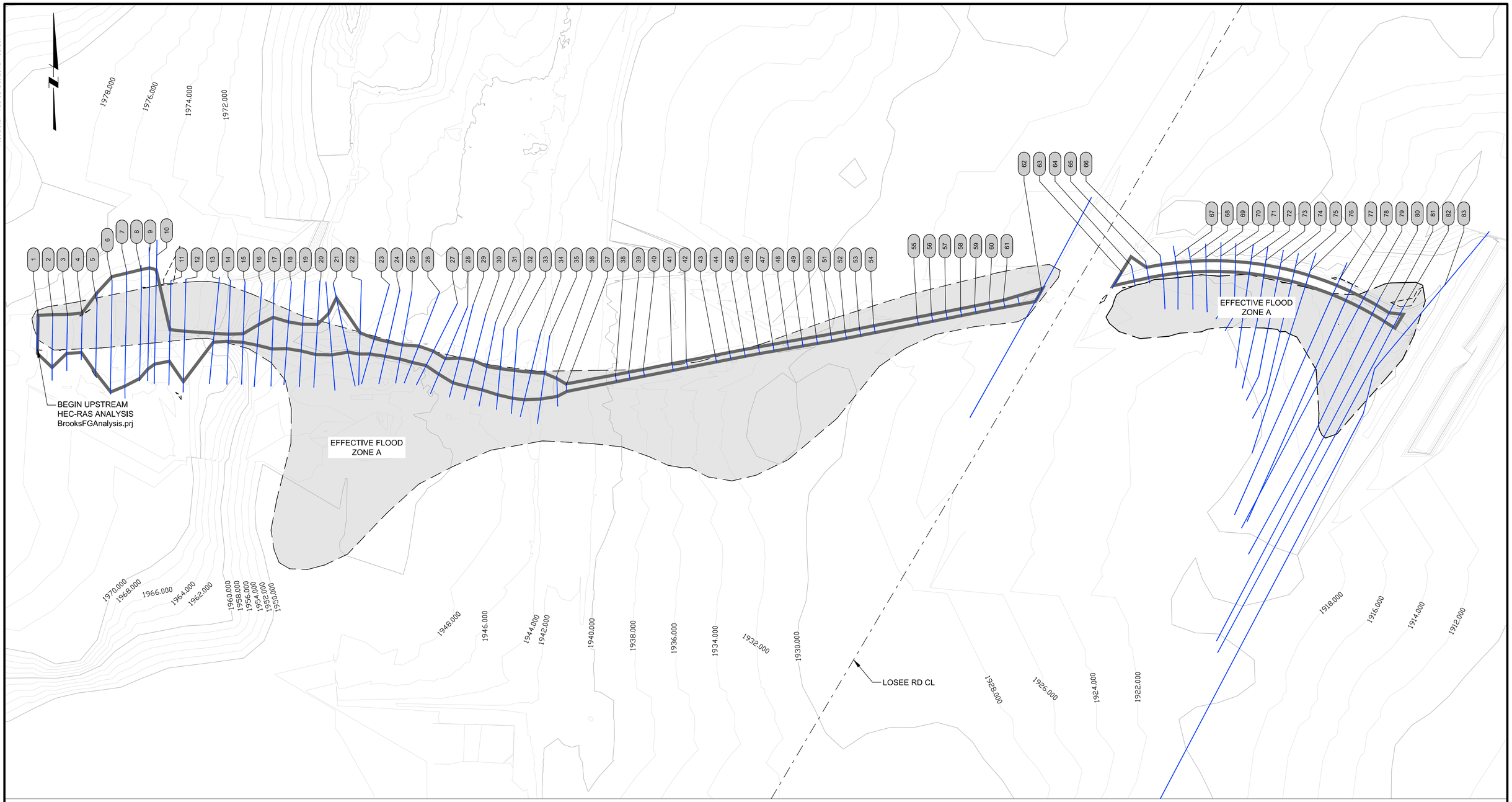
SHEET 5

JobNumber

File: D:\PROJECTS\BROOKS\CLOMR\BROOKS-FEMA EXHIBITv2.DWG

Plot Date: Tue 06-Oct-2015 - 03:30PM

User: natalen



NOTES:

1. FLOODZONE "A" FROM MAP 32003C2160F.
2. TOPOGRAPHY (5 & 25 FOOT INTERVAL) ADJACENT TO PROJECT AREA IS OBTAINED FROM 2005 CLARK COUNTY GIS DEPARTMENT. TOPOGRAPHY WITHIN THE PROJECT AREA HAS BEEN OBTAINED FROM THE CITY OF NORTH LAS VEGAS SURVEY DEPARTMENT.
3. DRAWING COORDINATES ARE IN THE CITY OF NORTH LAS VEGAS USER DEFINED TRANSVERSE MERCATOR PROJECTION SYSTEM.

CITY OF NORTH LAS VEGAS USER DEFINED MERCATOR PROJECTION PARAMETERS:

CENTRAL MERIDIAN = 115°05'53.002040" WEST
LATITUDE OF ORIGIN = 36°15'00.000603" NORTH
ORIGIN NORTHING = 75000.000 U.S. FEET
ORIGIN EASTING = 75000.0000 U.S. FEET
SCALE ALONG CENTRAL MERIDIAN = 1.000093468437
CONVERGENCE ANGLE = 0°17'13.033030" WEST
REFERENCE ELLIPSOID = GRS-80
SEMI-MAJOR AXIS = 20,925,604,474 U.S. FEET

FLATTENING (1/f) = 298.25722154
X TRANSLATION = 0.0000
Y TRANSLATION = 0.0000
Z TRANSLATION = 0.0000

NAVD88 BENCHMARK:
NLV011SES ELEVATION 1981.306
RIVET AND 2" ROUND ALUMINUM DISK, STAMPED NORTH LAS VEGAS BM NO. NLV0110SES, SET IN THE TOP OF CURB, LOCATED AT THE NORTHWEST CORNER OF THE INSTERSECTION OF CHEYENNE AVE. AND N. 5TH STREET.

LEGEND

- EFFECTIVE FEMA FLOODPLAIN AREA
- PROPOSED FLOODPLAIN AREA
- XXX — HEC-RAS CROSS SECTION REFERENCE NUMBER (SEE TABLE 4-2 IN CLOMR TEXT FOR STATION)
- HEC-RAS CROSS SECTION

PROFESSIONAL ENGINEER — RAUL V. VALDEZ — Exp: 6-30-16 — CIVIL — No 21427 — STATE OF NEVADA — 10/06/15

REV	DATE	BY	DESCRIPTION

SCALE: 1"=80'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED R VALDEZ
DRAWN N NATALE
CHECKED J PARKE

MWH®

CITY OF NORTH LAS VEGAS

BROOKS CHANNEL FLOOD CONTROL IMPROVEMENTS
CLOMR

PROPOSED CONDITION 100-YEAR
FLOOD PLAIN EXHIBIT 2

SHEET 6

JobNumber

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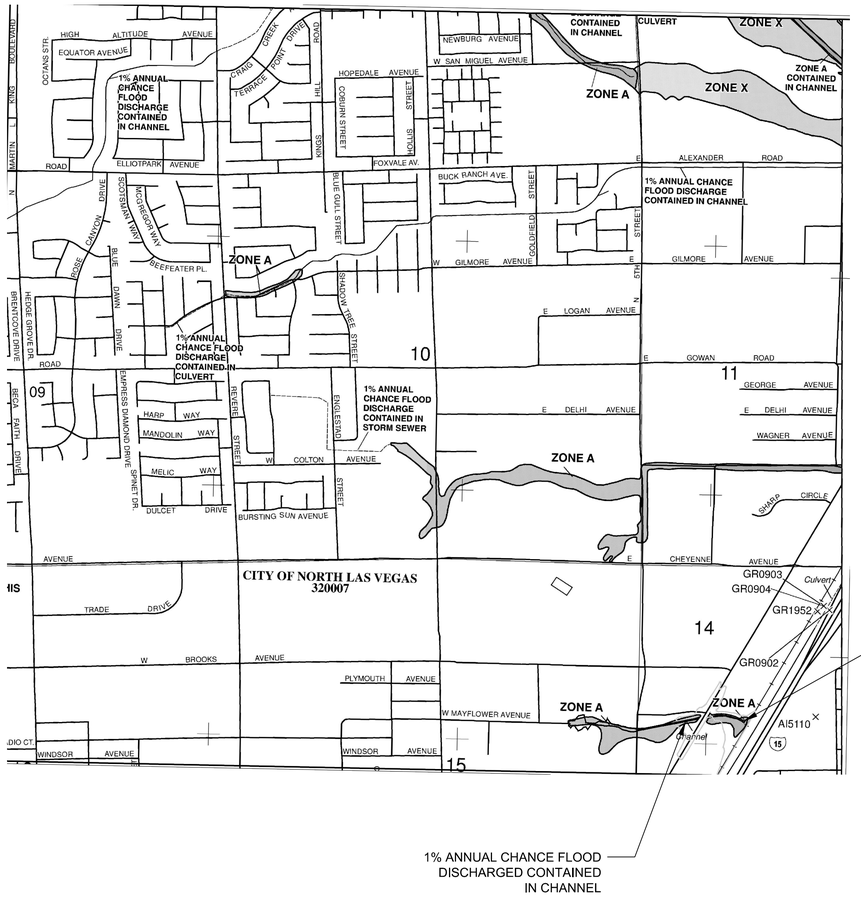
12/7/2010 10:20 AM
NATALEN



FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CLARK COUNTY, NEVADA AND INCORPORATED AREAS

PANEL 2160 OF 4090

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLARK COUNTY	320003	2160	F
LAS VEGAS, CITY OF	325276	2160	F
NORTH LAS VEGAS, CITY OF	320007	2160	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
32003C2160F

MAP REVISED
NOVEMBER 16, 2011

Federal Emergency Management Agency

LEGEND

EFFECTIVE FEMA FLOODPLAIN AREA

EXISTING FLOODPLAIN AREA

PROPOSED FLOODPLAIN AREA

PROFESSIONAL ENGINEER — RAUL V. VALDEZ — Exp: 6-30-16 — CIVIL — No 21427 — STATE OF NEVADA
10/06/15

REV	DATE	BY	DESCRIPTION

SCALE: 1" = 1000'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED R VALDEZ
DRAWN N NATALE
CHECKED J PARKE

MWH®

CITY OF NORTH LAS VEGAS

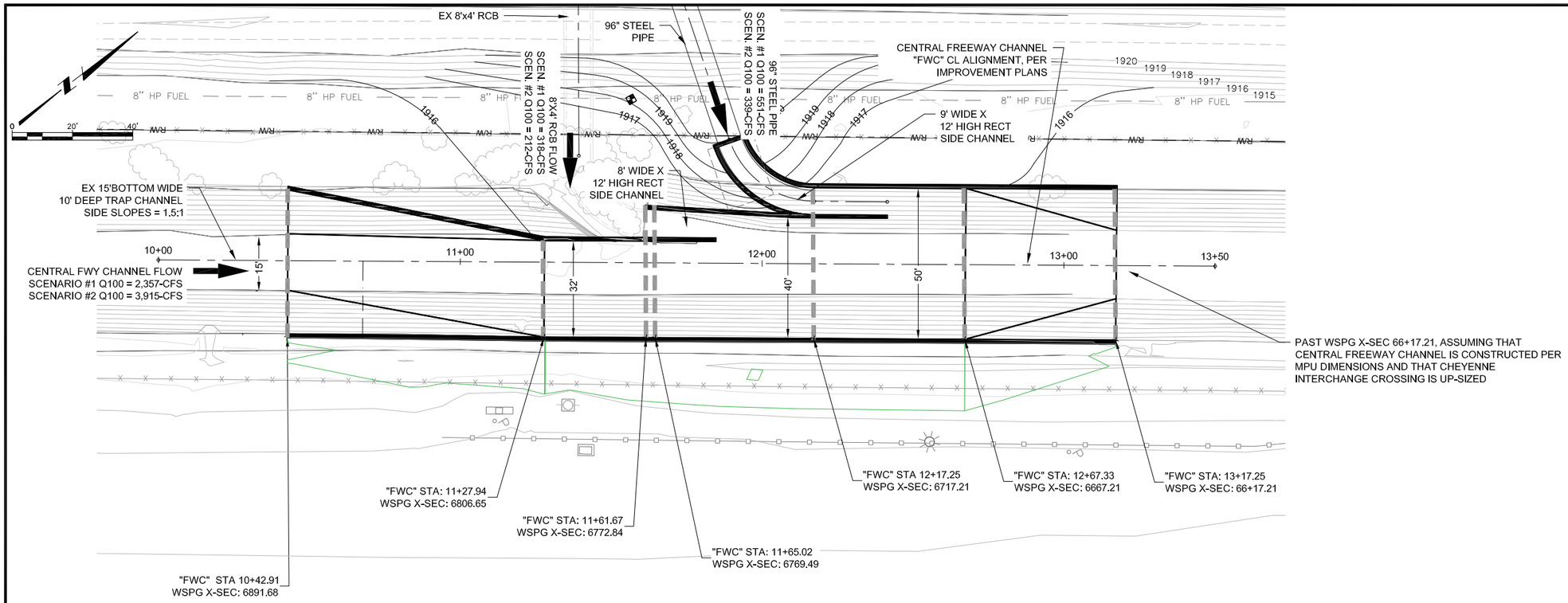
COLTON AVENUE FLOOD CONTROL IMPROVEMENTS PROJECT

CLOMR

ANNOTATED FIRM MAP

FIGURE 7

D:\PROJECTS\BROOKS\CLOMAR\BROOKS-CLOMR-AnnFIRM



WSPG STATION MAP EXHIBIT - BROOKS CHANNEL CONFLUENCE

HORIZONTAL SCALE: 1"=20'

WSPG CROSS SECTION

SCENARIO #1 (WSPG FILE FWCI1.OUT) = BROOKS CHANNEL FLOW PEAKING, CENTRAL FREEWAY CHANNEL ATTENUATED

SCENARIO #2 (WSPG FILE FWCI2.OUT) = BROOKS CHANNEL FLOW ATTENUATED, CENTRAL FREEWAY CHANNEL PEAKING

NOTE:

FOR CONTINUATION OF WSPG CROSS SECTIONS UPSTREAM AND DOWNSTREAM OF BROOKS CHANNEL CONFLUENCE, REFER TO FIGURES 4A AND 4B OF CENTRAL FREEWAY CHANNEL HYDROLOGY AND HYDRAULICS STUDY

CALL BEFORE YOU DO OVERHEAD
1-702-227-2929
Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call
811
or
1-800-227-2600
and
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

REVISIONS			
NO.	DESCRIPTION	DATE	BY

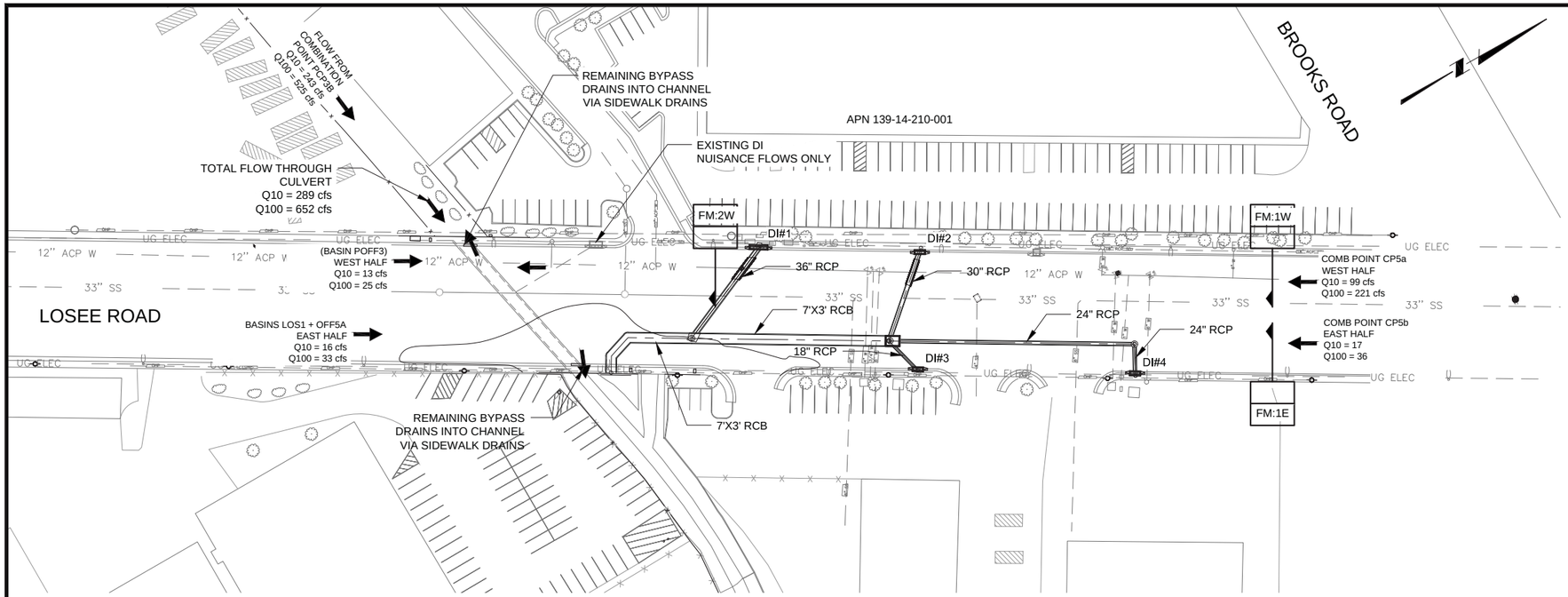
SCALE: AS SHOWN
DESIGN: R VALDEZ
DRAWN: N NATALE
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

MWH
3010 WEST CHARLESTON BLVD. SUITE 100
LAS VEGAS, NV. 89102
(702) 878-8010

(DRAWING TITLE) FIGURE 8

(PROJECT TITLE) CENTRAL FREEWAY CHANNEL CONFLUENCE EXHIBIT

(LOCATION)



INLET SUMMARY TABLE

		STREET FLOW (CFS)		INTERCEPTED FLOW (CFS)		BYPASS FLOW (CFS)	
DROP INLET #	**TYPE & DIMENSIONS**	**Q10**	**Q100**	**Q10**	**Q100**	**Q10**	**Q100**
1	TYPE "CM" L=12.5', GRATE =12.5'	75	182	42	80	33	102
2	TYPE "CM" L=7.5', GRATE =5'	99	221	24	39	75	182
3	TYPE "CM" L=7.5', GRATE =7.5'	8	21	5	11	3	10
4	TYPE "CM" L=7.5', GRATE =7.5'	17	36	9	15	8	21
SIDEWALK DRAIN	**DIMENSIONS**	--	--	--	--	--	--
WEST	USDCCA DWG# 236, 4 TOTAL S/W DRAINS	41	127	41	127	0	0
EAST	USDCCA DWG# 236, 4 TOTAL S/W DRAINS	10	43	20	43	0	0

WSPG MODEL SUMMARY

WSPG MODEL	DESCRIPTION
"LOSSD100.OUT"	Q-100: MAIN STORM DRAIN REACH - UP TO DROP INLET #4 LATERAL
"DI1.OUT"	Q-100: DROP INLET #1 LATERAL REACH
"DI2.OUT"	Q-100: DROP INLET #2 LATERAL REACH
"DI3.OUT"	Q-100: DROP INLET #2 LATERAL REACH

STREET HYDRAULIC SECTION SUMMARY

SECTION	DESCRIPTION	Q (CFS)	DEPTH (FT)	VELOCITY (FT/S)	V X D
FM:1W-Q100	WEST HALF LOSEE ROAD	221	1.40	5.37	7.52
FM:1W-Q10	WEST HALF LOSEE ROAD	99	1.08	3.92	4.23
FM:1E-Q100	EAST HALF LOSEE ROAD	36	0.80	2.92	2.34
FM:1E-Q10	EAST HALF LOSEE ROAD	17	0.65	2.37	1.54
FM:2W-Q100	WEST HALF LOSEE ROAD	86	1.04	3.70	3.85
FM:2W-Q10	WEST HALF LOSEE ROAD	31	0.76	2.80	2.13

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE: AS SHOWN
DESIGN: R VALDEZ
DRAWN: R VALDEZ
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

MWH
3010 WEST CHARLESTON BLVD.
SUITE 100
LAS VEGAS, NV 89102
(702) 878-8010

LOSEE ROAD STORM DRAIN EXHIBIT
(DRAWING TITLE)
(PROJECT TITLE)
(LOCATION)

FIGURE
9

Appendix B

Appendix B-1

Hydrologic Calculations

DEPTH-DURATION-FREQUENCY VALUES FOR McCARRAN AIRPORT RAINFALL AREA

(IN INCHES)

TIME	RECURRENCE INTERVAL					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
5 min.	0.15	0.27	0.35	0.46	0.54	0.63
10 min.	0.25	0.44	0.57	0.74	0.89	1.02
15 min.	0.33	0.57	0.74	0.97	1.15	1.32
30 min.	0.44	0.78	1.01	1.31	1.55	1.79
1 hour	0.52	0.89	1.15	1.50	1.78	2.06
2 hour	0.59	1.01	1.30	1.70	2.01	2.30
3 hour	0.64	1.08	1.39	1.82	2.15	2.48
6 hour	0.72	1.22	1.58	2.05	2.41	2.77
24 hour (TR-55)	1.20	1.60	1.80	2.40	2.70	2.96

NOTE: 1. Refer to Figure 513 for a description and drawing of the area included in the McCarran Airport Rainfall Area.

2. The 24 hour values presented above are for use with TR-55 only.

3. Table 501 adjustments not required.

Revision	Date

RUNOFF CURVE NUMBERS
(URBAN AREAS[1])

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					

See Table 602A

Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94

1 Average runoff condition, and $I_a = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system. Impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using Figure 603.

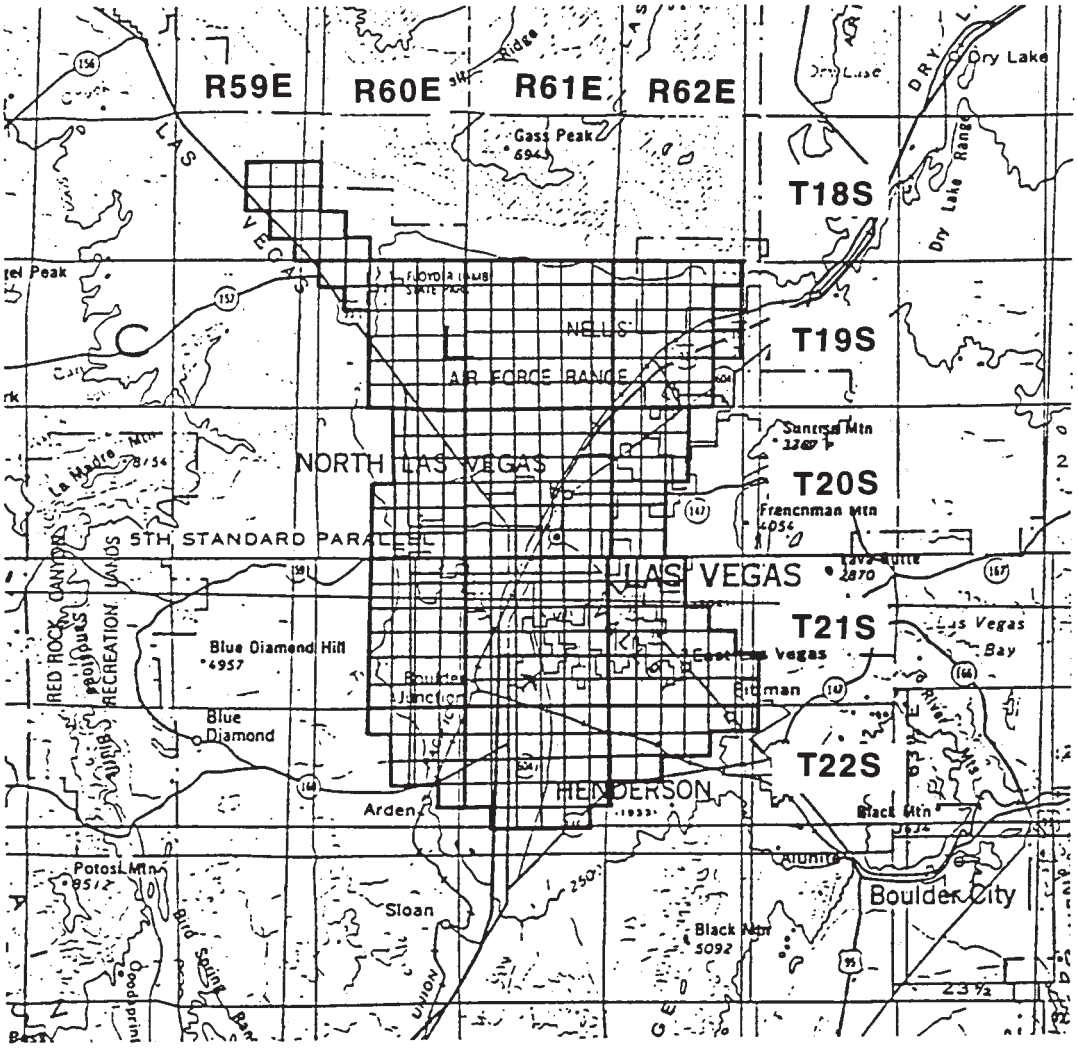
3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using Figure 603 based on the impervious area percentage (CN #98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using Figure 603 based on the degree of development impervious area percentage) and the CN's for the newly graded pervious areas.

Revision	Date

McCARRAN AIRPORT RAINFALL AREA



TOWNSHIP	RANGE	SECTIONS	TOWNSHIP	RANGE	SECTIONS
18 South	59 East	13-15,22-26,36	20 South	62 East	4-9,16-20,29-32
18 South	60 East	30-32	21 South	60 East	1-4,9-16,21-28,33-36
19 South	60 East	1-6,8-16,21-28,33-36	21 South	61 East	ALL SECTIONS
19 South	61 East	ALL SECTIONS	21 South	62 East	4-9,15-23, 25-36
19 South	62 East	2-11,14-23,27-34	22 South	60 East	1-4,10-15,24
20 South	60 East	1-3,10-15,21-28,33-36	22 South	61 East	1-24,26-29
20 South	61 East	ALL SECTIONS	22 South	62 East	1-10,17-18

Notes:
1. Refer to Table 505 and Figure 516 Depth-Duration- Frequency values in the McCarran Airport Rainfall Area.
2. Refer to Table 506 and Figure 517 for Time-Intensity-Frequency values on the McCarran Airport Rainfall Area.

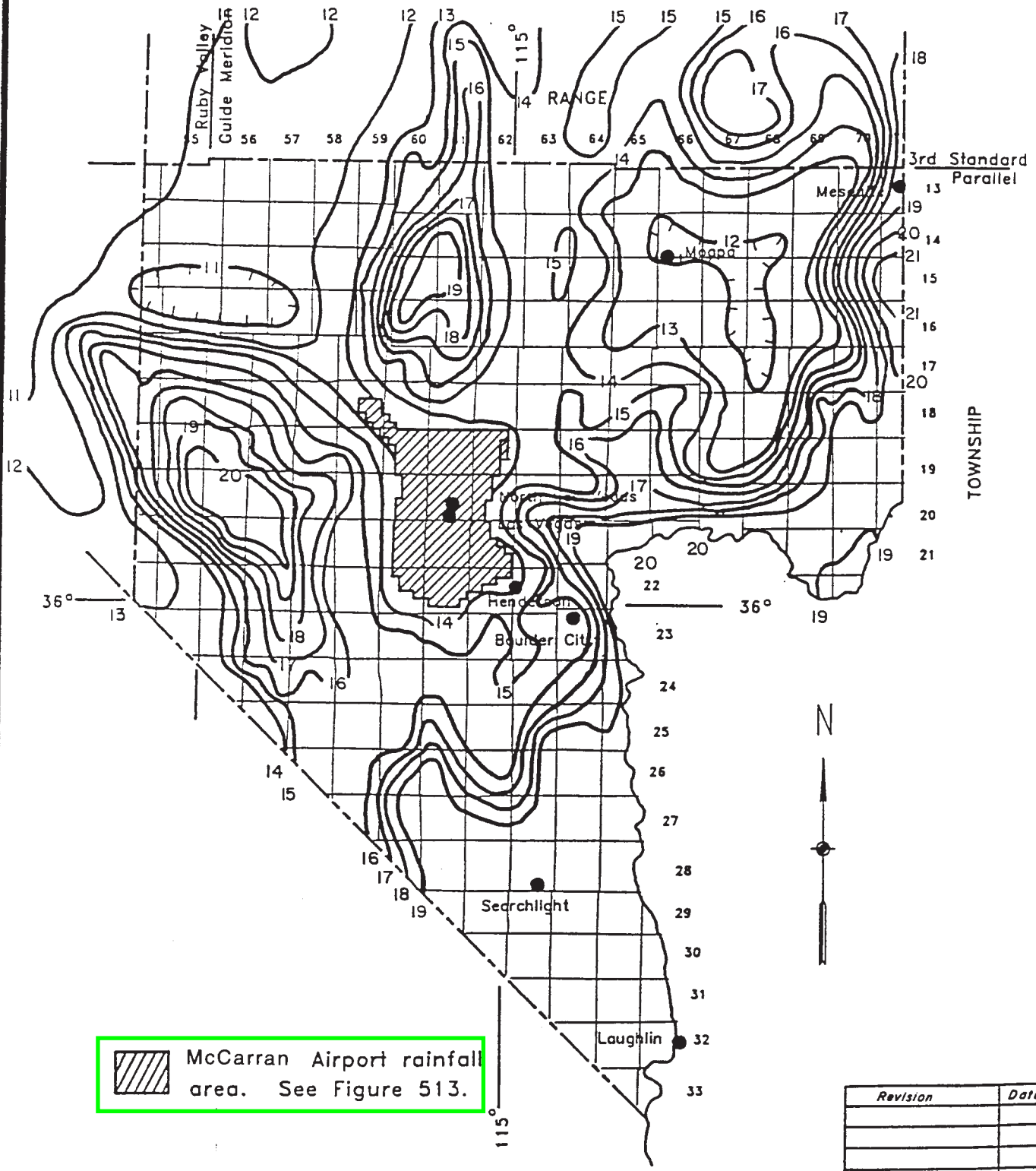
Revision	Date

WRC ENGINEERING

REFERENCE:
USACE, Los Angeles District, 1988

FIGURE 513

RAINFALL DEPTH-DURATION-FREQUENCY
10-YEAR, 6-HOUR
(DEPTHS IN TENTHS OF INCHES)



Revision	Date

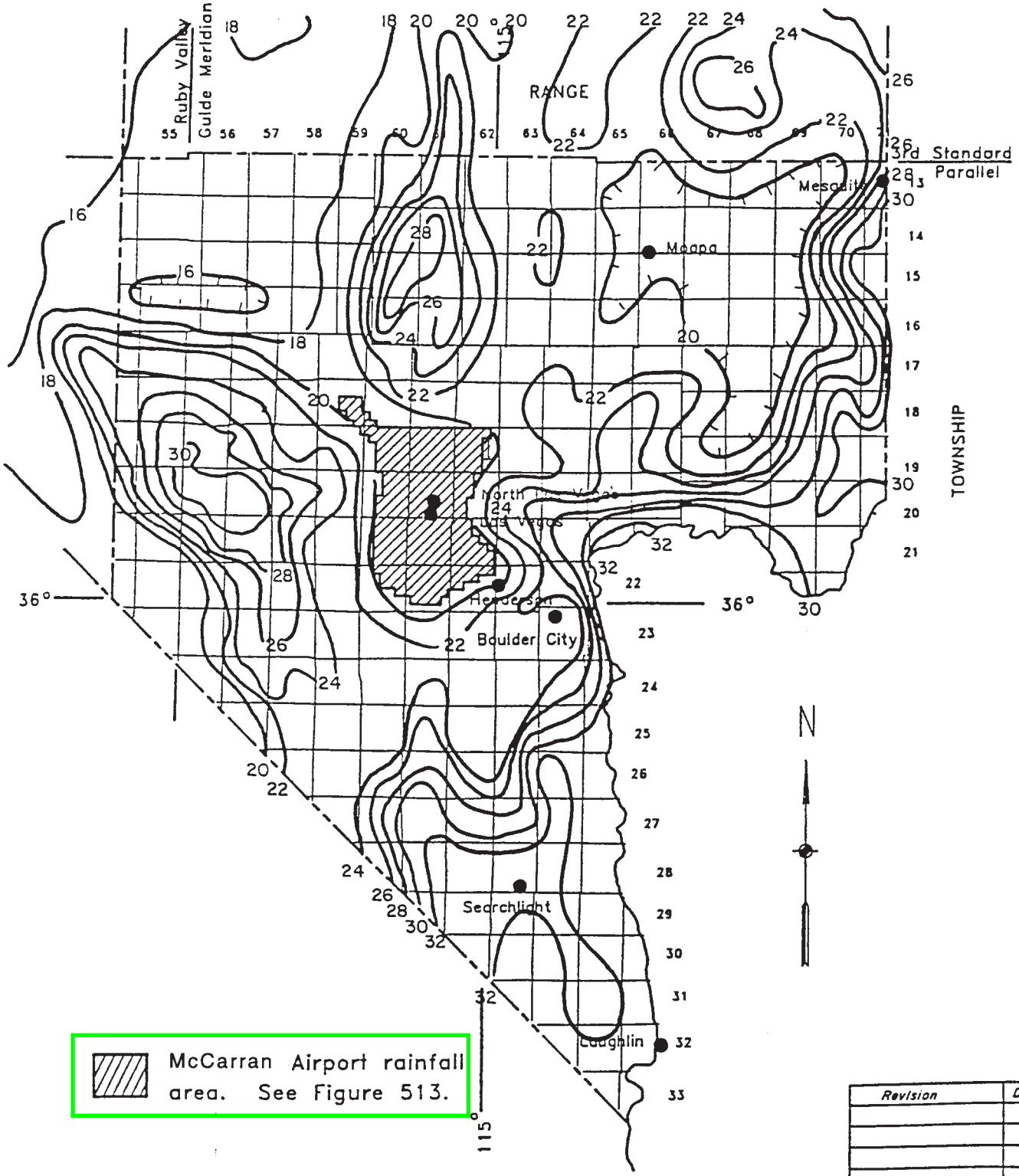
WRC ENGINEERING

REFERENCE:
NOAA ATLAS 2, VOLUME VII NEVADA, 1973

FIGURE 503

RAINFALL DEPTH-DURATION-FREQUENCY 100-YEAR, 6-HOUR

(DEPTHS IN TENTHS OF INCHES)



Revision	Date

WRC ENGINEERING

REFERENCE:
NOAA ATLAS 2, VOLUME VII NEVADA, 1973

FIGURE 506

DESIGN RAINFALL

PROJECT: CNLV Brooks Flood Control Channel
JOB #: 0

The project site is included in the McCarran Airport Rainfall Area as shown by Figure 513 in the Hydrologic Criteria and Drainage Design Manual. Rainfall depths were taken from Table 505 for the 6-hour 10-year and 100-year Recurrence Interval in the Hydrologic Criteria and Drainage Design Manual.

STREET INTERSECTION	TOWNSHIP	RANGE	SECTION
North 5th Street E Brooks Avenue	*T20 South*	*R61 East*	*15*

STORM EVENT	RAINFALL DEPTH (IN)	RATIO TO NOAA ATLAS 2 ADJUSTMENT RATIO	DESIGN DEPTH (IN)
10-YEAR	1.58	1	1.58
100-YEAR	2.77	1	2.77

10-YEAR/100-YEAR DESIGN RAINFALL DEPTH RATIO: **0.57**

TRAVEL TIME CALCULATIONS

DEVELOPMENT: CNLV Brooks Flood Control Channel
W.O. # **CALCULATED BY:** SM

$$Velocity = CS^{1/2}$$

C1 applies to the first 500 feet of travel distance
C2 applies to the remaining travel distance

Existing:		Developed	
C1=14.8	C2=29.4	C1=20.2	C2=30.6

					First 500 feet		Remaining Travel Distance	
Basin	**Length** (ft)	**High Elev** (ft)	**Low Elev** (ft)	**Slope** (ft/ft)	**C1**	**V1** (fps)	**C2**	**V2** (fps)
OFF1	**3726**	**1981**	**1922**	0.016	20.2	2.5	30.6	3.9
OFF2	2194	1950	1927	0.010	20.2	2.1	30.6	3.1
OFF3	936	1932	1927	0.005	20.2	1.5	30.6	2.2
OFF4A	2255	1938	1927	0.005	20.2	1.4	30.6	2.1
OFF4B	2255	1938	1927	0.005	20.2	1.4	30.6	2.1
OFF5A	1827	1920	1900	0.011	20.2	2.1	30.6	3.2
OFF5B	1827	1920	1900	0.011	20.2	2.1	30.6	3.2
LOS1	1333	1935	1920	0.011	20.2	2.1	30.6	3.2
LOS2	2320	1930	1920	0.004	20.2	1.3	30.6	2.0
MAYF4A	2545	2015	1970	0.018	20.2	2.7	30.6	4.1
MAYF4B	1165	1985	1940	0.039	14.8	2.9	20.2	4.0
PMAY4B	677	1965	1940	0.037	20.2	3.9	30.6	5.9
PMAY5	1284	1985	1940	0.035	20.2	3.8	30.6	5.7
POFF1	3726	1981	1922	0.016	20.2	2.5	30.6	3.9
POFF2	2194	1950	1927	0.010	20.2	2.1	30.6	3.1
POFF3	936	1932	1927	0.005	20.2	1.5	30.6	2.2

STANDARD FORM 4

PROJECT: CNLV Brooks Flood Control Channel

JOB # _____ **CALCULATED BY:** SM

V1 applies to the first 500 feet of travel distance
V2 applies to the remaining travel distance

Existing:		Developed	
$V1 = 148 * S^{1/2}$	$V2 = 294 * S^{1/2}$	$V1 = 202 * S^{1/2}$	$V2 = 306 * S^{1/2}$

$$T_i = \frac{1.8(1.1-k)L^{1/2}}{S^{1/3}} \qquad T_t = \frac{L}{60V}$$

$$k = 0.0132 C_n - 0.39 \qquad T_c = T_i + T_t$$

SUB-BASIN DATA					INITIAL/OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc CHECK (URBANIZED BASINS)		FINAL Tc	LAG TIME	REMARKS
DESIG. (1)	Cn	K (2)	AREA Ac. (3)	AREA Mi^2	LENGTH Ft (4)	SLOPE % (5)	Ti Min. (6)	LENGTH Ft. (7)	SLOPE % (8)	V1 fps (9a)	V2 fps (9b)	Tt Min. (10)	TOTAL LENGTH (11)	Tc Min. (12)	Min.	TLAG Hr.	
OFF1	88.1	0.772	**39.46**	0.0617	500	2.8	9.35	3726	1.6	2.5	3.9	17.24	4226	33.48	26.59	0.266	Desert/Imp Road/Business
OFF2	89.9	0.797	**29.09**	0.0455	328	10.7	4.49	2194	1.0	2.1	3.1	13.04	2522	24.01	17.53	0.175	Desert/Imp Road/Business
OFF3	94.4	0.856	**10.81**	0.0169	500	0.6	11.64	936	0.5	1.5	2.2	8.89	1436	17.98	17.98	0.180	Imp Road/Business
OFF4A	92.6	0.832	**13.66**	0.0213	157	9.6	2.85	2255	0.5	1.4	2.1	19.59	2412	23.40	22.44	0.224	Gravel Road/Business
OFF4B	92.5	0.831	**13.66**	0.0213	157	9.6	2.86	2255	0.5	1.4	2.1	19.59	2412	23.40	22.45	0.225	Gravel Road/Business
OFF5A	93.2	0.841	**11.67**	0.0182	361	4.5	5.39	1827	1.1	2.1	3.2	10.85	2188	22.16	16.24	0.162	Gravel Road/Business
OFF5B	92.9	0.836	**11.67**	0.0182	361	4.5	5.49	1827	1.1	2.1	3.2	10.85	2188	22.16	16.34	0.163	Gravel Road/Business
LOS1	98.0	0.904	**1.33**	0.0021	20	2.0	1.25	1333	1.1	2.1	3.2	8.17	1353	17.52	9.42	0.094	Imp Road
LOS2	98.0	0.904	**2.54**	0.0040	20	2.0	1.25	2320	0.4	1.3	2.0	21.38	2340	23.00	22.64	0.226	Imp Road
MAYF4A	94.5	0.857	**48.88**	0.0764	50	2.0	2.45	2545	1.8	2.7	4.1	11.48	2595	24.42	13.93	0.139	Imp Road/Business
MAYF4B	81.9	0.690	**17.01**	0.0266	310	40.0	3.80	1165	3.9	2.9	4.0	5.66	1475	18.19	9.45	0.095	Desert/Imp Road
PMAY4B	93.9	0.850	**5.02**	0.0078	50	2.0	2.52	677	3.7	3.9	5.9	2.65	727	14.04	5.17	0.052	Imp Road/Business
PMAY5	94.6	0.858	**11.91**	0.0186	50	2.0	2.44	1284	3.5	3.8	5.7	4.48	1334	17.41	6.92	0.069	Imp Road/Business
POFF1	94.6	0.858	**39.46**	0.0617	500	2.8	6.90	3726	1.6	2.5	3.9	17.24	4226	33.48	24.14	0.241	Imp Road/Business
POFF2	94.5	0.857	**29.09**	0.0455	328	10.7	3.60	2194	1.0	2.1	3.1	13.04	2522	24.01	16.64	0.166	Imp Road/Business
POFF3	94.4	0.856	**10.18**	0.0159	500	0.6	11.64	936	0.5	1.5	2.2	8.89	1436	17.98	17.98	0.180	Imp Road/Business

Existing Condition Basins Min Tc = 10 Minutes
Developed Condition Basins Min Tc = 5 Minutes

CURVE NUMBER CALCULATIONS FOR SOILS

PROJECT: CNLV Brooks Flood Control Channel

CALCULATED BY: SM

CHECKED BY: RV

Soil #: 200		Glencarb silt loam								
Soil	Percent	Group	Natural Desert[1]	Gravel Roads[2]	Impervious[3]	Business[4]				
Bluepoint	3%	A	63	76	98	89				
Glencarb	85%	B	77	85	98	92				
McCarran	3%	B	77	85	98	92				
Land	9%	D	88	91	98	95				
Total	**100%**		**78**	**86**	**98**	**93**				

Soil #: 301		Las Vegas gravelly fine sandy loam, 2 to 4 percent slopes								
Soil	Percent	Group	Natural Desert[1]	Gravel Roads[2]	Impervious[3]	Business[4]				
Destazo	5%	B	77	85	98	92				
Las Vegas	95%	D	88	91	98	95				
Total	**100%**		**88**	**91**	**98**	**95**				

Soil #: 302		Las Vegas - McCarran - Grapevine complex, 0 to 4 percent slopes								
Soil	Percent	Group	Natural Desert[1]	Gravel Roads[2]	Impervious[3]	Business[4]				
Bluepoint	5%	A	63	76	98	89				
Bracken	5%	B	77	85	98	92				
Grapevine	20%	B	77	85	98	92				
McCarran	25%	B	77	85	98	92				
Badland	5%	D	88	91	98	95				
Las Vegas	40%	D	88	91	98	95				
Total	**100%**		**82**	**88**	**98**	**94**				

Soil #: 380		Skyhaven very fine sandy loam, 0 to 4 percent slopes								
Soil	Percent	Group	Natural Desert[1]	Gravel Roads[2]	Impervious[3]	Business[4]				
Skyhaven	85%	B	77	85	98	92				
Destazo	5%	B	77	85	98	92				
Glencarb	5%	B	77	85	98	92				
Las Vegas	5%	D	88	91	98	95				
Total	**100%**		**78**	**86**	**98**	**93**				

Notes:

1- Referenced from Table 602 (1 of 4), Natural Desert
2- Referenced from Table 602 (1 of 4), Impervious, Streets and Roads: Gravel
3- Referenced from Table 602 (1 of 4), Impervious, Streets and Roads
4- Referenced from Table 602 (1 of 4), Urban District: Business (Heavy Industrial)

CURVE NUMBER CALCULATIONS FOR BASINS

		Soil Breakdown				Land Use Break Down						
Basin	**Land Use Type**	**Soil #200**	**Soil #301**	**Soil #302**	**Soil #380**	**Natural Desert**	**Gravel Roads**	**Imp. Roadway**	**Business**			**Composite CN**
OFF1	Desert/Imp Road/Business	**28%**	**47%**	25%		**62%**		**10%**	**28%**			88.1
OFF2	Desert/Imp Road/Business	**13%**	**20%**	**67%**		**40%**		**10%**	**50%**			89.9
OFF3	Imp Road/Business			**100%**				**10%**	**90%**			94.4
OFF4A	Gravel Road/Business	**94%**		**6%**			**7%**		**93%**			92.6
OFF4B	Gravel Road/Business	**100%**		**0%**			**7%**		**93%**			92.5
OFF5A	Gravel Road/Business	**0%**		**100%**			**13%**		**87%**			93.2
OFF5B	Gravel Road/Business	**32%**		**68%**			**13%**		**87%**			92.9
LOS1	Imp Road			**100%**				**100%**				98.0
LOS2	Imp Road	**65%**		**35%**				**100%**				98.0
MAYF4A	Imp Road/Business			**34%**	**66%**			**25%**	**75%**			94.5
MAYF4B	Desert/Imp Road			**75%**	**25%**	**95%**		**5%**				81.9
PMAY4B	Imp Road/Business			**23%**	**77%**			**15%**	**85%**			93.9
PMAY5	Imp Road/Business			**98%**	**2%**			**15%**	**85%**			94.6
POFF1	Imp Road/Business	**28%**	**47%**	**25%**				**10%**	**90%**			94.6
POFF2	Imp Road/Business	**13%**	**20%**	**67%**				**10%**	**90%**			94.5
POFF3	Imp Road/Business			**100%**				**10%**	**90%**			94.4

Appendix B-2

100-Year HEC-1

Hydrologic Analysis

Ultimate Condition

100-Year HEC-1 Analysis

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *             JUN  1998                *
 *          VERSION 4.1                 *
 *                                      *
 *  RUN DATE   17FEB14  TIME  13:37:09  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*          (916) 756-1104              *
*                                      *
****************************************
```

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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

                    *DIAGRAM
 *** FREE ***
               1    ID   ------------------------------------------------------------------------
               2    ID   Project: BROOKS CHANNEL - FINAL DESIGN REPORT
               3    ID   Model: UTLIMATE-100 yr Model
               4    ID   Design Storm: 100-YR 6-Hr, SDN3 Distribution
               5    ID   Precipitation:  CCRFCD-HCDDM of McCarran Airport Rainfall Area
               6    ID
               7    ID   DARF VALUES USED : CCRFCD HCDDM
               8    ID
               9    ID              AREA(Sq.mi)          DARF
              10    ID                 0.00 - 0.49       1.000
              11    ID                 0.50 - 0.71       0.980
              12    ID                 0.72 - 0.78       0.976
              13    ID                 0.79 - 0.82       0.974
              14    ID   ------------------------------------------------------------------------
                    *
              15    IT       5       0       0     300
              16    IO       5       0       0
              17    IN       5       0       0
              18    JR    PREC       1   0.980   0.976   0.974
                    *

              19    KK  PMAYF1
              20    KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
              21    BA  0.3263
              22    PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
              23    PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
              24    PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
              25    PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
              26    PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
              27    PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
              28    PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
              29    PC   0.998   0.999   1.000
              30    PB    2.77
              31    LS    0.00    92.7
              32    UD   0.385
                    *

              33    KKRMAYF1-3
              34    KM   **REF ROUTE FROM 5TH STRT TDS BY LBG**
              35    KM   Route MAYF1 to MAYF3
              36    KM   WIDTH = 0, REPRESENTS C&G, Z=50:1 (ROAD 2% CROSS SLOPE)
              37    RD  1405.0 0.01281   0.016       0    TRAP       0      50
                    *

              38    KK  PMAYF3
              39    KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
              40    BA   0.026
              41    LS    0.00    94.2
              42    UD   0.101
                    *
```



```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

              43    KK CPMAYF3
              44    KM   **REF POINT FROM 5TH STRT TDS BY LBG**
              45    KM   COMBINE MAYF1, MAYF3
              46    HC       2
                    *

              47    KKRCPMAYF3
              48    KM   ROUTE CPMAYF3 TO CPMAY4
              49    KM   WIDTH = 0, REPRESENTS C&G, Z=50:1 (ROAD 2% CROSS SLOPE)
              50    RD    1275 0.04235   0.016       0    TRAP       0      50
                    *

              51    KK  PMAYF2
              52    KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
              53    BA   0.060
              54    LS    0.00    90.2
              55    UD   0.107
                    *

              56    KKRMAYF2-4
              57    KM   **REF ROUTE FROM 5TH STRT TDS BY LBG**
              58    KM   Route PMAYF2 to PMAYF4A
              59    KM   WIDTH = 0, REPRESENTS C&G, Z=50:1 (ROAD 2% CROSS SLOPE)
```

```
   60          RD    2016 0.02480   0.016       0    TRAP       0      50
               *

   61          KK  MAYF4A
   62          KM   DEVELOPED BASIN
   63          KM   BASIN DELIN. BY MWH
   64          BA  0.0764
   65          LS    0.00    94.5
   66          UD   0.139
               *

   67          KK    CP1A
   68          KM   COMBINE CPMAYF3, PMAYF2, MAYF4A
   69          HC       3
               *

   70          KK   RCP1A
   71          KM   ROUTE CP1A THROUGH BROOKS CHAN
   72          KM   AVG WASH WIDTH = 5FT, 3:1 SIDE SLOPES
   73          RD     676 0.03700   0.035       0    TRAP       5       3
               *

   74          KK  PMAY4B
   75          KM   BASIN PMAY4B
   76          KM   BASIN DELIN. BY MWH
   77          BA  0.0078
   78          LS    0.00    93.9
   79          UD   0.052
               *
```



```
  LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   80          KK C4BMAYF
   81          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
   82          KM   COMBINE CP1A, PMAY4B, PMAY4C
   83          HC       2
               *

   84          KK  PMAYF6
   85          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
   86          BA   0.027
   87          LS    0.00    94.7
   88          UD   0.081
               *

   89          KK  PMAYF7
   90          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
   91          BA  0.0027
   92          LS    0.00    98.0
   93          UD   0.050
               *

   94          KK  CPMAY7
   95          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
   96          KM   COMBINE FLOWS AT DROP INLET NEAR CONCRETE DRAINAGE
   97          HC       2
               *

   98          KK RCPMAY7
   99          KM   **REF FROM 5TH STRT TDS BY LBG**
  100          KM   ROUTE TO BROOKS CHANNEL IN 36" STORM DRAIN
  101          RD     540   0.006   0.013       0    CIRC       3
               *

  102          KK CRCPAY7
  103          KM   **REF POINT FROM 5TH STRT TDS BY LBG
  104          KM   COMBINE FLOWS AT 12'X4' RCB
  105          HC       2
               *

  106          KK   PMAY5
  107          KM   BASIN DELIN. BY MWH
  108          BA  0.0186
  109          LS    0.00    94.6
  110          UD   0.069
               *

  111          KK  PMAYF8
  112          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
  113          BA  0.0027
  114          LS    0.00    94.0
  115          UD   0.050
               *
```



```
  LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  116          KK CPMAYF8
  117          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
  118          KM   COMBINE FLOWS IN DROP INLET
  119          HC       2
               *

  120          KK   PCP3A
  121          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
  122          KM   Combine FLOWS IN 12'X4' RCB
  123          KM   Flows to 12'x 4' RCB, then to concrete channel
  124          HC       2
               *

  125          KK  PMAYF9
  126          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
  127          BA  0.0027
  128          LS    0.00    98.0
  129          UD   0.095
               *

  130          KK PMAYF10
  131          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
  132          BA  0.0006
  133          LS    0.00    98.0
  134          UD   0.068
               *

  135          KKCPMAYF10
```

```
 136          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
 137          KM   COMBINE FLOWS AT DROP INLET IN SAG
 138          HC       2
              *

 139          KK   PCP3B
 140          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
 141          KM   COMBINE FLOWS IN DROP INLET
 142          HC       2
              *

 143          KK  RPCP3B
 144          KM   ROUTE CPCP3B VIA 12'X5' BROOKS RECT CHANN TO CP6
 145          RD     750  0.0113   0.013       0    TRAP      12       0
              *

 146          KK  PBRKS1
 147          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
 148          KM   BASIN PBRKS1
 149          BA   0.048
 150          LS    0.00    82.3
 151          UD   0.115
              *
```

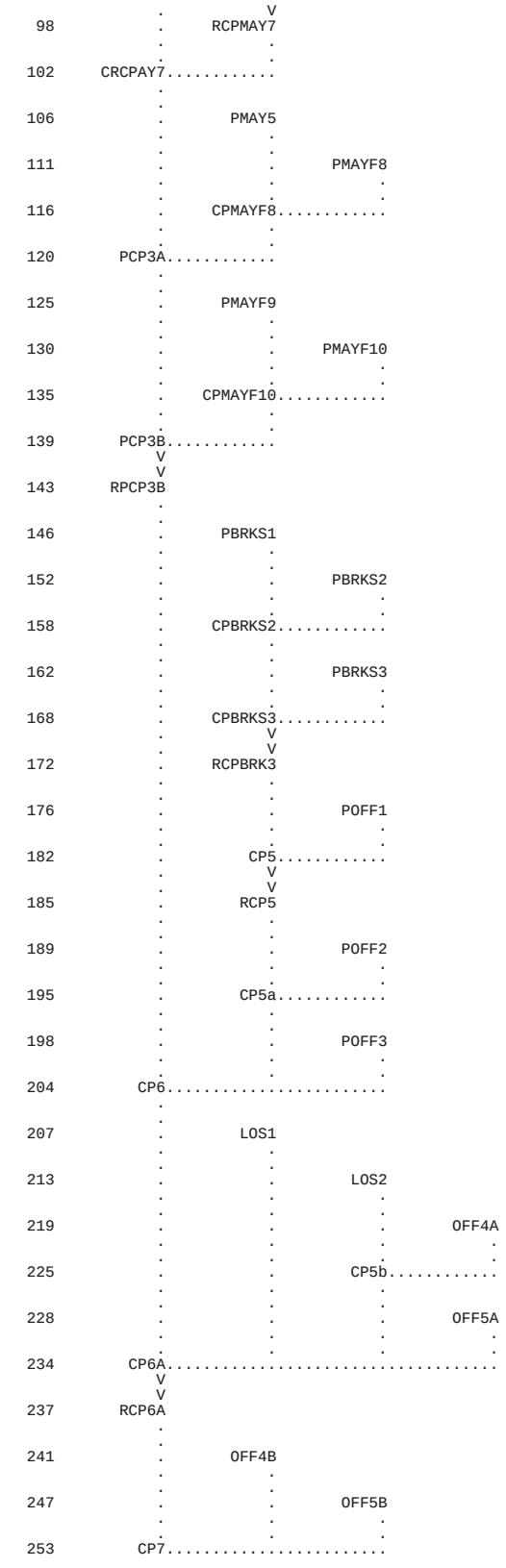


```
         LINE     ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 152          KK  PBRKS2
 153          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
 154          KM   BASIN PBRKS2
 155          BA   0.016
 156          LS    0.00    82.4
 157          UD   0.101
              *

 158          KK CPBRKS2
 159          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
 160          KM   COMBINE BRKS1 & BRKS2, EAST OF N5TH STRT
 161          HC       2
              *

 162          KK  PBRKS3
 163          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
 164          KM   BASIN PBRKS3
 165          BA  0.0011
 166          LS    0.00    98.0
 167          UD   0.053
              *

 168          KK CPBRKS3
 169          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
 170          KM   COMBINE CPBRKS2, PBRKS3
 171          HC       2
              *

 172          KK RCPBRK3
 173          KM   CPBRKS3 ROUTE THROUGH BROOKS AVE
 174          KM   WIDTH = 0, REPRESENTS C&G, Z=50:1 (ROAD 2% CROSS SLOPE)
 175          RD    1063  0.0141   0.016       0    TRAP       0      50
              *

 176          KK   POFF1
 177          KM   BASIN POFF1
 178          KM   BASIN DELIN. BY MWH
 179          BA  0.0617
 180          LS    0.00    94.6
 181          UD   0.241
              *

 182          KK     CP5
 183          KM   COMBINE CPBRK3, POFF1
 184          HC       2
              *

 185          KK    RCP5
 186          KM   CP5 ROUTE THROUGH LOSSEE AVE
 187          KM   WIDTH = 0, REPRESENTS C&G, Z=50:1 (ROAD 2% CROSS SLOPE)
 188          RD     791  0.0050   0.016       0    TRAP       0      50
              *
```



```
         LINE     ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 189          KK   POFF2
 190          KM   BASIN POFF2
 191          KM   BASIN DELIN. BY MWH
 192          BA  0.0455
 193          LS    0.00    94.5
 194          UD   0.166
              *

 195          KK    CP5a
 196          KM   COMBINE CP5, POFF2
 197          HC       2
              *

 198          KK   POFF3
 199          KM   BASIN POFF3
 200          KM   BASIN DELIN. BY MWH
 201          BA  0.0159
 202          LS    0.00    94.4
 203          UD   0.180
              *

 204          KK     CP6
 205          KM   COMBINE PCP3B, CP5a, POFF3
 206          HC       3
              *

 207          KK    LOS1
 208          KM   LOSSEE STRT BASIN
 209          KM   BASIN DELIN. BY MWH
 210          BA  0.0021
 211          LS    0.00    98.0
 212          UD   0.094
              *
```

```
            213           KK    LOS2
            214           KM   LOSSEE STRT BASIN
            215           KM   BASIN DELIN. BY MWH
            216           BA  0.0040
            217           LS    0.00    98.0
            218           UD   0.226
                          *

            219           KK   OFF4A
            220           KM   BASIN OFF4A
            221           KM   BASIN DELIN. BY MWH
            222           BA  0.0213
            223           LS    0.00    92.6
            224           UD   0.224
                          *
1                                                HEC-1 INPUT                                                PAGE  7

          LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


            225           KK    CP5b
            226           KM   COMBINE LOS2, OFF4A
            227           HC       2
                          *

            228           KK   OFF5A
            229           KM   BASIN OFF5A
            230           KM   BASIN DELIN. BY MWH
            231           BA  0.0182
            232           LS    0.00    93.2
            233           UD   0.162
                          *

            234           KK    CP6A
            235           KM   COMBINE CP6, LOS1, CP5b, OFF5A
            236           HC       4
                          *

            237           KK   RCP6A
            238           KM   ROUTE CP6A THROUGH BROOKS CHAN
            239           KM   RECT CHANN SECTION, WIDTH = 18-FT, VERTICAL WALLS (Z=0)
            240           RD     600 0.01667   0.013       0    TRAP      18       0
                          *

            241           KK   OFF4B
            242           KM   BASIN OFF4B
            243           KM   BASIN DELIN. BY MWH
            244           BA  0.0213
            245           LS    0.00    92.5
            246           UD   0.225
                          *

            247           KK   OFF5B
            248           KM   BASIN OFF5B
            249           KM   BASIN DELIN. BY MWH
            250           BA  0.0182
            251           LS    0.00    92.9
            252           UD   0.163
                          *

            253           KK     CP7
            254           KO       1
            255           KM   COMBINE CP6A, OFF4B, OFF5B
            256           HC       3
                          *
            257           ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    19      PMAYF1
                 V
                 V
    33    RMAYF1-3
                 .
                 .
    38           .      PMAYF3
                 .           .
                 .           .
    43     CPMAYF3............
                 V
                 V
    47    RCPMAYF3
                 .
                 .
    51           .      PMAYF2
                 .           V
                 .           V
    56           .    RMAYF2-4
                 .           .
                 .           .
    61           .           .      MAYF4A
                 .           .           .
                 .           .           .
    67        CP1A.......................
                 V
                 V
    70       RCP1A
                 .
                 .
    74           .      PMAY4B
                 .           .
                 .           .
    80     C4BMAYF............
                 .
                 .
    84           .      PMAYF6
                 .           .
                 .           .
    89           .           .      PMAYF7
                 .           .           .
                 .           .           .
    94           .      CPMAY7............
                 .           V
```



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*               JUN   1998              *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   17FEB14  TIME  13:37:09   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

Project: BROOKS CHANNEL - FINAL DESIGN REPORT
Model: UTLIMATE-100 yr Model
Design Storm: 100-YR 6-Hr, SDN3 Distribution
Precipitation: CCRFCD-HCDDM of McCarran Airport Rainfall Area

DARF VALUES USED : CCRFCD HCDDM

AREA(Sq.mi)	DARF
0.00 - 0.49	1.000
0.50 - 0.71	0.980
0.72 - 0.78	0.976
0.79 - 0.82	0.974

```
 16 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                     NMIN           5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME         0000  STARTING TIME
                       NQ          300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2    0  ENDING DATE
                   NDTIME         0055  ENDING TIME
                   ICENT           19  CENTURY MARK

                COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

         ENGLISH UNITS
              DRAINAGE AREA         SQUARE MILES
              PRECIPITATION DEPTH   INCHES
              LENGTH, ELEVATION     FEET
              FLOW                  CUBIC FEET PER SECOND
              STORAGE VOLUME        ACRE-FEET
              SURFACE AREA          ACRES
              TEMPERATURE           DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
                     NPLAN          1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF PRECIPITATION
                  1.00       .98       .98       .97


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 253 KK    *       CP7  *
           *            *
           **************

 254 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                        COMBINE CP6A, OFF4B, OFF5B

 256 HC          HYDROGRAPH COMBINATION
                     ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION CP7
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = 1.00

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	18.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	15.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	12.	1		1240	153	0.	1		1855	228	0.
1		0015	4	4.	1		0630	79	9.	1		1245	154	0.	1		1900	229	0.
1		0020	5	9.	1		0635	80	7.	1		1250	155	0.	1		1905	230	0.
1		0025	6	19.	1		0640	81	5.	1		1255	156	0.	1		1910	231	0.
1		0030	7	30.	1		0645	82	4.	1		1300	157	0.	1		1915	232	0.
1		0035	8	38.	1		0650	83	3.	1		1305	158	0.	1		1920	233	0.
1		0040	9	38.	1		0655	84	2.	1		1310	159	0.	1		1925	234	0.
1		0045	10	33.	1		0700	85	2.	1		1315	160	0.	1		1930	235	0.
1		0050	11	27.	1		0705	86	1.	1		1320	161	0.	1		1935	236	0.
1		0055	12	23.	1		0710	87	1.	1		1325	162	0.	1		1940	237	0.
1		0100	13	20.	1		0715	88	1.	1		1330	163	0.	1		1945	238	0.
1		0105	14	18.	1		0720	89	0.	1		1335	164	0.	1		1950	239	0.
1		0110	15	19.	1		0725	90	0.	1		1340	165	0.	1		1955	240	0.
1		0115	16	21.	1		0730	91	0.	1		1345	166	0.	1		2000	241	0.
1		0120	17	22.	1		0735	92	0.	1		1350	167	0.	1		2005	242	0.
1		0125	18	26.	1		0740	93	0.	1		1355	168	0.	1		2010	243	0.
1		0130	19	35.	1		0745	94	0.	1		1400	169	0.	1		2015	244	0.
1		0135	20	45.	1		0750	95	0.	1		1405	170	0.	1		2020	245	0.
1		0140	21	54.	1		0755	96	0.	1		1410	171	0.	1		2025	246	0.
1		0145	22	59.	1		0800	97	0.	1		1415	172	0.	1		2030	247	0.
1		0150	23	60.	1		0805	98	0.	1		1420	173	0.	1		2035	248	0.
1		0155	24	56.	1		0810	99	0.	1		1425	174	0.	1		2040	249	0.
1		0200	25	50.	1		0815	100	0.	1		1430	175	0.	1		2045	250	0.
1		0205	26	45.	1		0820	101	0.	1		1435	176	0.	1		2050	251	0.
1		0210	27	45.	1		0825	102	0.	1		1440	177	0.	1		2055	252	0.
1		0215	28	53.	1		0830	103	0.	1		1445	178	0.	1		2100	253	0.
1		0220	29	66.	1		0835	104	0.	1		1450	179	0.	1		2105	254	0.
1		0225	30	77.	1		0840	105	0.	1		1455	180	0.	1		2110	255	0.
1		0230	31	79.	1		0845	106	0.	1		1500	181	0.	1		2115	256	0.
1		0235	32	75.	1		0850	107	0.	1		1505	182	0.	1		2120	257	0.
1		0240	33	76.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	84.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	86.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	82.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	79.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	94.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	131.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0315	40	203.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	335.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	520.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	744.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	886.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	899.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	842.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	754.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	658.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	568.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	485.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	403.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	330.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	275.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	240.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	230.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	235.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	238.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	233.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	233.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	232.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	219.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	196.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	168.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	142.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	118.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	99.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	83.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	68.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	56.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	48.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	41.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	36.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	31.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	27.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	22.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS)			
899.	3.67	176.	44.	43.	43.
		(INCHES) 1.989	1.999	1.999	1.999
		(AC-FT) 87.	88.	88.	88.

CUMULATIVE AREA = .82 SQ MI

HYDROGRAPH AT STATION CP7
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .98

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	18.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	14.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	11.	1		1240	153	0.	1		1855	228	0.
1		0015	4	4.	1		0630	79	9.	1		1245	154	0.	1		1900	229	0.
1		0020	5	8.	1		0635	80	7.	1		1250	155	0.	1		1905	230	0.
1		0025	6	17.	1		0640	81	5.	1		1255	156	0.	1		1910	231	0.
1		0030	7	29.	1		0645	82	4.	1		1300	157	0.	1		1915	232	0.
1		0035	8	36.	1		0650	83	3.	1		1305	158	0.	1		1920	233	0.
1		0040	9	36.	1		0655	84	2.	1		1310	159	0.	1		1925	234	0.
1		0045	10	31.	1		0700	85	2.	1		1315	160	0.	1		1930	235	0.
1		0050	11	26.	1		0705	86	1.	1		1320	161	0.	1		1935	236	0.
1		0055	12	22.	1		0710	87	1.	1		1325	162	0.	1		1940	237	0.
1		0100	13	19.	1		0715	88	1.	1		1330	163	0.	1		1945	238	0.
1		0105	14	17.	1		0720	89	0.	1		1335	164	0.	1		1950	239	0.
1		0110	15	18.	1		0725	90	0.	1		1340	165	0.	1		1955	240	0.
1		0115	16	20.	1		0730	91	0.	1		1345	166	0.	1		2000	241	0.
1		0120	17	21.	1		0735	92	0.	1		1350	167	0.	1		2005	242	0.
1		0125	18	25.	1		0740	93	0.	1		1355	168	0.	1		2010	243	0.
1		0130	19	33.	1		0745	94	0.	1		1400	169	0.	1		2015	244	0.
1		0135	20	44.	1		0750	95	0.	1		1405	170	0.	1		2020	245	0.
1		0140	21	52.	1		0755	96	0.	1		1410	171	0.	1		2025	246	0.
1		0145	22	57.	1		0800	97	0.	1		1415	172	0.	1		2030	247	0.
1		0150	23	58.	1		0805	98	0.	1		1420	173	0.	1		2035	248	0.
1		0155	24	54.	1		0810	99	0.	1		1425	174	0.	1		2040	249	0.
1		0200	25	48.	1		0815	100	0.	1		1430	175	0.	1		2045	250	0.
1		0205	26	43.	1		0820	101	0.	1		1435	176	0.	1		2050	251	0.
1		0210	27	43.	1		0825	102	0.	1		1440	177	0.	1		2055	252	0.
1		0215	28	52.	1		0830	103	0.	1		1445	178	0.	1		2100	253	0.
1		0220	29	64.	1		0835	104	0.	1		1450	179	0.	1		2105	254	0.
1		0225	30	74.	1		0840	105	0.	1		1455	180	0.	1		2110	255	0.
1		0230	31	76.	1		0845	106	0.	1		1500	181	0.	1		2115	256	0.
1		0235	32	72.	1		0850	107	0.	1		1505	182	0.	1		2120	257	0.
1		0240	33	74.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	81.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	84.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	79.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	76.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	91.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	127.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	197.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	326.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	505.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	723.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	864.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	876.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	821.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	736.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	643.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	555.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	474.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	394.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	323.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	269.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	235.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	225.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	229.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	233.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	228.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.

ULBRKS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0450	59	228.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	226.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	214.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	192.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	164.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	139.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	116.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	97.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	81.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	67.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	55.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	47.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	40.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	35.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	30.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	26.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	22.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)				
		(CFS)			
876.	3.67	172.	43.	42.	42.
		(INCHES) 1.937	1.947	1.947	1.947
		(AC-FT) 85.	86.	86.	86.

CUMULATIVE AREA = .82 SQ MI

HYDROGRAPH AT STATION CP7
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .98

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	18.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	14.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	11.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	9.	1		1245	154	0.	1		1900	229	0.
1		0020	5	8.	1		0635	80	7.	1		1250	155	0.	1		1905	230	0.
1		0025	6	17.	1		0640	81	5.	1		1255	156	0.	1		1910	231	0.
1		0030	7	28.	1		0645	82	4.	1		1300	157	0.	1		1915	232	0.
1		0035	8	36.	1		0650	83	3.	1		1305	158	0.	1		1920	233	0.
1		0040	9	36.	1		0655	84	2.	1		1310	159	0.	1		1925	234	0.
1		0045	10	31.	1		0700	85	2.	1		1315	160	0.	1		1930	235	0.
1		0050	11	26.	1		0705	86	1.	1		1320	161	0.	1		1935	236	0.
1		0055	12	22.	1		0710	87	1.	1		1325	162	0.	1		1940	237	0.
1		0100	13	19.	1		0715	88	1.	1		1330	163	0.	1		1945	238	0.
1		0105	14	17.	1		0720	89	0.	1		1335	164	0.	1		1950	239	0.
1		0110	15	18.	1		0725	90	0.	1		1340	165	0.	1		1955	240	0.
1		0115	16	19.	1		0730	91	0.	1		1345	166	0.	1		2000	241	0.
1		0120	17	21.	1		0735	92	0.	1		1350	167	0.	1		2005	242	0.
1		0125	18	24.	1		0740	93	0.	1		1355	168	0.	1		2010	243	0.
1		0130	19	33.	1		0745	94	0.	1		1400	169	0.	1		2015	244	0.
1		0135	20	43.	1		0750	95	0.	1		1405	170	0.	1		2020	245	0.
1		0140	21	51.	1		0755	96	0.	1		1410	171	0.	1		2025	246	0.
1		0145	22	57.	1		0800	97	0.	1		1415	172	0.	1		2030	247	0.
1		0150	23	57.	1		0805	98	0.	1		1420	173	0.	1		2035	248	0.
1		0155	24	54.	1		0810	99	0.	1		1425	174	0.	1		2040	249	0.
1		0200	25	48.	1		0815	100	0.	1		1430	175	0.	1		2045	250	0.
1		0205	26	43.	1		0820	101	0.	1		1435	176	0.	1		2050	251	0.
1		0210	27	43.	1		0825	102	0.	1		1440	177	0.	1		2055	252	0.
1		0215	28	51.	1		0830	103	0.	1		1445	178	0.	1		2100	253	0.
1		0220	29	64.	1		0835	104	0.	1		1450	179	0.	1		2105	254	0.
1		0225	30	74.	1		0840	105	0.	1		1455	180	0.	1		2110	255	0.
1		0230	31	76.	1		0845	106	0.	1		1500	181	0.	1		2115	256	0.
1		0235	32	72.	1		0850	107	0.	1		1505	182	0.	1		2120	257	0.
1		0240	33	73.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	80.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	83.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	79.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	76.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	91.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	126.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	195.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	324.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	502.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	719.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	860.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	872.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	816.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	732.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	640.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	553.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	472.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	392.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	322.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	268.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	234.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	224.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	229.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	232.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	227.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	227.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	225.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	213.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	191.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	164.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	138.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	115.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	97.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	81.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	66.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	54.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	46.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	40.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	35.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	30.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	26.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	22.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
872.	3.67	171. (CFS)	43.	41.	41.
		1.927 (INCHES)	1.937	1.937	1.937
		85. (AC-FT)	85.	85.	85.

CUMULATIVE AREA = .82 SQ MI

HYDROGRAPH AT STATION CP7
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .97

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	18.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	14.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	11.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	9.	1		1245	154	0.	1		1900	229	0.
1		0020	5	8.	1		0635	80	7.	1		1250	155	0.	1		1905	230	0.
1		0025	6	17.	1		0640	81	5.	1		1255	156	0.	1		1910	231	0.
1		0030	7	28.	1		0645	82	4.	1		1300	157	0.	1		1915	232	0.
1		0035	8	36.	1		0650	83	3.	1		1305	158	0.	1		1920	233	0.
1		0040	9	36.	1		0655	84	2.	1		1310	159	0.	1		1925	234	0.
1		0045	10	31.	1		0700	85	2.	1		1315	160	0.	1		1930	235	0.
1		0050	11	25.	1		0705	86	1.	1		1320	161	0.	1		1935	236	0.
1		0055	12	22.	1		0710	87	1.	1		1325	162	0.	1		1940	237	0.
1		0100	13	19.	1		0715	88	1.	1		1330	163	0.	1		1945	238	0.
1		0105	14	17.	1		0720	89	0.	1		1335	164	0.	1		1950	239	0.
1		0110	15	18.	1		0725	90	0.	1		1340	165	0.	1		1955	240	0.
1		0115	16	19.	1		0730	91	0.	1		1345	166	0.	1		2000	241	0.
1		0120	17	21.	1		0735	92	0.	1		1350	167	0.	1		2005	242	0.
1		0125	18	24.	1		0740	93	0.	1		1355	168	0.	1		2010	243	0.
1		0130	19	33.	1		0745	94	0.	1		1400	169	0.	1		2015	244	0.
1		0135	20	43.	1		0750	95	0.	1		1405	170	0.	1		2020	245	0.
1		0140	21	51.	1		0755	96	0.	1		1410	171	0.	1		2025	246	0.
1		0145	22	56.	1		0800	97	0.	1		1415	172	0.	1		2030	247	0.
1		0150	23	57.	1		0805	98	0.	1		1420	173	0.	1		2035	248	0.
1		0155	24	53.	1		0810	99	0.	1		1425	174	0.	1		2040	249	0.
1		0200	25	48.	1		0815	100	0.	1		1430	175	0.	1		2045	250	0.
1		0205	26	42.	1		0820	101	0.	1		1435	176	0.	1		2050	251	0.
1		0210	27	43.	1		0825	102	0.	1		1440	177	0.	1		2055	252	0.
1		0215	28	51.	1		0830	103	0.	1		1445	178	0.	1		2100	253	0.
1		0220	29	63.	1		0835	104	0.	1		1450	179	0.	1		2105	254	0.
1		0225	30	73.	1		0840	105	0.	1		1455	180	0.	1		2110	255	0.
1		0230	31	75.	1		0845	106	0.	1		1500	181	0.	1		2115	256	0.
1		0235	32	72.	1		0850	107	0.	1		1505	182	0.	1		2120	257	0.
1		0240	33	73.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	80.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	83.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	78.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	76.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	90.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	126.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	195.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	323.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	501.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	717.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	858.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	869.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	814.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	731.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	638.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	551.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	470.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	391.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	321.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	267.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	233.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	223.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	228.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	231.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	227.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	226.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	225.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	213.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	190.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	163.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	138.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	115.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	97.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	81.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	66.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	54.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	46.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	40.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	35.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	30.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	26.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	22.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
869.	3.67	170. (CFS)	43.	41.	41.
		1.922 (INCHES)	1.932	1.932	1.932
		84. (AC-FT)	85.	85.	85.

CUMULATIVE AREA = .82 SQ MI

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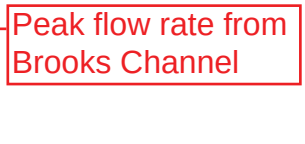
PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATION
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

RATIOS APPLIED TO PRECIPITATION

Attenuated flow rate from Brooks Channel; Central Freeway Channel Peaks at time interval 4:00 hr.

OPERATION	STATION	AREA	PLAN		RATIO 1	RATIO 2	ULBRKS RATIO 3	RATIO 4
					1.00	.98	.98	.97
HYDROGRAPH AT								
+	PMAYF1	.33	1	FLOW	355.	346.	344.	343.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RMAYF1-3	.33	1	FLOW	352.	344.	342.	341.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	PMAYF3	.03	1	FLOW	47.	46.	46.	46.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPMAYF3	.35	1	FLOW	368.	359.	357.	356.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCPMAYF3	.35	1	FLOW	363.	353.	352.	351.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	PMAYF2	.06	1	FLOW	93.	90.	90.	90.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RMAYF2-4	.06	1	FLOW	91.	88.	88.	88.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	MAYF4A	.08	1	FLOW	131.	128.	128.	127.
				TIME	3.58	3.58	3.58	3.58
3 COMBINED AT								
+	CP1A	.49	1	FLOW	480.	467.	465.	464.
				TIME	3.75	3.67	3.75	3.75
ROUTED TO								
+	RCP1A	.49	1	FLOW	480.	467.	465.	464.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	PMAY4B	.01	1	FLOW	17.	16.	16.	16.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	C4BMAYF	.50	1	FLOW	485.	473.	470.	469.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	PMAYF6	.03	1	FLOW	53.	52.	52.	52.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	PMAYF7	.00	1	FLOW	6.	6.	6.	6.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPMAY7	.03	1	FLOW	59.	58.	58.	58.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RCPMAY7	.03	1	FLOW	58.	56.	56.	56.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CRCPAY7	.53	1	FLOW	515.	502.	499.	498.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	PMAY5	.02	1	FLOW	38.	37.	37.	37.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	PMAYF8	.00	1	FLOW	6.	6.	6.	6.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPMAYF8	.02	1	FLOW	44.	43.	43.	43.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	PCP3A	.55	1	FLOW	535.	521.	519.	517.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	PMAYF9	.00	1	FLOW	5.	5.	5.	5.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	PMAYF10	.00	1	FLOW	1.	1.	1.	1.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPMAYF10	.00	1	FLOW	7.	7.	7.	7.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	PCP3B	.55	1	FLOW	538.	525.	522.	521.
				TIME	3.67	3.67	3.67	3.67
ROUTED TO								
+	RPCP3B	.55	1	FLOW	538.	525.	522.	520.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	PBRKS1	.05	1	FLOW	53.	51.	51.	51.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	PBRKS2	.02	1	FLOW	18.	17.	17.	17.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPBRKS2	.06	1	FLOW	71.	68.	68.	68.
				TIME	3.58	3.58	3.58	3.58

HYDROGRAPH AT								
+	PBRKS3	.00	1	FLOW	3.	2.	2.	2.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPBRKS3	.07	1	FLOW	72.	70.	69.	69.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RCPBRK3	.07	1	FLOW	72.	69.	68.	68.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	POFF1	.06	1	FLOW	89.	87.	86.	86.
				TIME	3.67	3.67	3.67	3.67
2 COMBINED AT								
+	CP5	.13	1	FLOW	156.	151.	150.	150.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RCP5	.13	1	FLOW	155.	150.	149.	149.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	POFF2	.05	1	FLOW	75.	74.	73.	73.
				TIME	3.58	3.58	3.58	3.58
2 COMBINED AT								
+	CP5a	.17	1	FLOW	221.	214.	213.	213.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	POFF3	.02	1	FLOW	25.	25.	25.	25.
				TIME	3.58	3.58	3.58	3.58
3 COMBINED AT								
+	CP6	.74	1	FLOW	782.	762.	758.	756.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	LOS1	.00	1	FLOW	4.	4.	4.	4.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	LOS2	.00	1	FLOW	6.	6.	6.	6.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	OFF4A	.02	1	FLOW	29.	29.	28.	28.
				TIME	3.67	3.67	3.67	3.67
2 COMBINED AT								
+	CP5b	.03	1	FLOW	36.	35.	35.	34.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	OFF5A	.02	1	FLOW	29.	28.	28.	28.
				TIME	3.58	3.58	3.58	3.58
4 COMBINED AT								
+	CP6A	.78	1	FLOW	845.	823.	820.	817.
				TIME	3.67	3.67	3.67	3.67
ROUTED TO								
+	RCP6A	.78	1	FLOW	844.	823.	819.	817.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	OFF4B	.02	1	FLOW	29.	28.	28.	28.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	OFF5B	.02	1	FLOW	29.	28.	28.	28.
				TIME	3.58	3.58	3.58	3.58
3 COMBINED AT								
+	CP7	.82	1	FLOW	899.	876.	872.	869.
				TIME	3.67	3.67	3.67	3.67



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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= .00									
RMAYF1-3	MANE	3.09	354.77	231.80	2.01	5.00	352.32	230.00	2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3493E+02 EXCESS= .0000E+00 OUTFLOW= .3494E+02 BASIN STORAGE= .7734E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RMAYF1-3	MANE	3.11	344.27	230.13	1.96	5.00	343.93	230.00	1.96

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3402E+02 EXCESS= .0000E+00 OUTFLOW= .3402E+02 BASIN STORAGE= .7747E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RMAYF1-3	MANE	3.11	343.03	230.42	1.94	5.00	342.08	230.00	1.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3384E+02 EXCESS= .0000E+00 OUTFLOW= .3384E+02 BASIN STORAGE= .7144E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RMAYF1-3	MANE	3.12	342.42	230.57	1.94	5.00	341.22	230.00	1.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3375E+02 EXCESS= .0000E+00 OUTFLOW= .3375E+02 BASIN STORAGE= .6955E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPMAYF3	MANE	1.78	365.72	232.57	2.02	5.00	362.86	230.00	2.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3791E+02 EXCESS= .0000E+00 OUTFLOW= .3791E+02 BASIN STORAGE= .3846E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPMAYF3	MANE	1.79	358.14	232.19	1.97	5.00	353.45	230.00	1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3693E+02 EXCESS= .0000E+00 OUTFLOW= .3693E+02 BASIN STORAGE= .4191E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPMAYF3	MANE	1.79	355.51	232.50	1.95	5.00	351.91	230.00	1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3673E+02 EXCESS= .0000E+00 OUTFLOW= .3673E+02 BASIN STORAGE= .4614E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPMAYF3	MANE	1.79	354.26	232.65	1.95	5.00	351.14	230.00	1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3663E+02 EXCESS= .0000E+00 OUTFLOW= .3663E+02 BASIN STORAGE= .4492E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RMAYF2-4	MANE	3.50	94.15	217.00	1.79	5.00	90.90	215.00	1.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5735E+01 EXCESS= .0000E+00 OUTFLOW= .5738E+01 BASIN STORAGE= .1081E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RMAYF2-4	MANE	3.50	91.69	217.00	1.74	5.00	88.43	215.00	1.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5573E+01 EXCESS= .0000E+00 OUTFLOW= .5576E+01 BASIN STORAGE= .1066E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RMAYF2-4	MANE	3.50	91.20	217.00	1.73	5.00	87.94	215.00	1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5541E+01 EXCESS= .0000E+00 OUTFLOW= .5544E+01 BASIN STORAGE= .1063E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RMAYF2-4	MANE	3.50	90.96	217.00	1.73	5.00	87.69	215.00	1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5525E+01 EXCESS= .0000E+00 OUTFLOW= .5528E+01 BASIN STORAGE= .1062E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCP1A	MANE	.86	479.94	221.70	2.01	5.00	479.64	225.00	2.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5251E+02 EXCESS= .0000E+00 OUTFLOW= .5251E+02 BASIN STORAGE= .2599E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCP1A	MANE	.87	467.88	221.54	1.96	5.00	467.46	225.00	1.96

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5115E+02 EXCESS= .0000E+00 OUTFLOW= .5115E+02 BASIN STORAGE= .2600E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCP1A	MANE	.87	465.23	221.88	1.95	5.00	464.74	225.00	1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5088E+02 EXCESS= .0000E+00 OUTFLOW= .5088E+02 BASIN STORAGE= .2564E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCP1A	MANE	.87	463.80	222.03	1.95	5.00	463.55	225.00	1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5074E+02 EXCESS= .0000E+00 OUTFLOW= .5074E+02 BASIN STORAGE= .2805E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPMAY7	MANE	.90	58.36	210.90	2.23	5.00	57.53	210.00	2.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3528E+01 EXCESS= .0000E+00 OUTFLOW= .3527E+01 BASIN STORAGE= .7712E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPMAY7	MANE	.91	56.98	210.95	2.17	5.00	56.17	210.00	2.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3442E+01 EXCESS= .0000E+00 OUTFLOW= .3441E+01 BASIN STORAGE= .7685E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPMAY7	MANE	.91	56.41	211.15	2.16	5.00	55.72	210.00	2.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3425E+01 EXCESS= .0000E+00 OUTFLOW= .3424E+01 BASIN STORAGE= .8526E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPMAY7	MANE	.91	56.15	210.34	2.16	5.00	55.54	210.00	2.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3417E+01 EXCESS= .0000E+00 OUTFLOW= .3416E+01 BASIN STORAGE= .8209E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RPCP3B	MANE	.48	538.12	220.37	2.04	5.00	537.95	220.00	2.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5987E+02 EXCESS= .0000E+00 OUTFLOW= .5987E+02 BASIN STORAGE= .6673E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPCP3B MANE .49 524.68 220.17 1.99 5.00 524.55 220.00 1.99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5833E+02 EXCESS= .0000E+00 OUTFLOW= .5833E+02 BASIN STORAGE= .6625E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPCP3B MANE .49 522.00 220.13 1.98 5.00 521.91 220.00 1.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5802E+02 EXCESS= .0000E+00 OUTFLOW= .5802E+02 BASIN STORAGE= .6851E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPCP3B MANE .49 520.55 220.38 1.97 5.00 520.42 220.00 1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5787E+02 EXCESS= .0000E+00 OUTFLOW= .5787E+02 BASIN STORAGE= .6818E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBRK3 MANE 3.36 72.17 215.04 1.24 5.00 72.08 215.00 1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4317E+01 EXCESS= .0000E+00 OUTFLOW= .4318E+01 BASIN STORAGE= .5086E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBRK3 MANE 3.39 69.92 216.85 1.20 5.00 68.96 215.00 1.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4169E+01 EXCESS= .0000E+00 OUTFLOW= .4170E+01 BASIN STORAGE= .5070E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBRK3 MANE 3.39 68.94 217.22 1.19 5.00 68.35 215.00 1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4138E+01 EXCESS= .0000E+00 OUTFLOW= .4139E+01 BASIN STORAGE= .7291E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBRK3 MANE 3.40 68.46 217.40 1.19 5.00 68.12 215.00 1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4123E+01 EXCESS= .0000E+00 OUTFLOW= .4124E+01 BASIN STORAGE= .7006E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP5 MANE 3.04 155.27 218.92 1.70 5.00 154.69 220.00 1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1151E+02 EXCESS= .0000E+00 OUTFLOW= .1151E+02 BASIN STORAGE= .6599E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP5 MANE 3.07 150.50 220.74 1.65 5.00 149.94 220.00 1.65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1119E+02 EXCESS= .0000E+00 OUTFLOW= .1119E+02 BASIN STORAGE= .6278E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP5 MANE 3.07 149.72 221.11 1.65 5.00 149.39 220.00 1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1112E+02 EXCESS= .0000E+00 OUTFLOW= .1112E+02 BASIN STORAGE= .5754E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP5 MANE 3.07 149.12 221.27 1.64 5.00 148.89 220.00 1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1109E+02 EXCESS= .0000E+00 OUTFLOW= .1109E+02 BASIN STORAGE= .5592E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP6A MANE .34 844.55 220.13 2.00 5.00 844.46 220.00 2.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8361E+02 EXCESS= .0000E+00 OUTFLOW= .8361E+02 BASIN STORAGE= .5754E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP6A MANE .34 823.00 220.04 1.95 5.00 822.94 220.00 1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8144E+02 EXCESS= .0000E+00 OUTFLOW= .8144E+02 BASIN STORAGE= .5757E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP6A MANE .34 819.04 220.12 1.94 5.00 818.96 220.00 1.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8101E+02 EXCESS= .0000E+00 OUTFLOW= .8101E+02 BASIN STORAGE= .5722E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP6A MANE .34 816.81 220.03 1.93 5.00 816.76 220.00 1.93

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8079E+02 EXCESS= .0000E+00 OUTFLOW= .8079E+02 BASIN STORAGE= .5536E-03 PERCENT ERROR= .0

*** NORMAL END OF HEC-1 ***

Appendix C

Appendix C-1

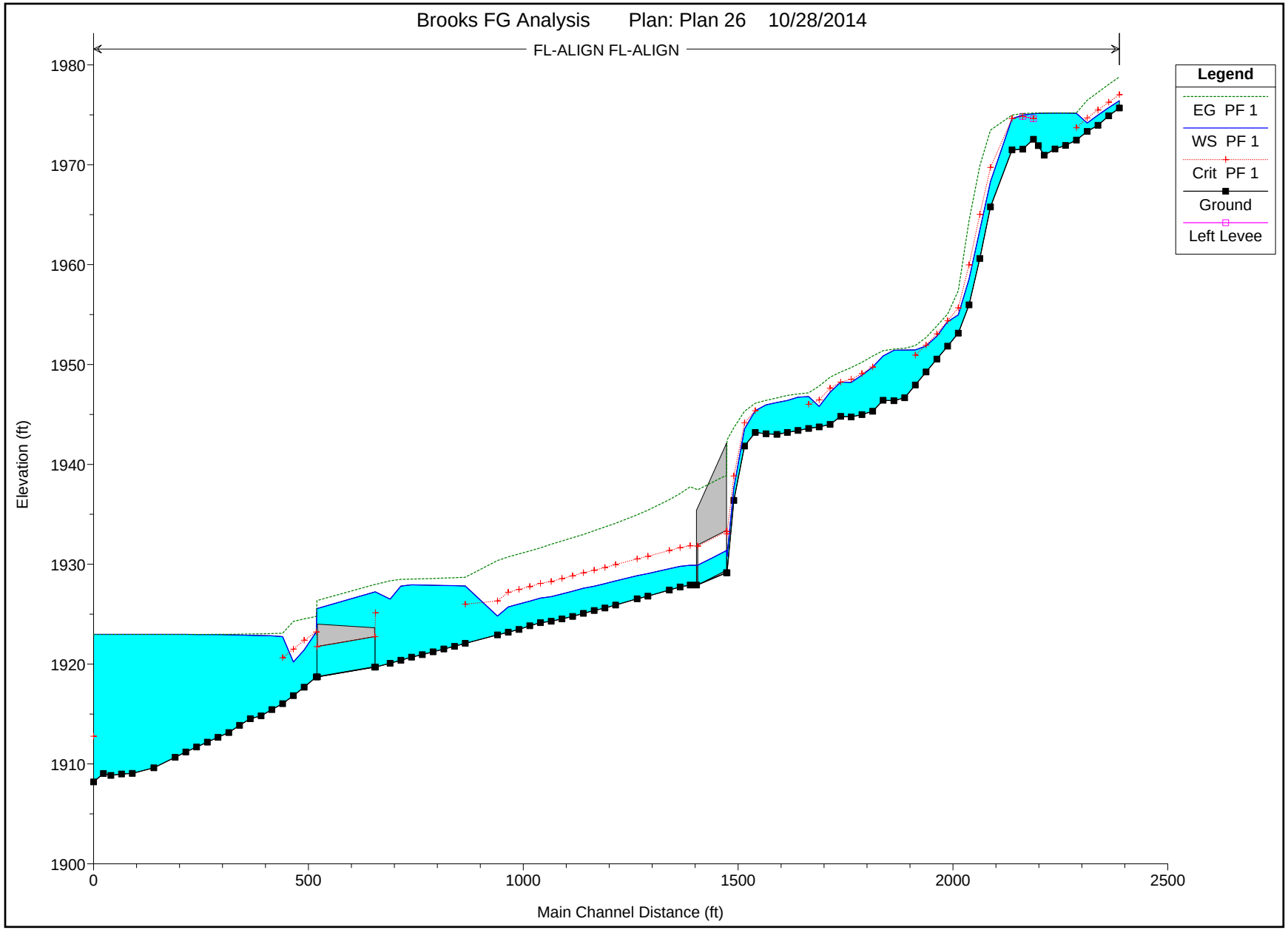
Existing Condition HEC-RAS Analysis

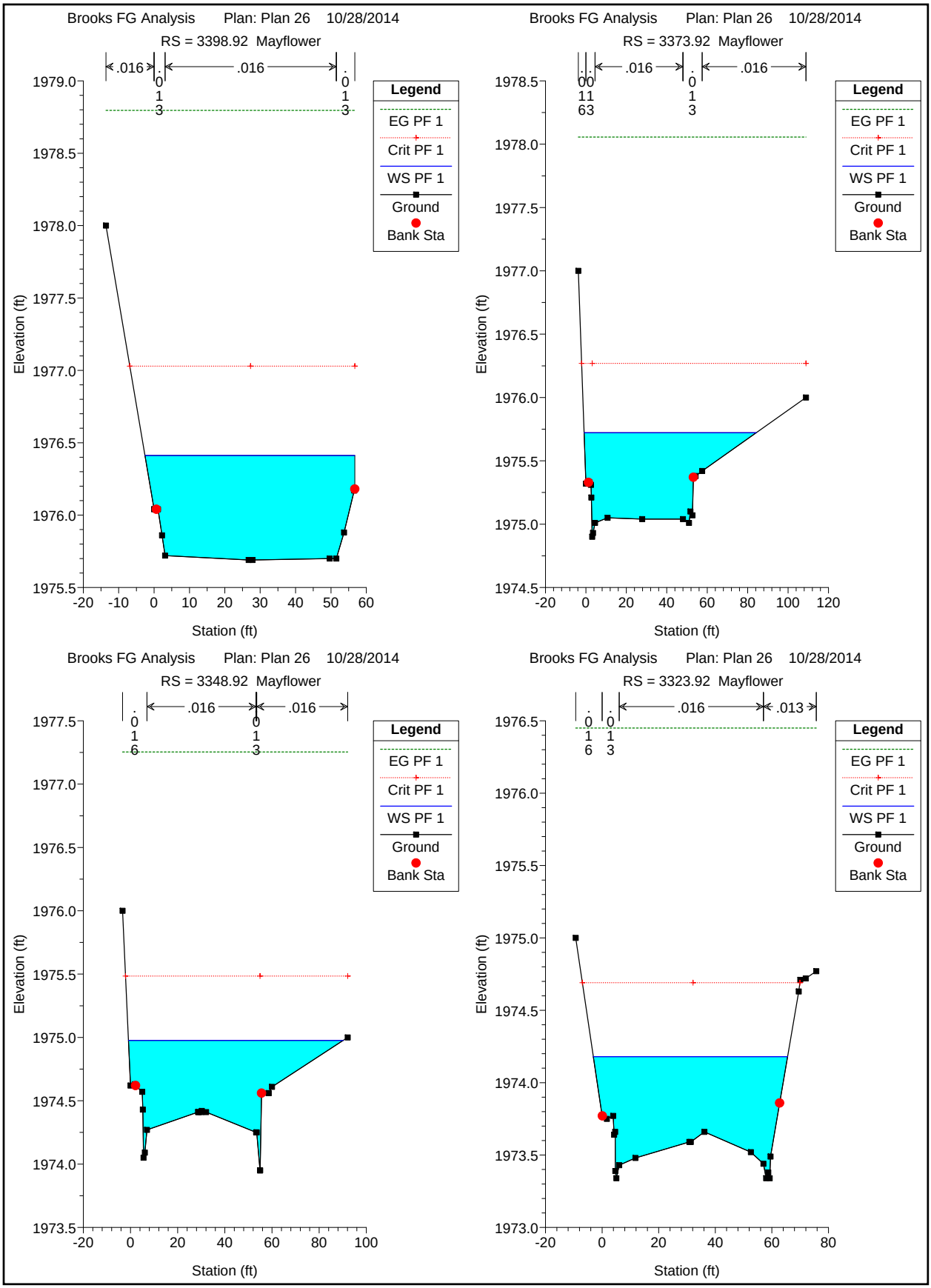
HEC-RAS Plan: Plan 01 River: FL-ALIGN Reach: FL-ALIGN Profile: PF 1

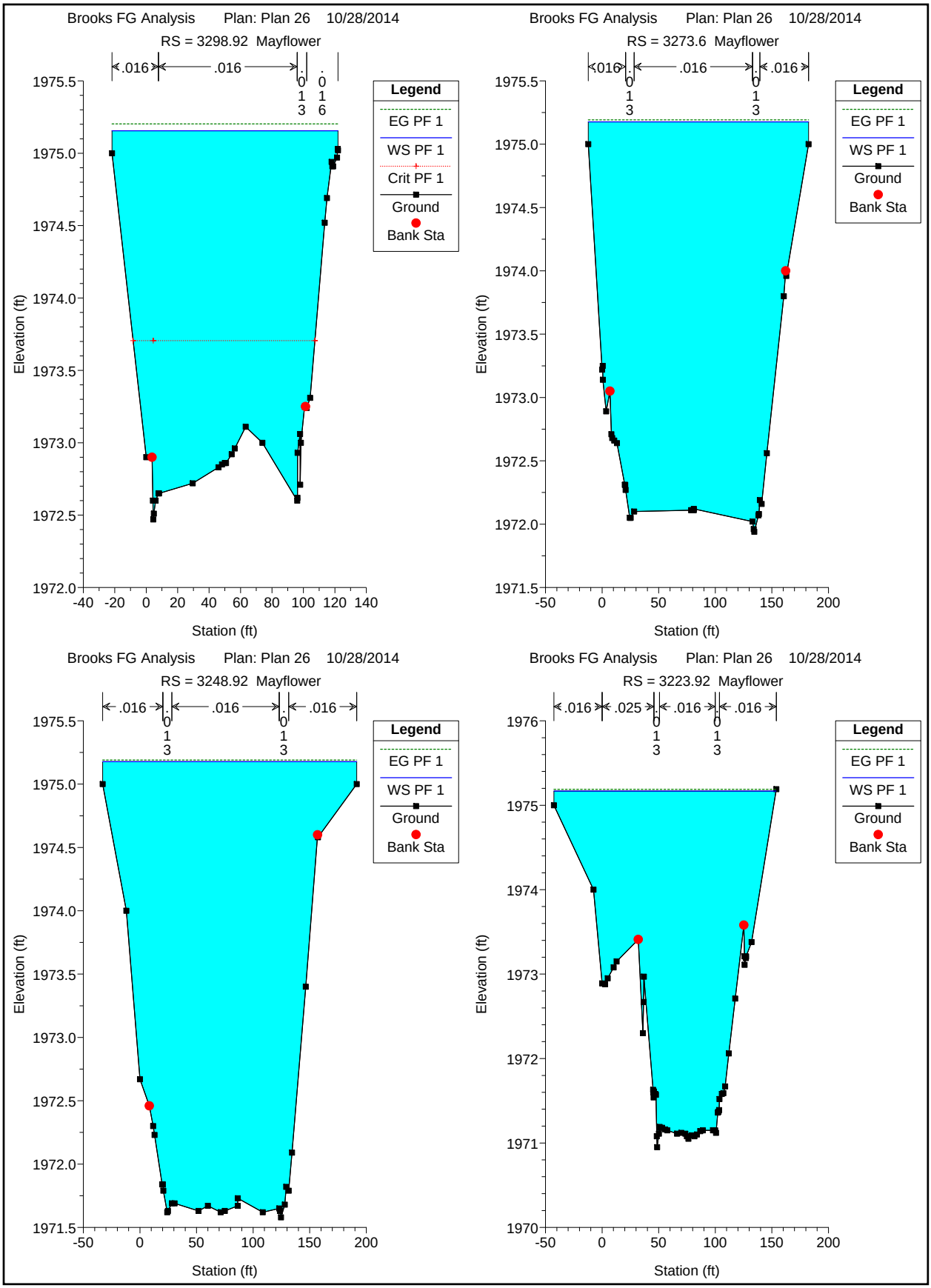
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
FL-ALIGN	3398.92	PF 1	480.00	1975.69	1976.41	1977.03	1978.80	0.028585	12.44	38.93	59.32	2.66
FL-ALIGN	3373.92	PF 1	480.00	1974.90	1975.72	1976.27	1978.06	0.029391	12.63	41.15	85.14	2.71
FL-ALIGN	3348.92	PF 1	480.00	1973.95	1974.98	1975.49	1977.25	0.034080	12.63	42.16	91.01	2.79
FL-ALIGN	3323.92	PF 1	480.00	1973.34	1974.18	1974.69	1976.45	0.030062	12.16	40.07	68.65	2.72
FL-ALIGN	3298.92	PF 1	480.00	1972.47	1975.16	1973.71	1975.20	0.000125	1.83	281.40	143.74	0.21
FL-ALIGN	3273.6	PF 1	480.00	1971.94	1975.18		1975.19	0.000027	1.01	494.72	194.57	0.10
FL-ALIGN	3248.92	PF 1	480.00	1971.58	1975.18		1975.19	0.000019	0.93	550.02	224.41	0.09
FL-ALIGN	3223.92	PF 1	480.00	1970.95	1975.17		1975.19	0.000033	1.24	462.80	196.23	0.12
FL-ALIGN	3210.22	PF 1	480.00	1971.92	1975.14		1975.19	0.000458	1.51	296.36	214.14	0.19
FL-ALIGN	3198.92	PF 1	480.00	1972.55	1975.10	1974.63	1975.18	0.000941	1.44	234.77	216.72	0.23
FL-ALIGN	3173.92	PF 1	480.00	1971.56	1974.98	1974.84	1975.13	0.003499	2.92	155.91	151.31	0.46
FL-ALIGN	3148.92	PF 1	480.00	1971.49	1974.62	1974.62	1974.98	0.008281	5.37	106.68	164.78	0.73
FL-ALIGN	3098.95	PF 1	480.00	1965.77	1968.32	1969.74	1973.47	0.128374	18.21	26.36	19.38	2.75
FL-ALIGN	3073.97	PF 1	480.00	1960.62	1963.45	1965.02	1969.89	0.149362	20.36	23.58	16.05	2.96
FL-ALIGN	3048.96	PF 1	480.00	1955.97	1958.55	1959.97	1964.42	0.323881	19.44	24.70	19.36	3.03
FL-ALIGN	3023.98	PF 1	480.00	1953.14	1954.97	1955.68	1957.39	0.184945	12.48	38.46	39.63	2.23
FL-ALIGN	2998.98	PF 1	480.00	1951.84	1954.29	1954.37	1955.05	0.039488	7.01	68.43	52.55	1.08
FL-ALIGN	2973.99	PF 1	480.00	1950.54	1952.83	1953.07	1953.87	0.054517	8.16	58.83	45.82	1.27
FL-ALIGN	2948.99	PF 1	480.00	1949.25	1951.86	1951.93	1952.70	0.036745	7.35	65.27	44.11	1.07
FL-ALIGN	2923.99	PF 1	480.00	1947.95	1951.45	1950.94	1951.89	0.015012	5.33	90.14	50.40	0.70
FL-ALIGN	2898.97	PF 1	480.00	1946.67	1951.45		1951.62	0.004589	3.28	146.27	69.38	0.40
FL-ALIGN	2874.04	PF 1	480.00	1946.37	1951.42		1951.54	0.001882	2.51	174.46	93.22	0.26
FL-ALIGN	2849.1	PF 1	480.00	1946.42	1950.85		1951.38	0.013690	5.85	82.02	35.99	0.68
FL-ALIGN	2824.82	PF 1	480.00	1945.32	1949.75	1949.75	1950.84	0.032801	8.38	57.31	27.03	1.01
FL-ALIGN	2799.78	PF 1	480.00	1944.99	1948.93	1949.10	1950.22	0.018400	9.12	52.64	24.65	1.10
FL-ALIGN	2774.63	PF 1	480.00	1944.75	1948.21	1948.51	1949.70	0.022339	9.76	49.16	24.15	1.21
FL-ALIGN	2750.44	PF 1	480.00	1944.81	1948.23	1948.24	1949.25	0.015174	8.11	59.19	29.48	1.01
FL-ALIGN	2725.42	PF 1	480.00	1944.00	1947.23	1947.62	1948.73	0.025155	9.82	48.86	26.75	1.28
FL-ALIGN	2700.17	PF 1	480.00	1943.75	1945.80	1946.45	1947.84	0.044932	11.47	41.86	28.58	1.67
FL-ALIGN	2675.8	PF 1	480.00	1943.60	1946.78	1946.01	1947.17	0.004877	4.99	96.22	43.34	0.59
FL-ALIGN	2650.79	PF 1	480.00	1943.40	1946.73		1947.04	0.003645	4.49	106.94	45.35	0.52
FL-ALIGN	2626.19	PF 1	480.00	1943.20	1946.40		1946.90	0.006898	5.69	84.34	40.33	0.69
FL-ALIGN	2601.78	PF 1	480.00	1943.00	1946.20		1946.66	0.013973	5.46	87.88	44.58	0.69
FL-ALIGN	2576.59	PF 1	480.00	1943.06	1945.95		1946.41	0.007211	5.43	88.36	47.17	0.70
FL-ALIGN	2551.36	PF 1	480.00	1943.20	1945.38	1945.38	1946.12	0.016168	6.91	69.49	47.67	1.01
FL-ALIGN	2526.44	PF 1	480.00	1941.83	1943.55	1944.15	1945.32	0.061139	10.66	45.05	43.82	1.85
FL-ALIGN	2501.48	PF 1	480.00	1936.39	1937.68	1938.84	1943.67	0.040256	19.65	24.43	30.50	3.87
FL-ALIGN	2485.61	PF 1	521.00	1929.15	1930.78	1933.03	1942.44	0.041980	27.40	19.01	12.44	3.91
FL-ALIGN	2484.00		Culvert									
FL-ALIGN	2399.9	PF 1	525.00	1927.92	1929.90	1931.85	1937.76	0.023409	22.50	23.16	11.79	2.83
FL-ALIGN	2376.49	PF 1	525.00	1927.72	1929.79	1931.66	1937.08	0.020740	21.66	24.23	11.96	2.68
FL-ALIGN	2351.49	PF 1	525.00	1927.42	1929.55	1931.38	1936.47	0.018719	21.11	24.87	11.86	2.57
FL-ALIGN	2301.49	PF 1	525.00	1926.80	1929.06	1930.80	1935.42	0.016408	20.23	25.95	11.82	2.41
FL-ALIGN	2276.48	PF 1	525.00	1926.54	1928.85	1930.54	1934.94	0.015432	19.80	26.51	11.81	2.33
FL-ALIGN	2226.48	PF 1	525.00	1925.91	1928.33	1929.96	1934.10	0.014116	19.28	27.23	11.63	2.22
FL-ALIGN	2201.48	PF 1	525.00	1925.62	1928.06	1929.67	1933.73	0.013788	19.12	27.46	11.59	2.19
FL-ALIGN	2176.48	PF 1	525.00	1925.37	1927.80	1929.39	1933.36	0.013423	18.91	27.76	11.57	2.15
FL-ALIGN	2151.48	PF 1	525.00	1925.08	1927.59	1929.15	1932.97	0.012711	18.61	28.21	11.47	2.09
FL-ALIGN	2126.48	PF 1	525.00	1924.77	1927.29	1928.84	1932.66	0.012685	18.59	28.25	11.52	2.09
FL-ALIGN	2101.47	PF 1	525.00	1924.52	1927.03	1928.56	1932.33	0.012478	18.47	28.43	11.54	2.07
FL-ALIGN	2076.46	PF 1	525.00	1924.29	1926.75	1928.27	1932.01	0.012660	18.40	28.53	11.92	2.10
FL-ALIGN	2051.45	PF 1	525.00	1924.15	1926.61	1928.08	1931.63	0.011824	17.98	29.19	11.88	2.02
FL-ALIGN	2026.52	PF 1	525.00	1923.84	1926.31	1927.77	1931.33	0.011856	17.99	29.19	11.99	2.03
FL-ALIGN	2001.52	PF 1	525.00	1923.47	1926.01	1927.47	1931.03	0.011787	17.98	29.20	11.88	2.02
FL-ALIGN	1976.52	PF 1	525.00	1923.20	1925.73	1927.19	1930.74	0.011774	17.97	29.22	11.92	2.02
FL-ALIGN	1951.52	PF 1	525.00	1922.92	1924.81	1926.33	1930.36	0.014085	18.91	27.77	23.68	2.46
FL-ALIGN	1876.56	PF 1	525.00	1922.08	1927.82	1925.99	1928.70	0.000936	7.57	70.79	13.83	0.56
FL-ALIGN	1851.56	PF 1	525.00	1921.78	1927.86		1928.65	0.000798	7.16	75.23	14.30	0.51
FL-ALIGN	1826.56	PF 1	525.00	1921.52	1927.87		1928.61	0.001137	6.94	77.53	13.59	0.49
FL-ALIGN	1801.56	PF 1	525.00	1921.23	1927.89		1928.57	0.000648	6.63	81.11	13.32	0.45
FL-ALIGN	1776.56	PF 1	525.00	1920.94	1927.91		1928.54	0.000582	6.36	84.58	13.25	0.43
FL-ALIGN	1751.58	PF 1	525.00	1920.70	1927.94		1928.51	0.000522	6.10	87.73	13.20	0.40
FL-ALIGN	1726.57	PF 1	525.00	1920.39	1927.80		1928.49	0.000679	6.67	82.70	12.95	0.43
FL-ALIGN	1701.57	PF 1	652.00	1920.08	1926.51		1928.34	0.002459	10.94	62.84	11.46	0.77
FL-ALIGN	1667.4	PF 1	652.00	1919.70	1927.22	1925.15	1927.97	0.000771	7.30	100.32	18.95	0.47
FL-ALIGN	1660		Culvert									
FL-ALIGN	1529.8	PF 1	820.00	1918.72	1923.23	1923.23	1924.77	0.001908	9.97	82.26	26.80	1.00
FL-ALIGN	1501.53	PF 1	820.00	1917.68	1921.42	1922.40	1924.53	0.005062	14.16	57.91	23.56	1.59
FL-ALIGN	1476.5	PF 1	820.00	1916.84	1920.21	1921.50	1924.28	0.007241	16.19	50.64	22.03	1.88
FL-ALIGN	1451.37	PF 1	820.00	1916.04	1922.75	1920.63	1923.09	0.000274	4.99	199.31	92.88	0.41
FL-ALIGN	1426.37	PF 1	820.00	1915.44	1922.82		1923.05	0.000162	4.12	251.57	108.27	0.32
FL-ALIGN	1401.35	PF 1	820.00	1914.82	1922.86		1923.03	0.000104	3.61	288.20	101.88	0.26
FL-ALIGN	1376.2	PF 1	820.00	1914.53	1922.87		1923.02	0.000089	3.57	312.88	111.67	0.24
FL-ALIGN	1351.17	PF 1	820.00	1913.87	1922.92		1923.00	0.000043	2.64	427.79	129.23	0.17
FL-ALIGN	1326.16	PF 1	820.00	1913.15	1922.94		1922.99	0.000027	2.17	526.80	149.75	0.14

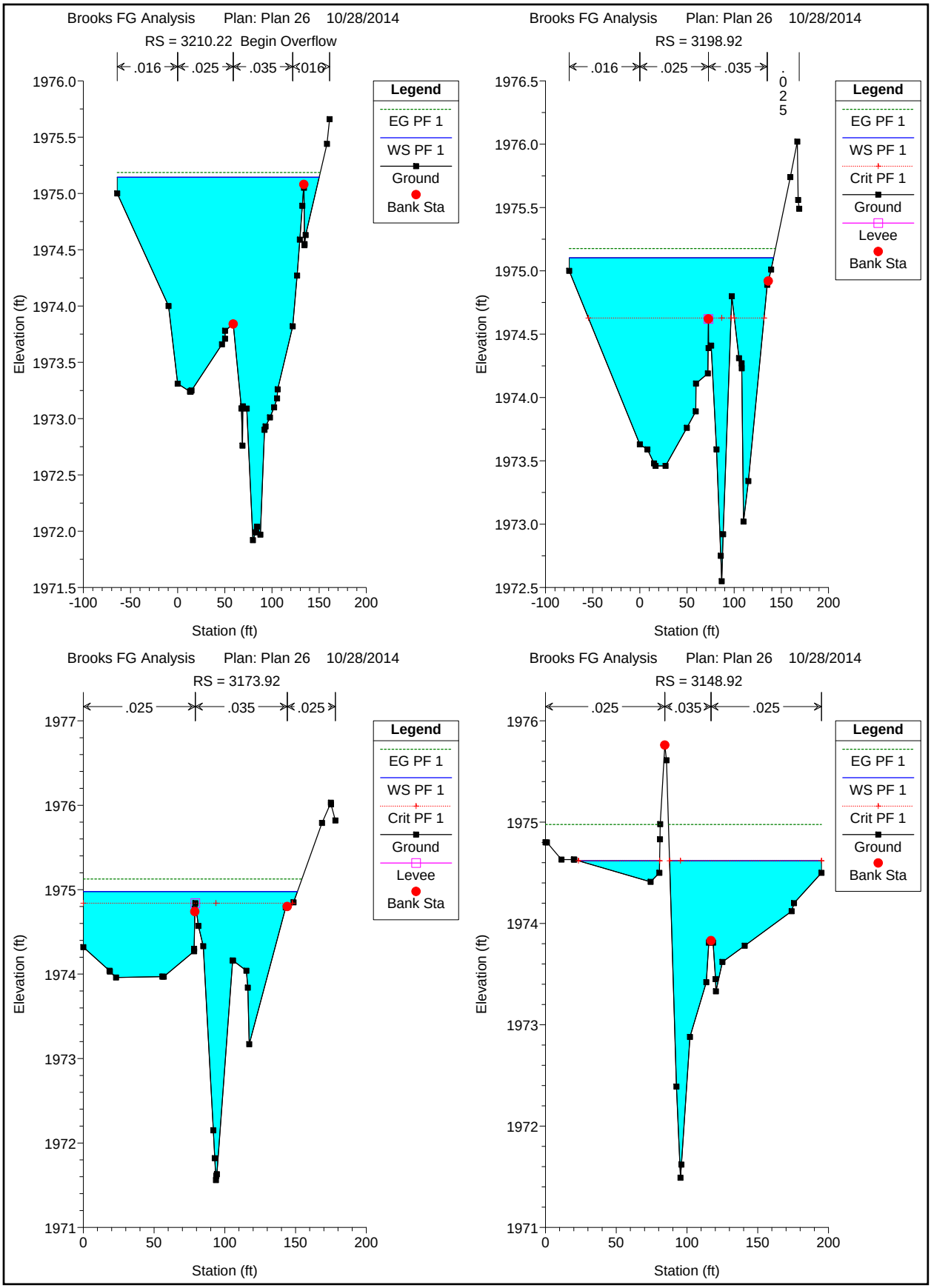
HEC-RAS Plan: Plan 01 River: FL-ALIGN Reach: FL-ALIGN Profile: PF 1 (Continued)

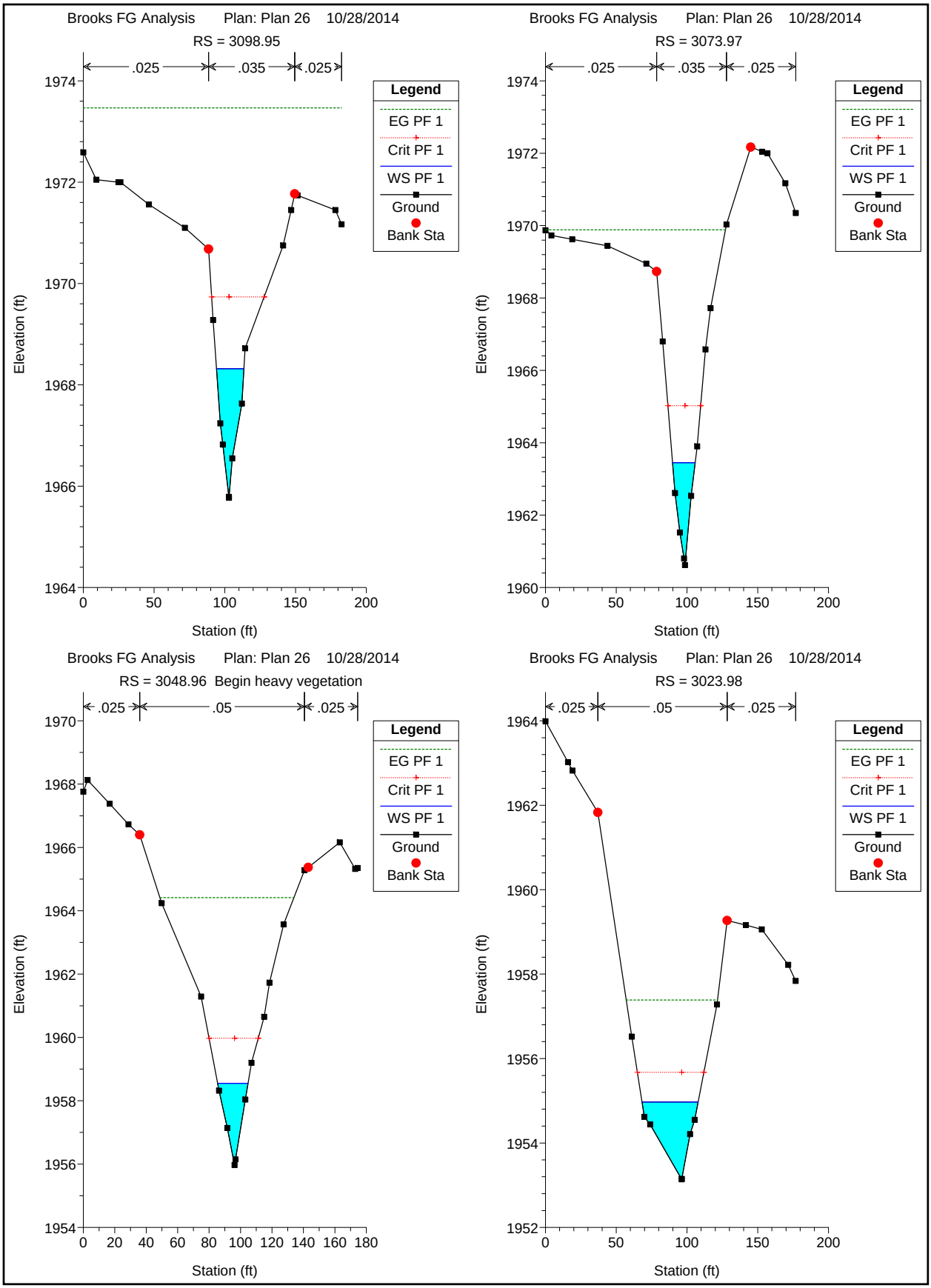
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
FL-ALIGN	1301.14	PF 1	820.00	1912.67	1922.95		1922.98	0.000016	1.76	712.32	222.68	0.11
FL-ALIGN	1276.14	PF 1	820.00	1912.19	1922.96		1922.98	0.000009	1.36	911.23	241.54	0.08
FL-ALIGN	1251.15	PF 1	820.00	1911.70	1922.97		1922.98	0.000005	1.09	1121.74	263.09	0.06
FL-ALIGN	1226.18	PF 1	820.00	1911.20	1922.97		1922.98	0.000003	0.93	1320.40	290.16	0.05
FL-ALIGN	1201.34	PF 1	820.00	1910.67	1922.97		1922.98	0.000003	0.90	1439.65	338.52	0.05
FL-ALIGN	1151.6	PF 1	869.00	1909.61	1922.97		1922.97	0.000002	0.63	2077.55	474.63	0.04
FL-ALIGN	1101.71	PF 1	869.00	1909.06	1922.97		1922.97	0.000003	0.79	2341.58	449.50	0.05
FL-ALIGN	1076.62	PF 1	869.00	1909.00	1922.97		1922.97	0.000003	0.78	2298.58	413.95	0.05
FL-ALIGN	1051.67	PF 1	869.00	1908.86	1922.97		1922.97	0.000004	0.47	2764.91	718.70	0.03
FL-ALIGN	1034.38	PF 1	869.00	1909.04	1922.97		1922.97	0.000005	0.52	2601.32	657.52	0.03
FL-ALIGN	1011.5	PF 1	869.00	1908.20	1922.97	1912.78	1922.97	0.000003	0.47	3252.57	1031.58	0.02

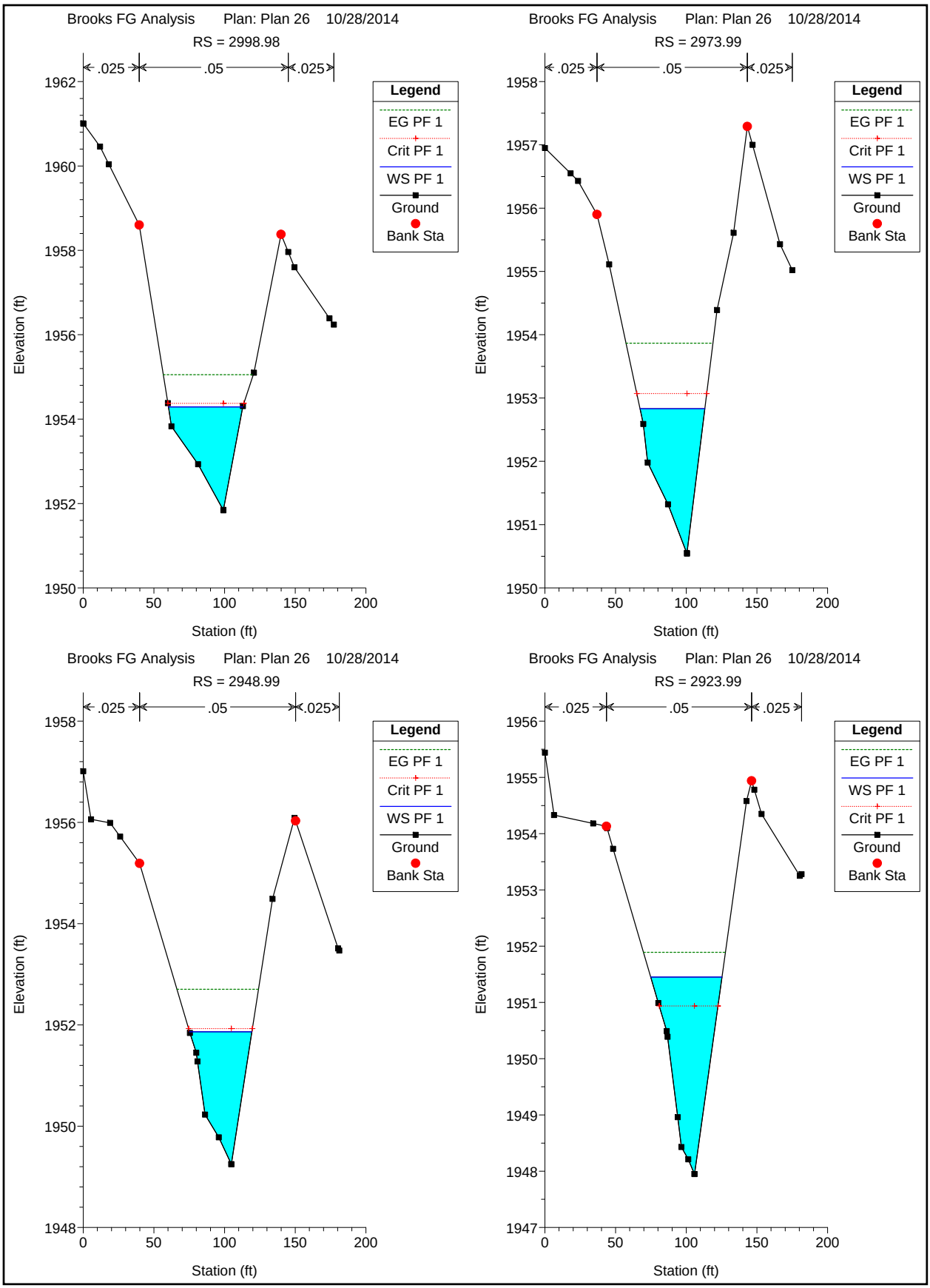

Brooks FG Analysis Plan: Plan 26 10/28/2014
FL-ALIGN FL-ALIGN
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Left Levee
Elevation (ft)
1980
1970
1960
1950
1940
1930
1920
1910
1900
0
500
1000
1500
2000
2500
Main Channel Distance (ft)

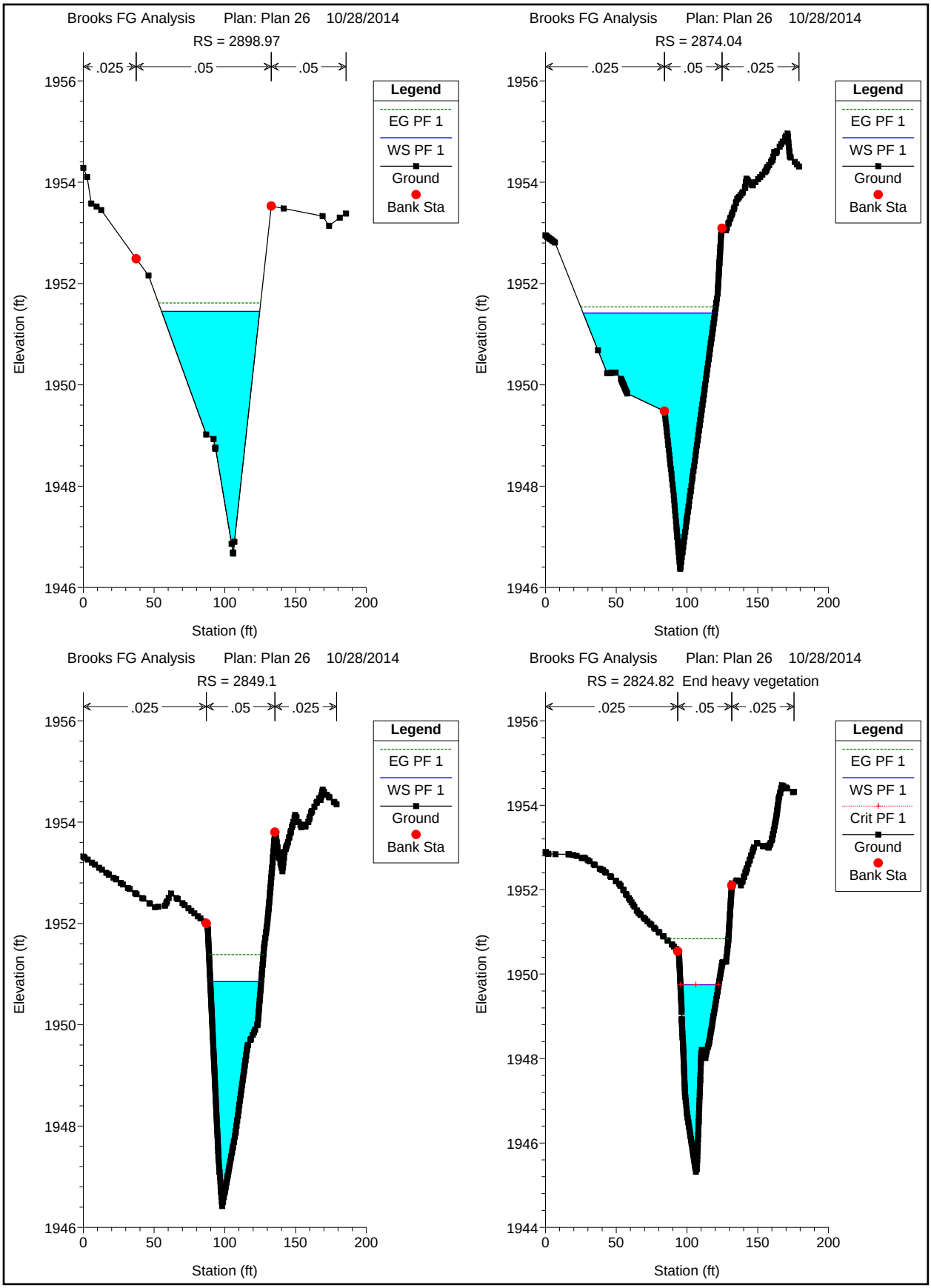

Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3398.92 Mayflower
.016
.016
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3373.92 Mayflower
.016
.016
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3348.92 Mayflower
.016
.016
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3323.92 Mayflower
.016
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

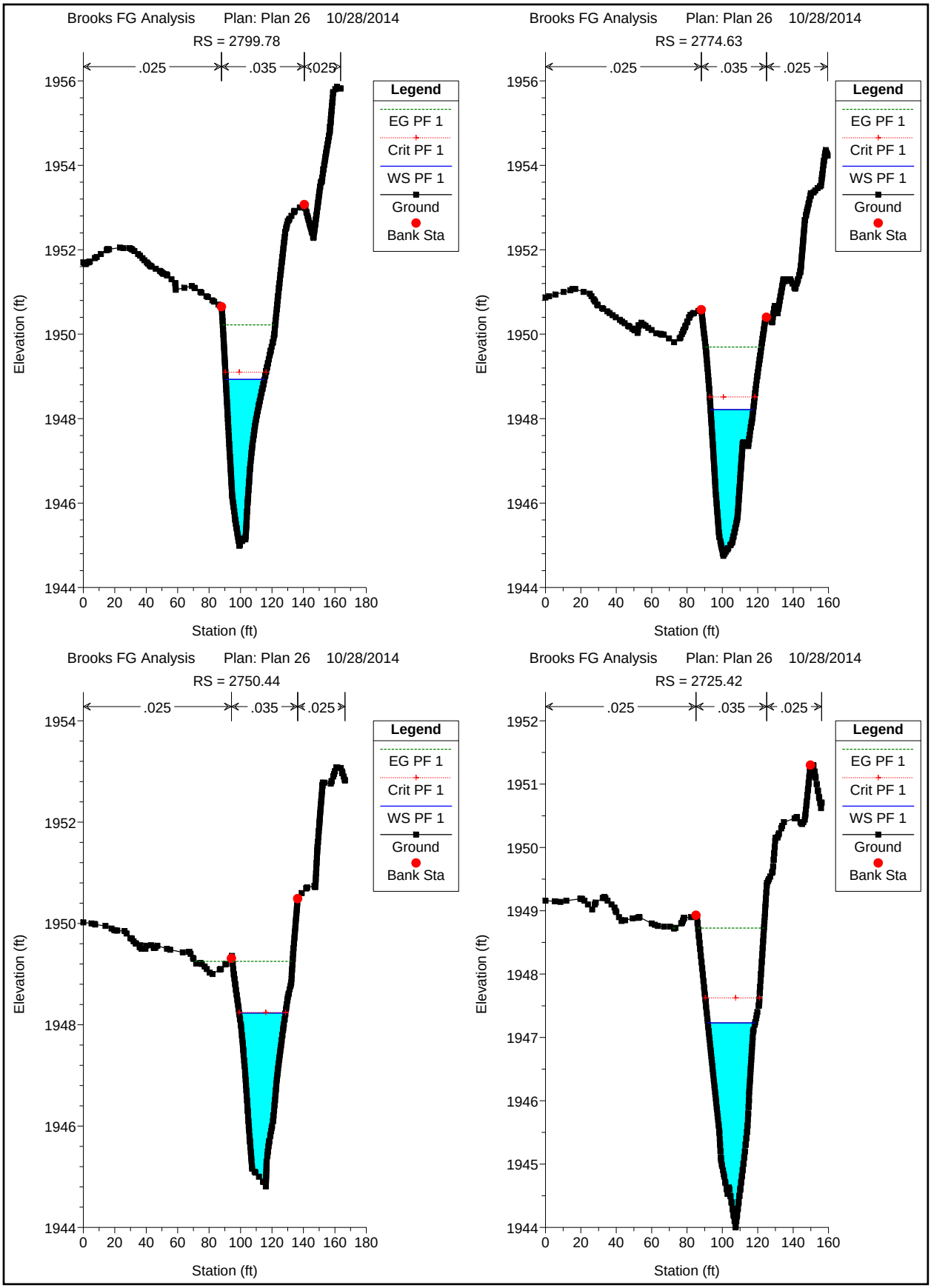

Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3298.92 Mayflower
.016
.016
.013
.016
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3273.6 Mayflower
.016
.016
.013
.016
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3248.92 Mayflower
.016
.016
.013
.016
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3223.92 Mayflower
.016
.025
.013
.016
.013
.016
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

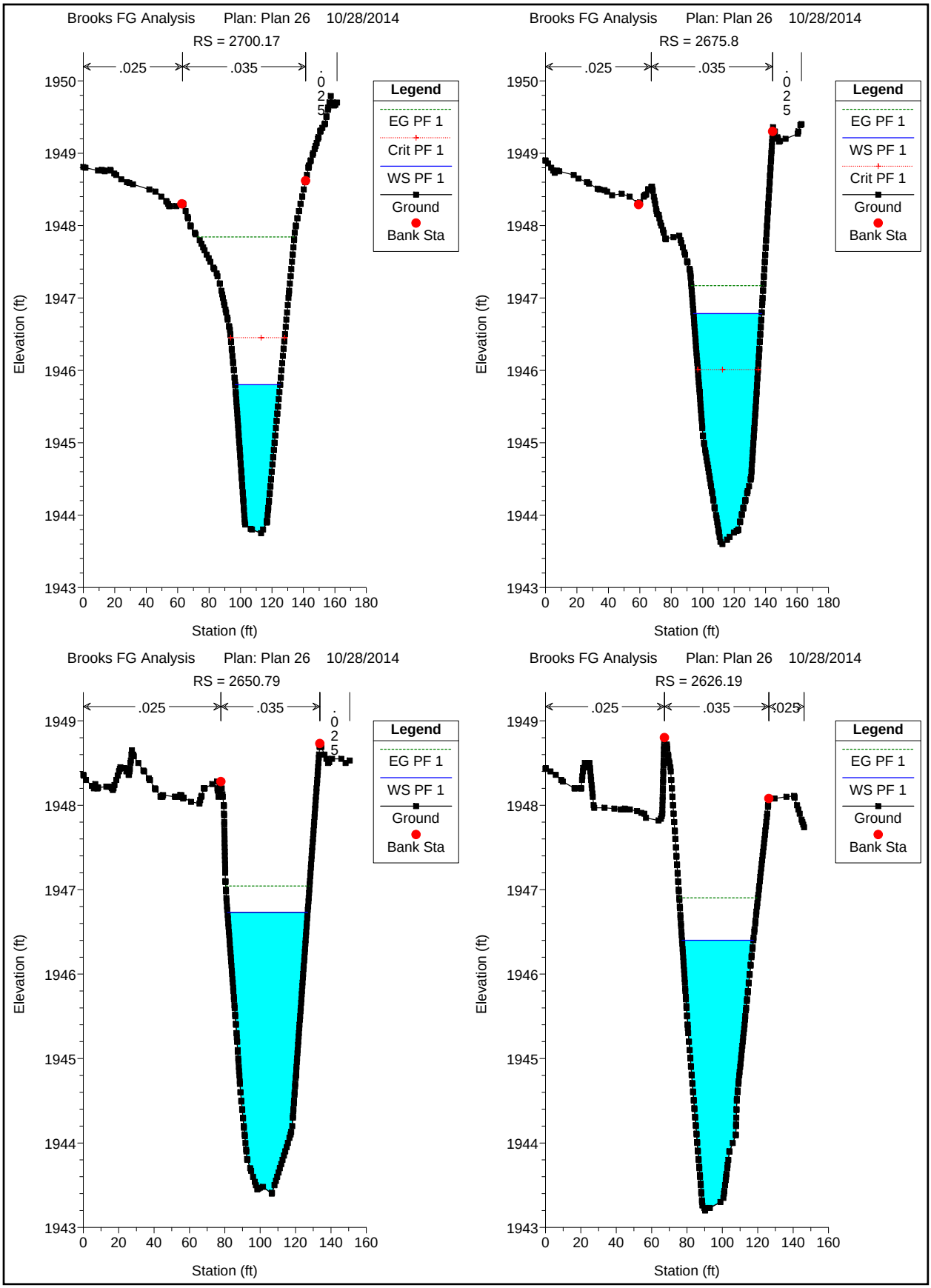

Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3210.22 Begin Overflow
.016
.025
.035
.016
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3198.92
.016
.025
.035
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3173.92
.025
.035
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3148.92
.025
.035
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

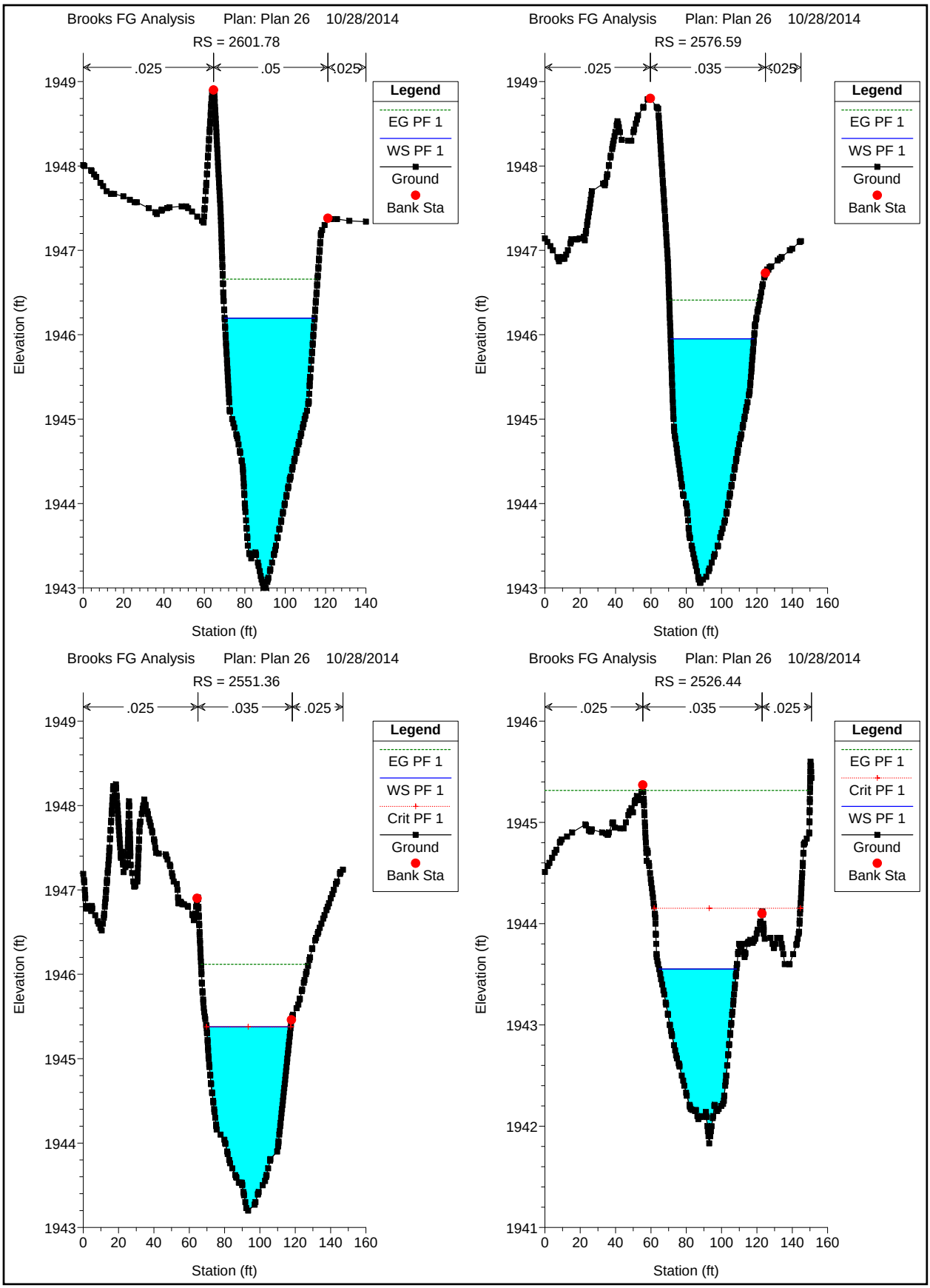

Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3098.95
.025
.035
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3073.97
.025
.035
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3048.96 Begin heavy vegetation
.025
.05
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 3023.98
.025
.05
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

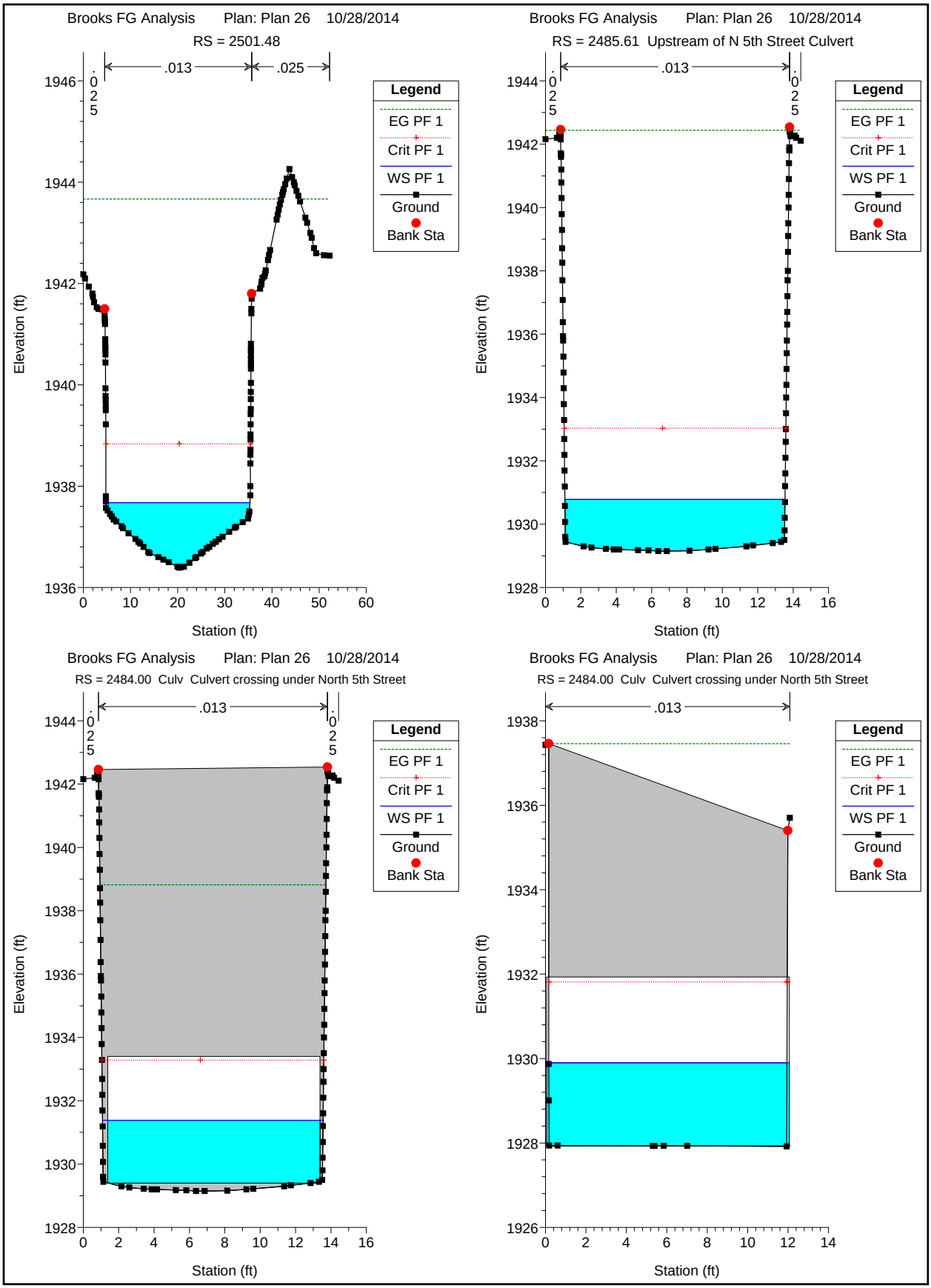

Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2998.98
.025
.05
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2973.99
.025
.05
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2948.99
.025
.05
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2923.99
.025
.05
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

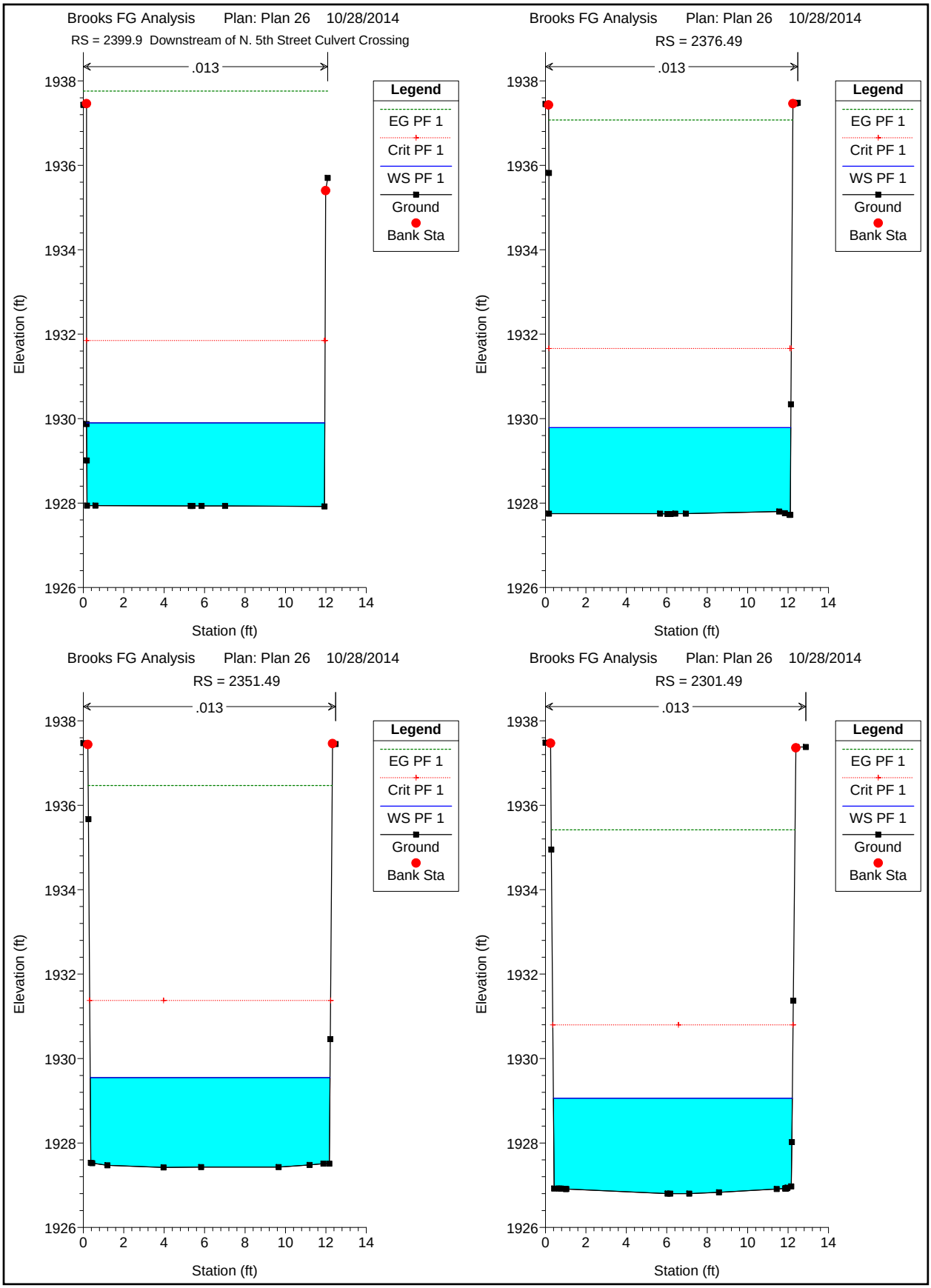

Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2898.97
.025
.05
.05
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2874.04
.025
.05
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2849.1
.025
.05
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2824.82 End heavy vegetation
.025
.05
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

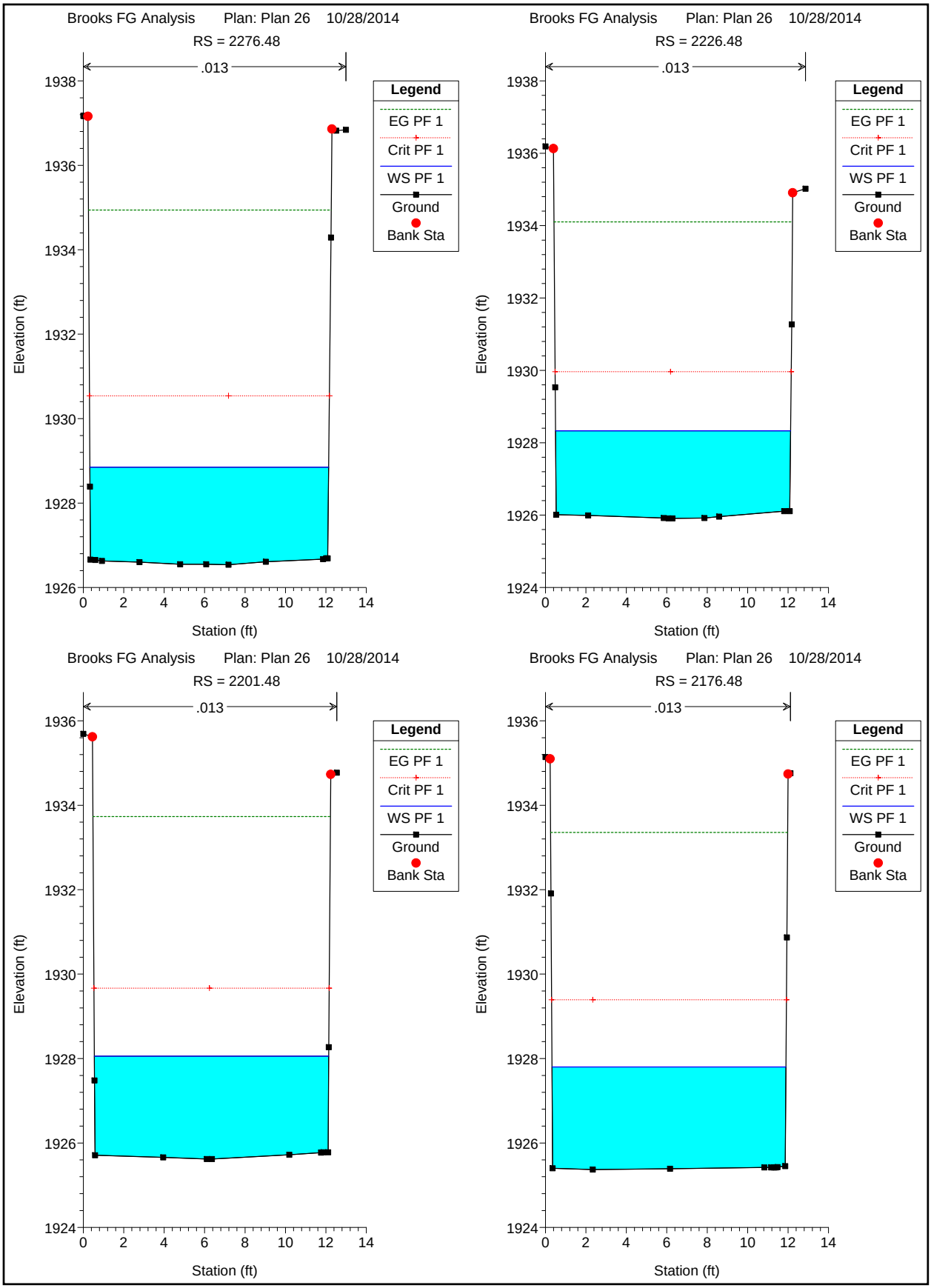

Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2799.78
.025
.035
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2774.63
.025
.035
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2750.44
.025
.035
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2725.42
.025
.035
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2700.17
.025
.035
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2675.8
.025
.035
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2650.79
.025
.035
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2626.19
.025
.035
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2601.78
.025
.05
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2576.59
.025
.035
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2551.36
.025
.035
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2526.44
.025
.035
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2501.48
.013
.025
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2485.61 Upstream of N 5th Street Culvert
.013
.025
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2484.00 Culv Culvert crossing under North 5th Street
.013
.025
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2484.00 Culv Culvert crossing under North 5th Street
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2399.9 Downstream of N. 5th Street Culvert Crossing
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2376.49
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2351.49
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2301.49
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2276.48
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2226.48
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2201.48
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
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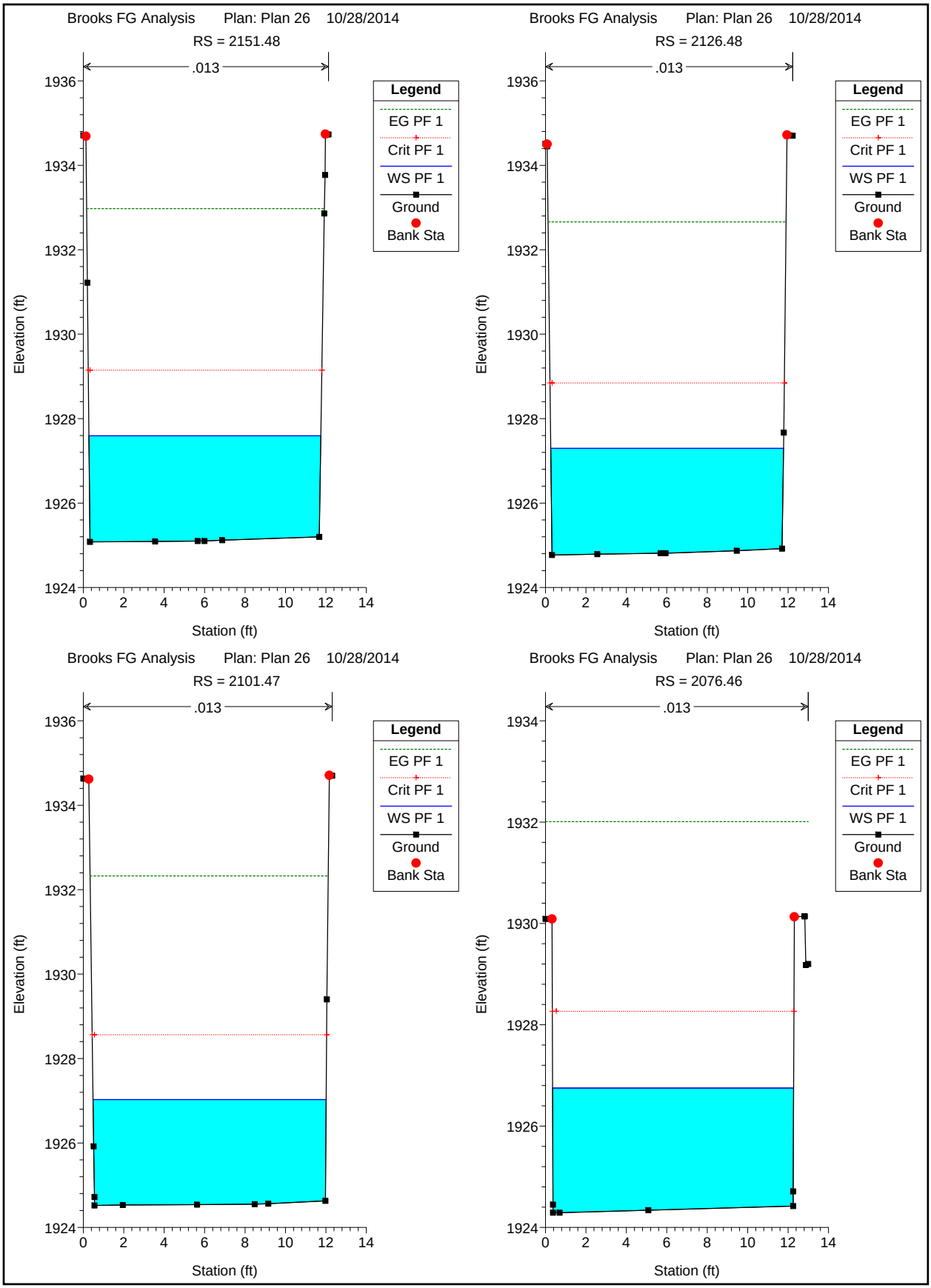
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2151.48
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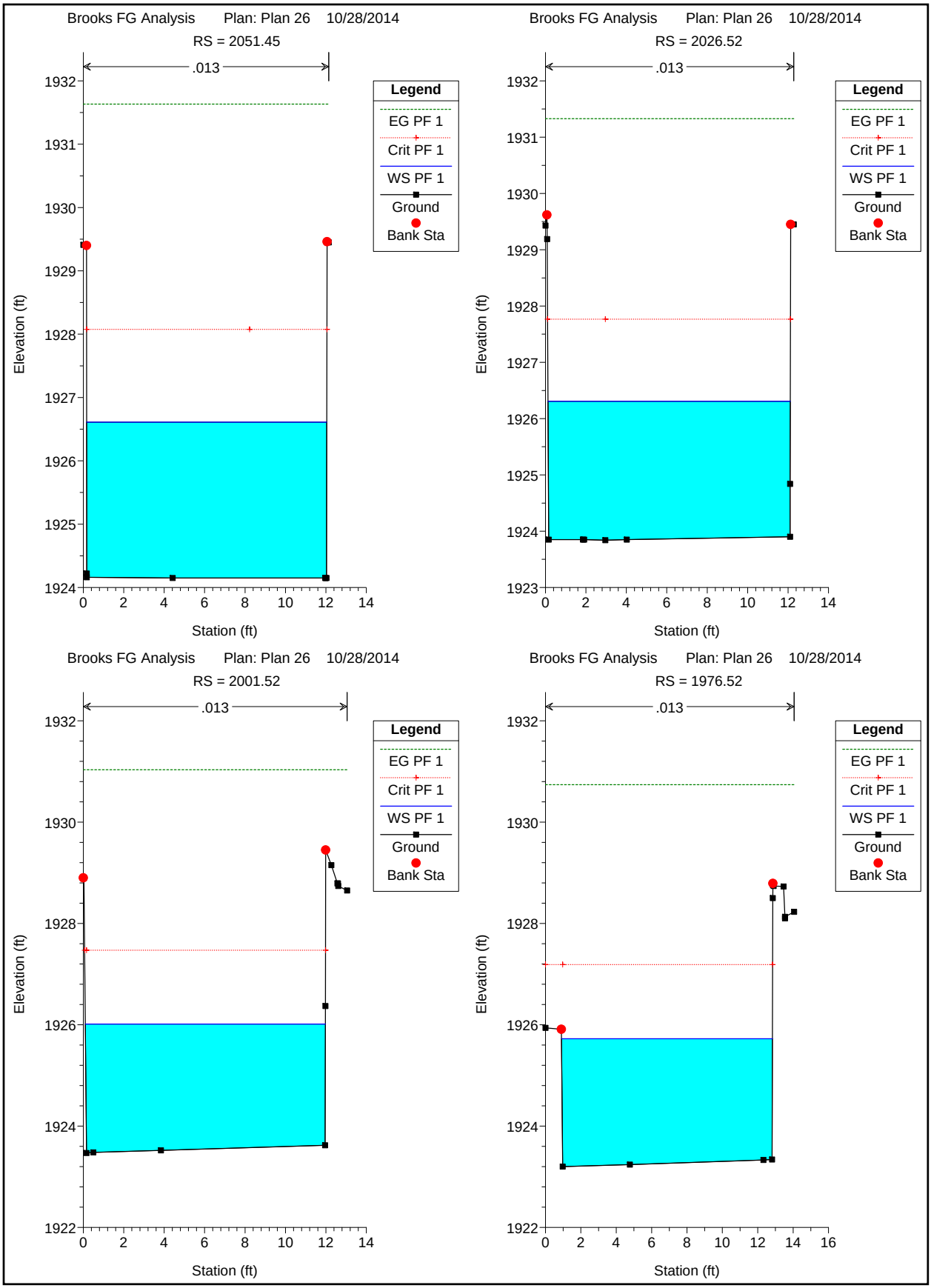
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2126.48
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2101.47
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2076.46
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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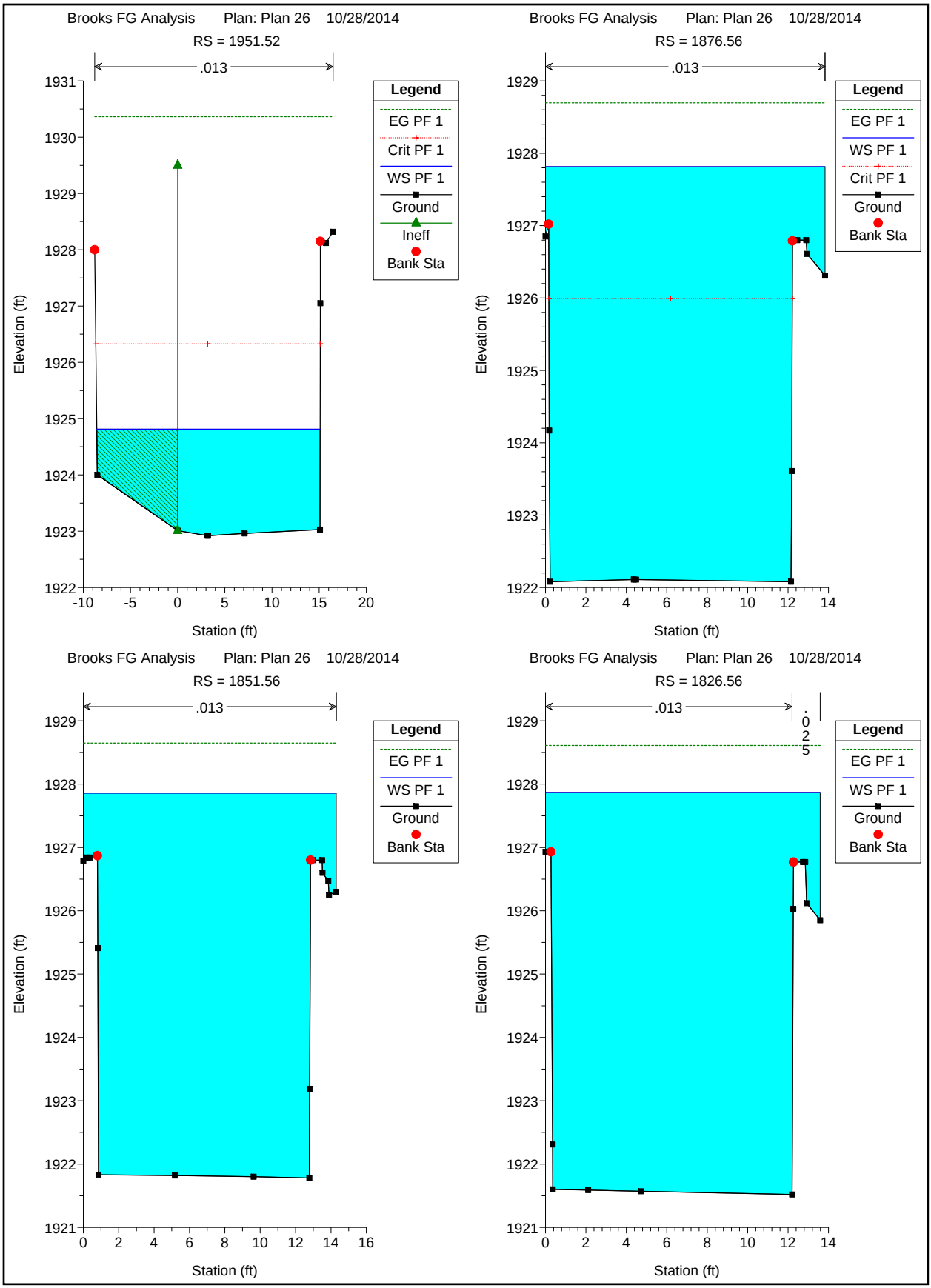
RS = 2051.45
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2026.52
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 2001.52
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1976.52
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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RS = 1951.52
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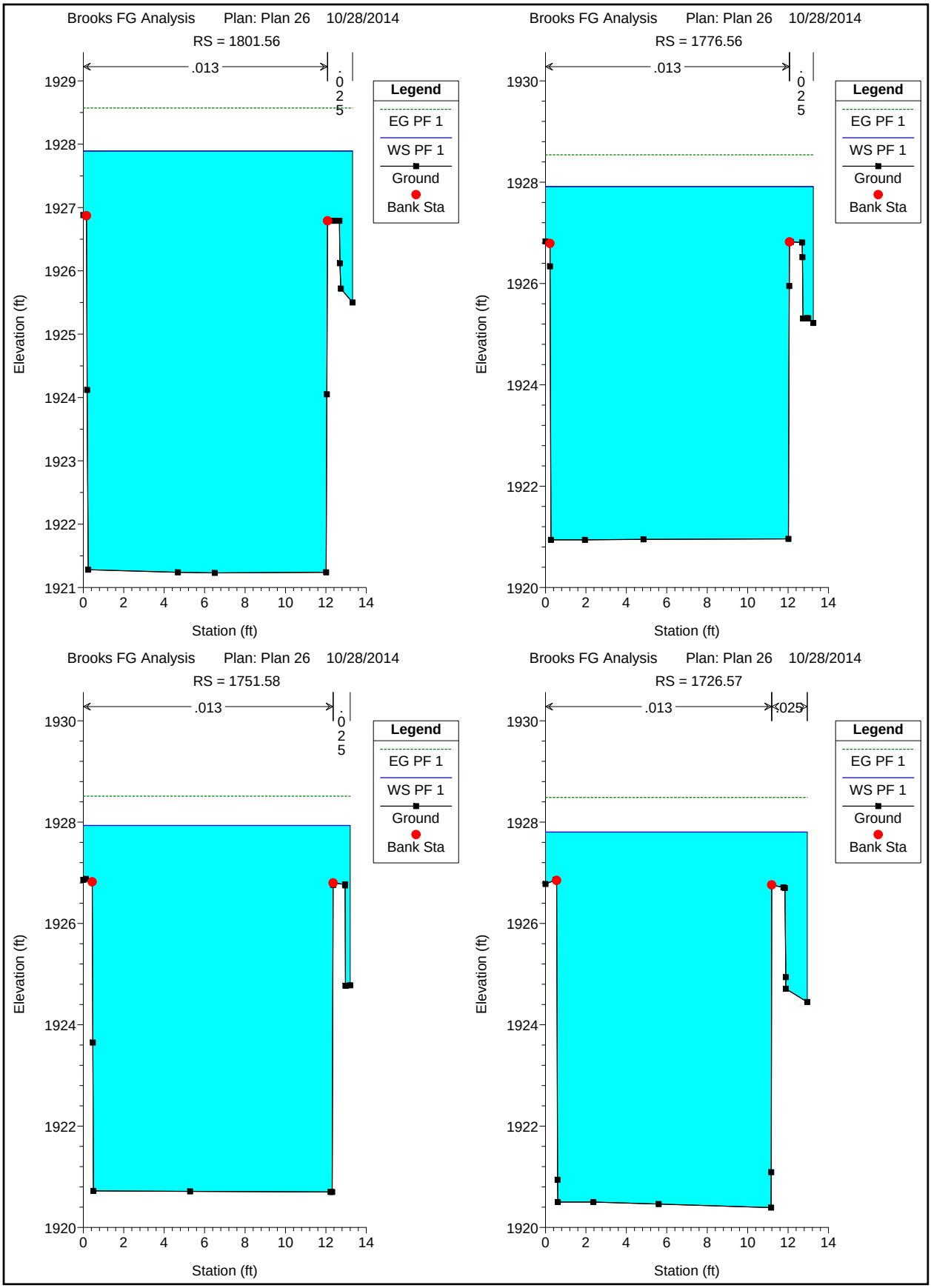
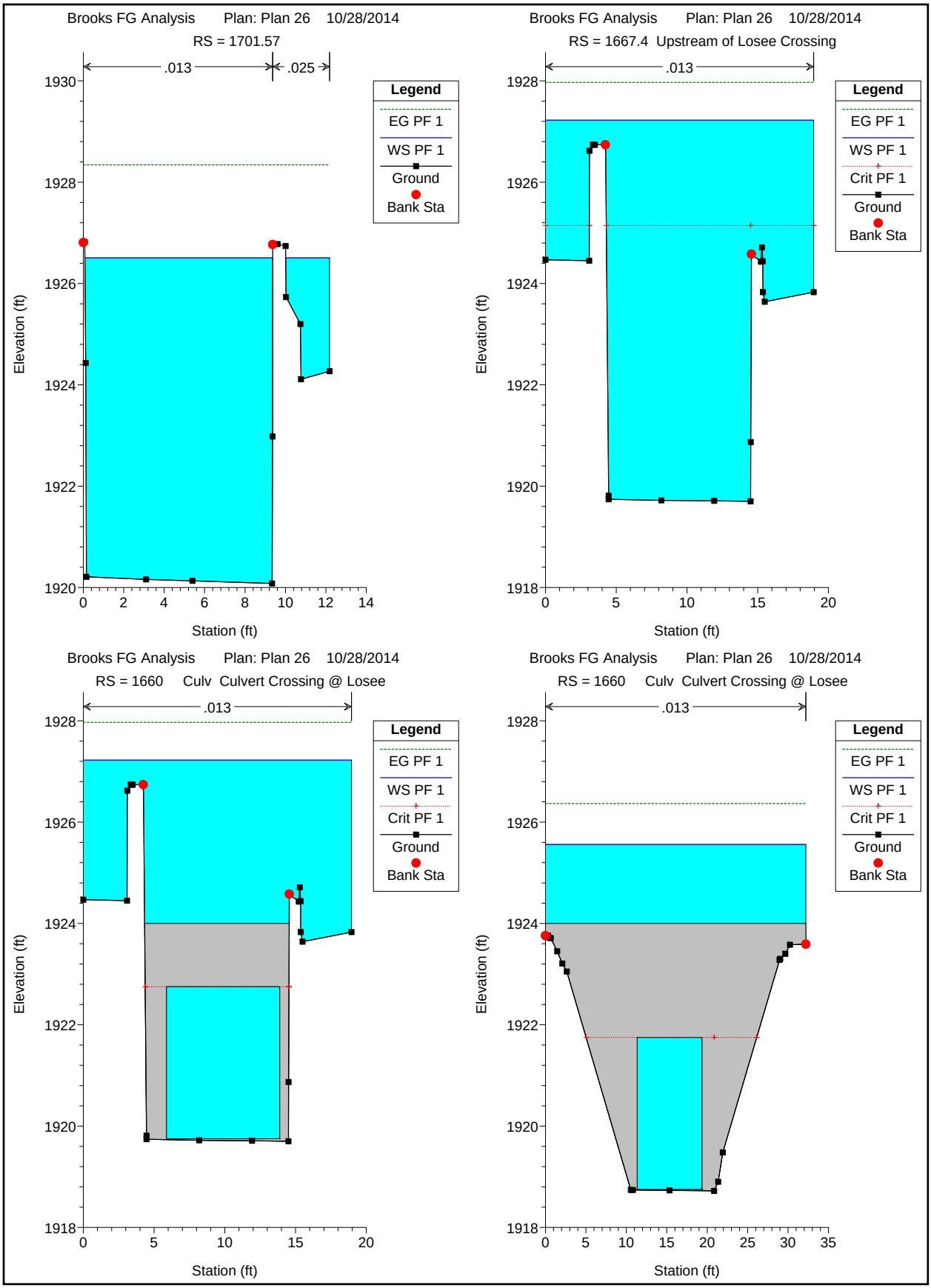
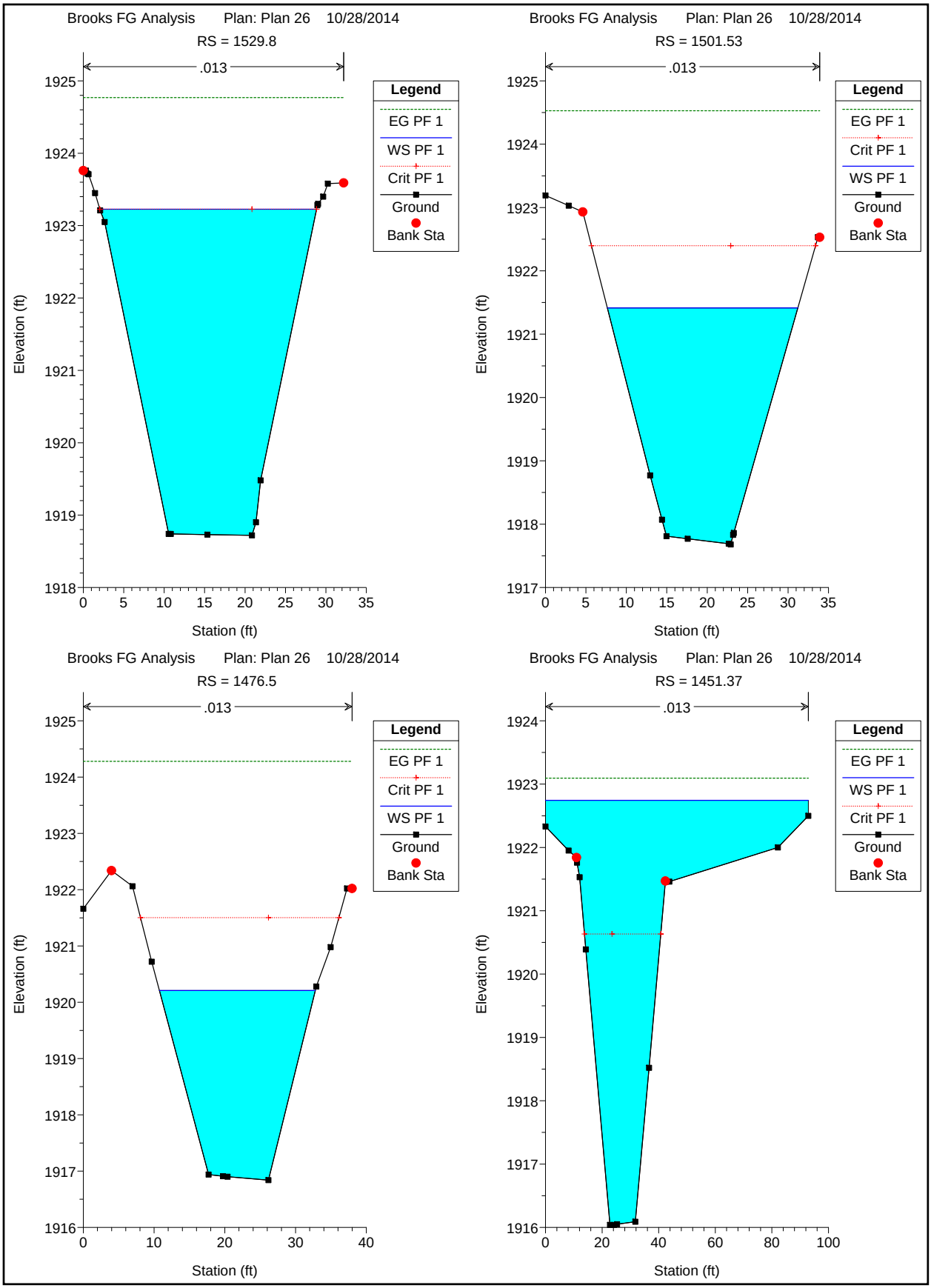
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1876.56
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1851.56
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1826.56
.013
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1801.56
.013
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1776.56
.013
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1751.58
.013
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1726.57
.013
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1701.57
.013
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1667.4 Upstream of Losee Crossing
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1660 Culv Culvert Crossing @ Losee
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1660 Culv Culvert Crossing @ Losee
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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RS = 1529.8
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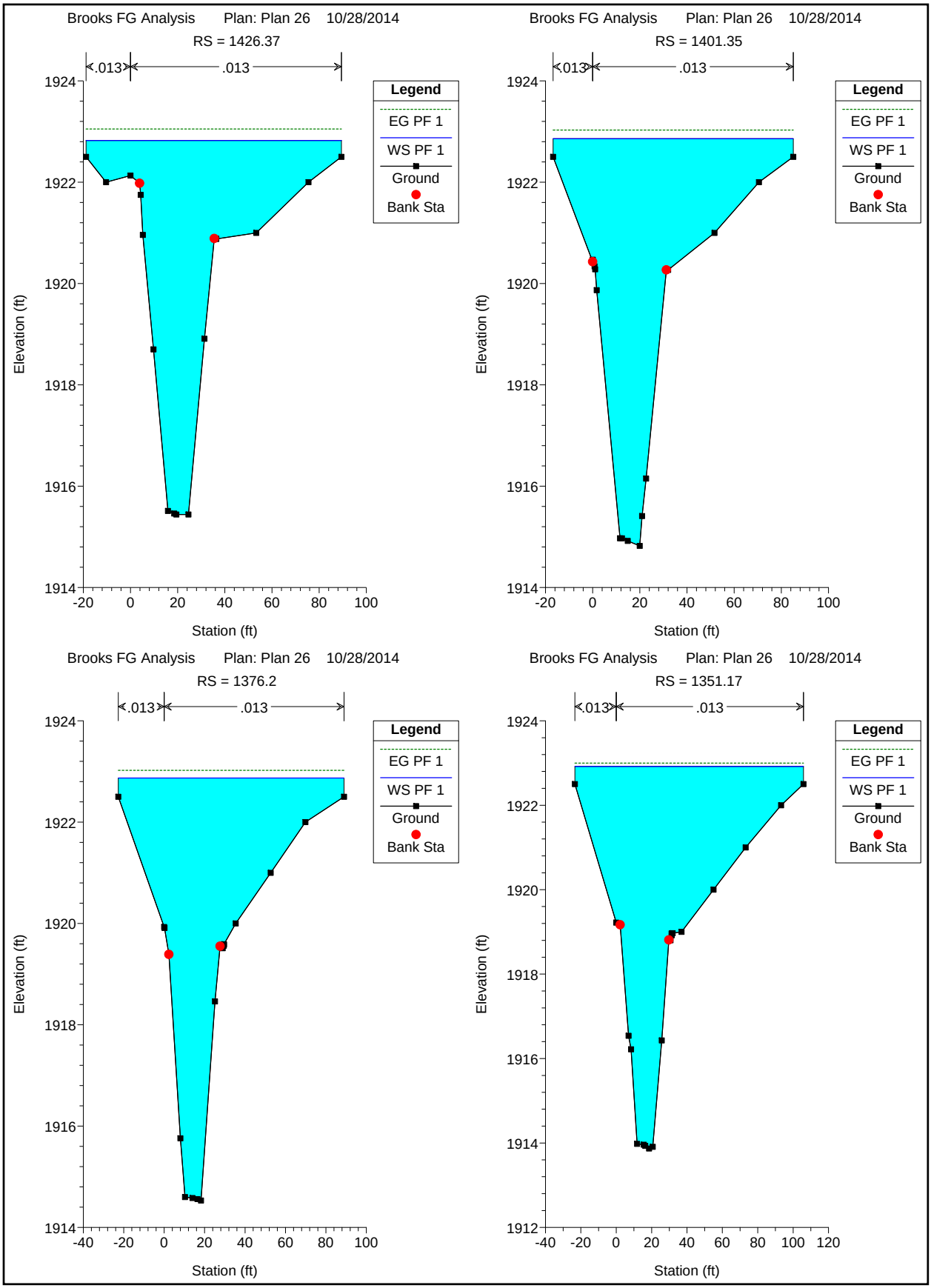
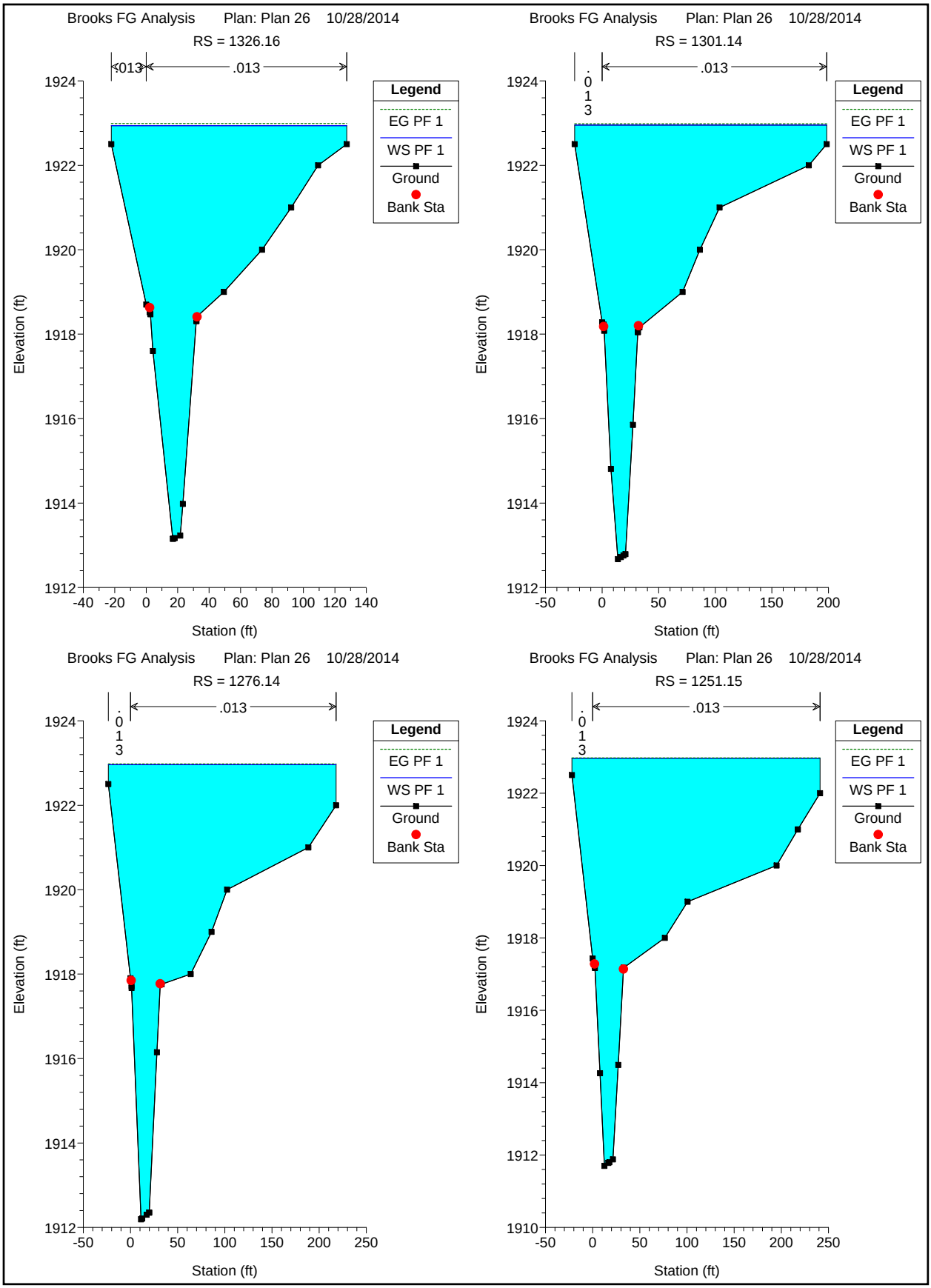
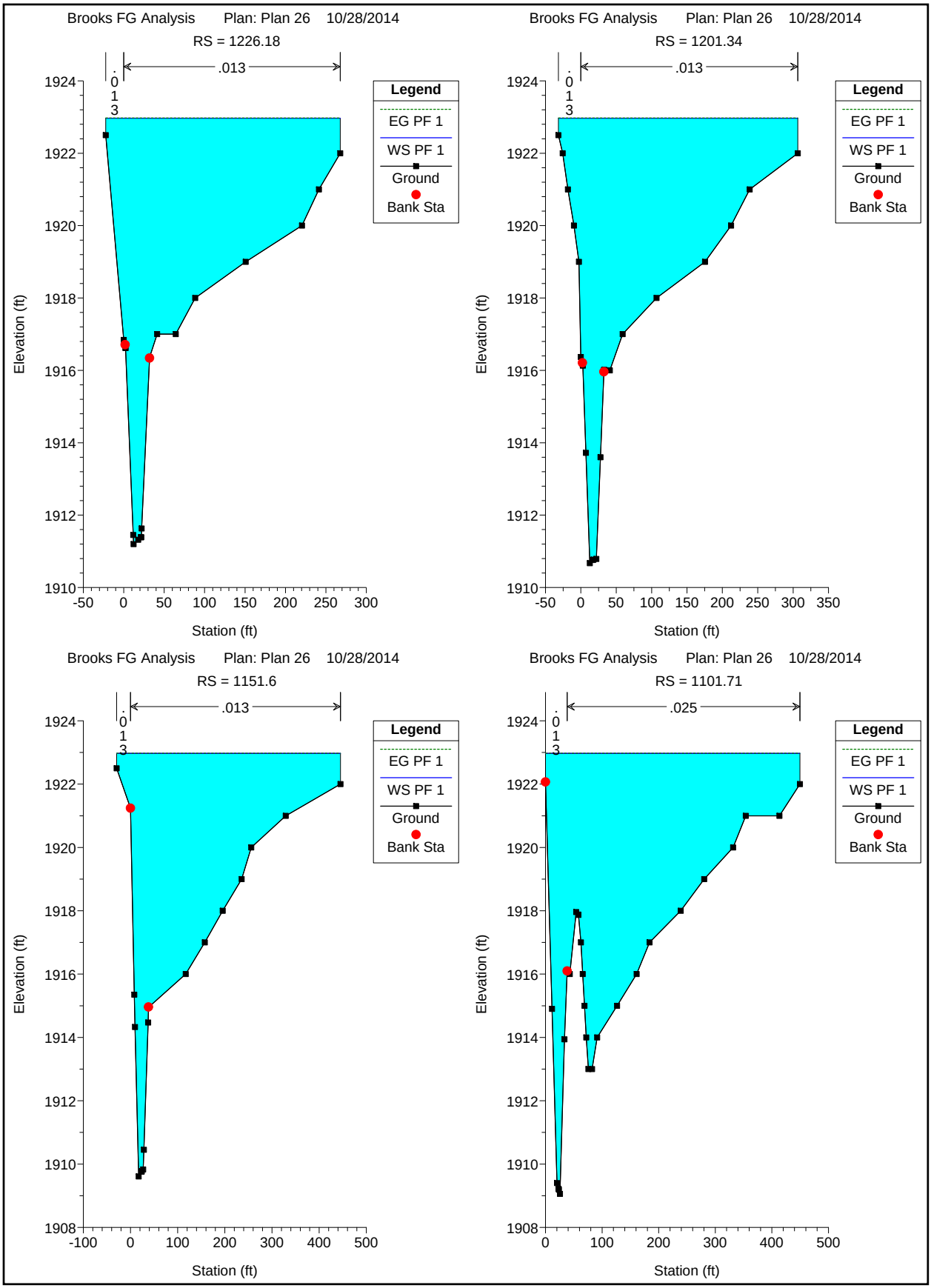
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1501.53
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1476.5
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1451.37
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1426.37
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1401.35
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1376.2
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1351.17
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1326.16
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1301.14
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1276.14
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1251.15
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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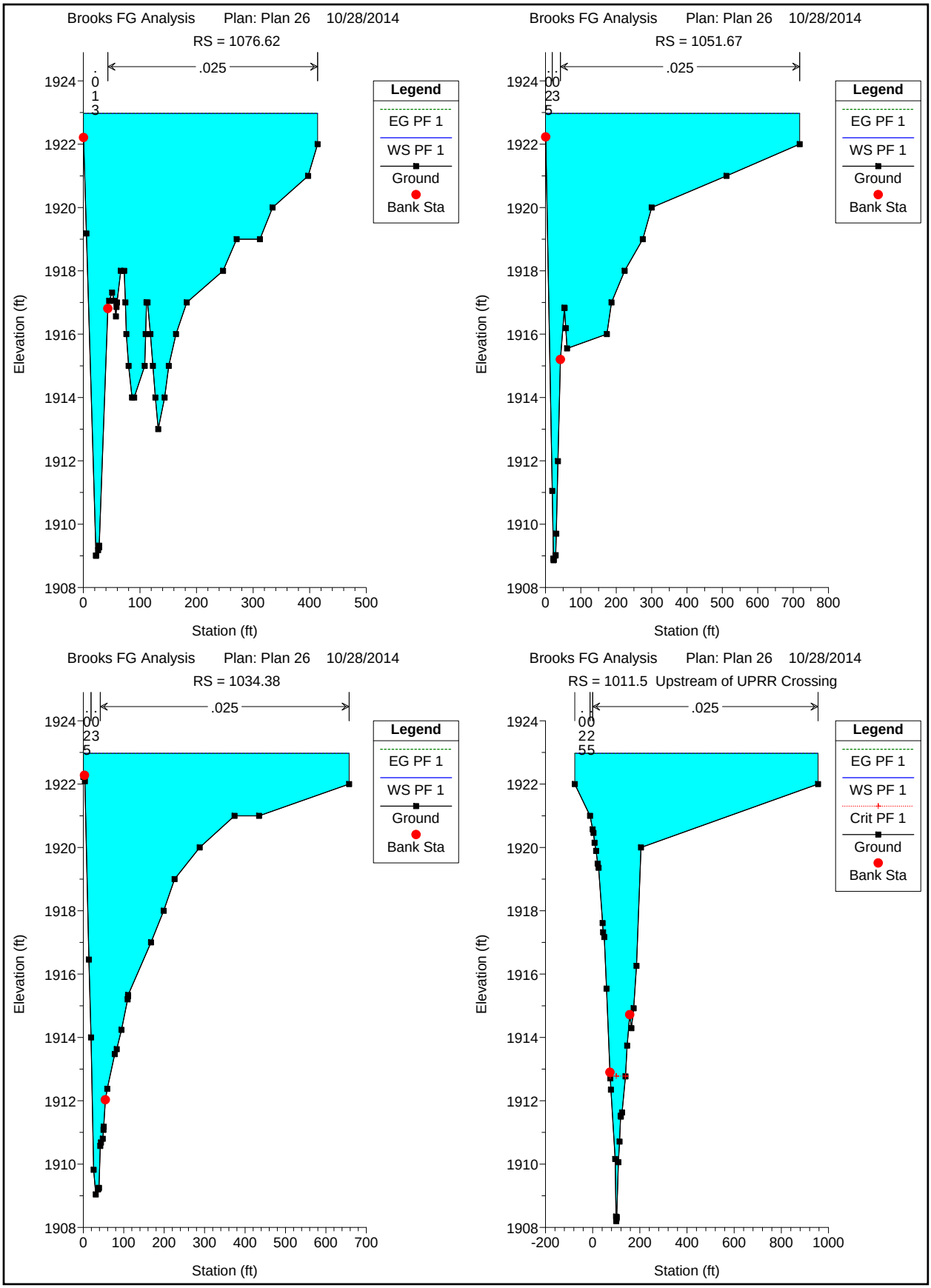
RS = 1226.18
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1201.34
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1151.6
.013
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1101.71
.025
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1076.62
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Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1051.67
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1034.38
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 26 10/28/2014
RS = 1011.5 Upstream of UPRR Crossing
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

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

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X     X  XXXXXX    XXXX        XXXX       XX      XXXX
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PROJECT DATA
Project Title: Brooks FG Analysis
Project File : BrooksFGAnalysis.prj
Run Date and Time: 10/28/2014 10:02:05 AM

Project in English units

PLAN DATA

Plan Title: Plan 26
Plan File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.p26

Geometry Title: EX TOPO
Geometry File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.g01

Flow Title : Flow-EX COND
Flow File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.f04

Plan Summary Information:
Number of: Cross Sections = 84 Multiple Openings = 0
Culverts = 2 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

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

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

FLOW DATA

Flow Title: Flow-EX COND
Flow File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.f04

Flow Data (cfs)

River	Reach	RS	PF 1
FL-ALIGN	FL-ALIGN	3398.92	480
FL-ALIGN	FL-ALIGN	2998.98	480
FL-ALIGN	FL-ALIGN	2485.61	521
FL-ALIGN	FL-ALIGN	2399.9	525
FL-ALIGN	FL-ALIGN	1701.57	652
FL-ALIGN	FL-ALIGN	1529.8	820
FL-ALIGN	FL-ALIGN	1151.6	869

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
FL-ALIGN	FL-ALIGN	PF 1	Normal S = 0.0285714	Known WS = 1922.97

GEOMETRY DATA

Geometry Title: EX TOPO
Geometry File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.g01

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3398.92

INPUT
Description: Mayflower
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-13.61	1978	0	1976.04	.6800003	1976.04	1.09	1976.04	2.230003	1975.86
3.100002	1975.72	26.74	1975.69	27.83	1975.69	49.65	1975.7	51.53	1975.7
53.7	1975.88	56.57	1976.17	56.74	1976.18				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-13.61	.016	0	.013	3.100002	.016	51.53	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.6800003	56.74	25.01	25	25.02	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3373.92

INPUT
Description: Mayflower
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3.75	1977	0	1975.32	1.27	1975.331.740002	1975.332.529999	1975.31		
2.689999	1975.213.110001	1974.9	3.48	1974.934.509998	1975.01	10.74	1975.05		
27.86	1975.04	47.98	1975.04	51	1975.01	51.71	1975.1	52.7	1975.07
53.18	1975.37	54.27	1975.38	57.5	1975.42	108.84	1976		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3.75	.016	0	.0134.509998	.016	47.98	.013	57.5	.016	

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1.27	53.18	25.03	25	25.05	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3348.92

INPUT
Description: Mayflower
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3.39	1976	0	1974.62	1.98	1974.63	2.16	1974.62	5	1974.57
5.22	1974.43	5.53	1974.05	6.06	1974.09	6.97	1974.27	28.63	1974.41
29	1974.41	30	1974.41	30.27	1974.42	32.04	1974.41	53.28	1974.25
53.51	1974.25	54.94	1973.95	54.95	1973.95	55.58	1974.56	58.55	1974.56
58.61	1974.56	60	1974.61	92.11	1975				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3.39	.016	6.97	.016	53.28	.013	53.51	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2.16	55.58	25.18	25	26.53	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3323.92

INPUT
Description: Mayflower
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-9.32	1975	0	1973.77	.08	1973.77	.21	1973.77	1.68	1973.75
3.92	1973.77	4.23	1973.64	4.61	1973.66	4.65	1973.39	5.04	1973.34
6.05	1973.43	11.79	1973.48	30.82	1973.59	31.35	1973.59	36.15	1973.66
52.56	1973.52	57.03	1973.44	57.97	1973.34	58.71	1973.38	59.23	1973.34
59.52	1973.49	62.73	1973.86	69.49	1974.63	70.03	1974.71	71.96	1974.72
75.67	1974.77								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-9.32	.016	0	.013	6.05	.016	57.03	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.08	62.73	27.48	25	31.71	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3298.92

INPUT
Description: Mayflower
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-21.78	1975	0	1972.9	3.69	1972.9	4.23	1972.6	4.45	1972.47
4.86	1972.51	5.98	1972.6	7.81	1972.65	8.17	1972.65	29.58	1972.72
45.97	1972.83	48.21	1972.85	50	1972.86	50.77	1972.86	54.36	1972.92
56.32	1972.96	63.24	1973.11	73.93	1973	96.04	1972.6	96.17	1972.62
96.28	1972.93	97.84	1973.06	97.93	1972.71	98.41	1973	100.74	1973.25
101.35	1973.25	102.05	1973.24	104.25	1973.31	113.55	1974.52	114.95	1974.69
117.89	1974.94	118.33	1974.91	118.89	1974.91	121.38	1974.97	121.87	1975.03
121.96	1975.02								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-21.78	.016	7.81	.016	96.04	.013	102.05	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
3.69	101.35	28.27	25.32	26.5	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3273.6

INPUT
Description: Mayflower
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-12.17	1975	0	1973.22	.6	1973.25	.63	1973.14	3.6	1972.89
6.93	1973.05	8.18	1972.71	8.92	1972.68	10.75	1972.66	13.09	1972.64
20.05	1972.31	20.45	1972.31	20.8	1972.27	24.44	1972.05	25.07	1972.05
25.17	1972.05	28.27	1972.1	78.62	1972.11	79.94	1972.11	80.69	1972.11
80.95	1972.11	81.04	1972.12	132.93	1972.02	133.93	1971.96	134.46	1971.94
138.17	1972.07	138.51	1972.08	139.43	1972.19	140.93	1972.16	145.61	1972.56
160.51	1973.8	162.19	1974	162.74	1973.96	182.4	1975		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-12.17	.016	20.8	.013	28.27	.016	132.93	.013	139.43	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
6.93	162.19	26	24.68	24.56	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3248.92

INPUT
Description: Mayflower
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-32.94	1975	-11.98	1974	0	1972.67	8.33	1972.46	11.62	1972.3
12.89	1972.23	19.64	1971.84	20.2	1971.84	20.64	1971.79	24.08	1971.62
24.75	1971.63	28.19	1971.69	30.58	1971.69	51.74	1971.63	60.02	1971.67
71.31	1971.62	75.05	1971.63	86.38	1971.67	86.4	1971.73	108.46	1971.62
123.04	1971.65	123.63	1971.63	124.58	1971.58	128.02	1971.68	129.24	1971.82
131.45	1971.79	134.32	1972.09	146.48	1973.4	156.98	1974.6	157.29	1974.58
191.47	1975								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-32.94	.016	20.2	.013	28.19	.016	123.04	.013	131.45	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
8.33	156.98	25.13	25	30.09	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3223.92

INPUT
Description: Mayflower
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-42.58	1975	-7.6	1974	0	1972.89	2.64	1972.88	4.98	1972.95
10.16	1973.08	12.81	1973.15	31.99	1973.41	36.1	1972.3	36.7	1972.67
36.9	1972.97	45.08	1971.63	45.22	1971.6	45.45	1971.54	45.8	1971.61
47.03	1971.58	47.6	1971.57	48.33	1971.08	48.58	1970.95	50.18	1971.11
50.69	1971.18	50.79	1971.19	53.03	1971.18	55.74	1971.16	57.61	1971.15
66.19	1971.11	69.97	1971.12	73.49	1971.11	74.86	1971.08	76.21	1971.05
79.38	1971.09	81.57	1971.08	83.76	1971.1	86.76	1971.14	89.06	1971.15
97.88	1971.15	99.96	1971.15	100.6	1971.12	102.25	1971.36	102.86	1971.37
103.33	1971.39	103.65	1971.52	105.8	1971.58	107.13	1971.59	108.67	1971.67
111.91	1972.06	117.59	1972.71	125.27	1973.58	125.78	1973.21	125.9	1973.11
127.02	1973.19	127.28	1973.21	132.07	1973.38	153.91	1975.19		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-42.58	.016	0	.025	45.8	.013	50.69	.016	99.96	.013
103.65	.016								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
31.99	125.27	14.07	13.7	14.32	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3210.22

INPUT
Description: Begin Overflow
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-64.08	1975	-9.73	1974	0	1973.31	13.09	1973.24	13.44	1973.24
13.87	1973.24	14.66	1973.25	46.96	1973.66	50.19	1973.71	50.26	1973.78
58.98	1973.84	67.54	1973.09	68.72	1972.76	69.12	1973.11	73.29	1973.09
79.8	1971.92	82.62	1971.99	84.08	1972.04	87.65	1971.97	92.06	1972.9
93.25	1972.93	97.84	1973.01	102.24	1973.1	105.43	1973.18	106.03	1973.26
122.03	1973.82	126.66	1974.27	129.48	1974.59	132.16	1974.89	133.82	1975.08
133.86	1975.05	134.44	1974.54	134.54	1974.55	135.74	1974.63	158.3	1975.44
161.05	1975.66								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-64.08	.016	0	.025	58.98	.035	122.03	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
58.98	133.82	11.65	11.3	11.82	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3198.92

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-74.88	1975	0	1973.63	8.1	1973.59	15.04	1973.48	16.77	1973.46
27.28	1973.46	49.92	1973.76	59.33	1973.89	59.55	1974.11	72.15	1974.19
72.7	1974.62	72.83	1974.39	75.57	1974.41	81.28	1973.59	85.77	1972.75
86.82	1972.55	88.33	1972.92	97.51	1974.8	105.11	1974.31	107.86	1974.27
108.07	1974.23	109.94	1973.02	115.03	1973.34	135.02	1974.89	136.19	1974.92
139.25	1975.01	159.54	1975.74	166.95	1976.02	167.79	1975.56	168.97	1975.49

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-74.88	.016	0	.025	72.7	.035	135.02	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
72.7	136.19	25.32	25	25.98	.1	.3

Left Levee Station= 72.7 Elevation= 1974.62

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3173.92

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1974.32	18.53	1974.04	18.78	1974.03	23.09	1973.96	55.89	1973.97

```
    56.9 1973.97   78.31 1974.27   78.35  1974.3    78.81974.741   78.83 1974.77
   79.12 1974.84   81.36 1974.57   84.72 1974.33   91.84 1972.15   92.88 1971.82
   93.69 1971.56   93.93 1971.61   94.36 1971.63  105.51 1974.16  105.77 1974.16
  115.22 1974.04  116.21 1973.84  117.23 1973.17  143.08 1974.79  144.14  1974.8
   148.6 1974.85   168.7 1975.79     175 1976.03  175.03 1976.01  178.17 1975.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   79.12    .035  144.14    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          78.8  144.14             25.43      25   25.55             .1       .3
Left Levee      Station=   79.12      Elevation= 1974.84

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3148.92

INPUT
Description:
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1974.8       1  1974.8   11.31 1974.63   19.98 1974.63   20.37 1974.63
   74.31 1974.41   80.46  1974.5   80.91 1974.83   81.07 1974.98   84.32 1975.76
85.50999 1975.61   92.57 1972.39   95.39 1971.4996.03999 1971.62  102.06 1972.88
  113.67 1973.42   115.4 1973.81  116.97 1973.83  118.45 1973.81  120.21 1973.45
   120.4 1973.33  125.04 1973.62  140.82 1973.78  173.95 1974.12  175.59  1974.2
  195.09  1974.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   84.32    .035  116.97    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         84.32  116.97             55.38   49.97   47.04             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3098.95

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1972.599.200012 1972.0524.82001    197226.23001    197246.29001 1971.56
71.74001  1971.1   88.52 1970.6891.68001 1969.2896.85001 1967.2498.57001 1966.82
  102.82 1965.79   102.9 1965.77  105.28 1966.55  112.02 1967.63  114.36 1968.72
  141.22 1970.75   146.9 1971.45  149.45 1971.77   151.4 1971.74  178.18 1971.45
  182.49 1971.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   88.52    .035  149.45    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         88.52  149.45             20.29   24.98   28.02             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3073.97

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1969.874.190002 1969.73   18.92 1969.6243.78999 1969.44   71.29 1968.95
   78.58 1968.73    82.8  1966.8   91.51 1962.61   94.99 1961.52   97.89  1960.8
   98.59 1960.62  102.94 1962.53  107.22  1963.9   113.1 1966.58  116.65 1967.72
  127.92 1970.03  145.05 1972.17  145.14 1972.18  153.13 1972.04  156.84    1972
  169.54 1971.17  176.89 1970.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   78.58    .035  127.92    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.58  145.05               25   25.01   25.07             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3048.96

INPUT
Description: Begin heavy vegetation
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1967.762.729996 1968.13   16.75 1967.3828.71001 1966.73   35.86  1966.4
   49.83 1964.24   74.92 1961.29    86.3 1958.32   91.55 1957.14   96.16 1955.97
   96.77 1956.15  103.04 1958.04  106.99  1959.2     115 1960.65  118.41 1961.73
  127.38 1963.57  140.65 1965.28  143.06 1965.37  163.14 1966.16  172.93 1965.32
  174.47 1965.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   35.86     .05  140.65    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.86  143.06             28.34   24.98   23.09             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3023.98

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1963.99   15.92 1963.02   19.13 1962.82   37.04 1961.83   60.94 1956.52
```

```
   69.89 1954.62   73.99 1954.44   96.24 1953.14    96.3 1953.15  102.18 1954.21
  105.46 1954.55  121.15 1957.28  128.42 1959.27  141.65 1959.16  152.84 1959.06
  171.55 1958.22  176.84 1957.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   37.04     .05  128.42    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         37.04  128.42            21.46      25   27.03             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2998.98

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1961.01     .14    1961   11.93 1960.46   18.09 1960.04   39.61  1958.6
   59.87 1954.38    62.4 1953.83   81.23 1952.93   99.17 1951.84    99.2 1951.85
  112.96 1954.31  120.74  1955.1  139.95 1958.38  145.06 1957.96  149.42  1957.6
  174.19 1956.39  177.33 1956.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   39.61     .05  145.06    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.61  139.95            28.33   24.99   23.13             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2973.99

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1956.9518.21001 1956.55   23.47 1956.43   36.89  1955.945.45001 1955.11
   69.63 1952.59    72.7 1951.9887.14001 1951.32  100.48 1950.54  100.48 1950.55
  121.76 1954.39  133.54 1955.61  143.25 1957.29  146.88    1957  166.34 1955.43
  175.07 1955.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   36.89     .05  143.25    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         36.89  143.25             23.9      25   25.86             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2948.99

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1957.015.490005 1956.0619.01001 1955.99   26.09 1955.72   39.85 1955.19
   75.44 1951.84   79.95 1951.4580.81001 1951.28   86.18 1950.23   95.88 1949.78
  104.76 1949.25  104.78 1949.25   133.9 1954.49  149.52 1956.09  150.21 1956.03
  180.31 1953.51  181.19 1953.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   39.85     .05  150.21    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.85  150.21            26.22      25   25.08             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2923.99

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1955.44    6.48 1954.33   34.13 1954.18   43.59 1954.1343.71999 1954.12
   43.95  1954.1   48.28 1953.7380.23999 1950.9986.14999 1950.4986.74999 1950.39
93.93999 1948.9696.59999 1948.43  101.42 1948.21  105.79 1947.95  105.84 1947.95
  142.63 1954.58   146.2 1954.94  148.14 1954.78  153.26 1954.35  180.31 1953.25
  181.54 1953.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   43.59     .05   146.2    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         43.59   146.2             15.83   25.02   30.98             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2898.97

INPUT
Description:
Station Elevation Data    num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1954.28     2.7  1954.1    5.61 1953.58    9.42 1953.52   12.66 1953.45
   37.32 1952.49   46.03 1952.16   86.81 1949.02   92.01 1948.93   93.25 1948.74
   93.29 1948.7593.32001 1948.75   93.36 1948.76  104.78 1946.86  105.88 1946.68
  105.89 1946.68   105.9 1946.68  105.91 1946.68  105.92 1946.69  105.93 1946.69
  105.94 1946.69  105.96 1946.67  106.77  1946.9  132.79 1953.53  141.66 1953.48
  169.11 1953.33  173.73 1953.14   181.2  1953.3  185.66 1953.38

Manning's n Values        num=       3
```

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	37.32	.05	132.79	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
37.32	132.79	17.15	24.93	30.48	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2874.04

INPUT
Description:
Station Elevation Data num= 274

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1952.95	.1199951	1952.95	.6300049	1952.941	.179993	1952.921	.779999	1952.91
2.429993	1952.93	.139999	1952.883	.910004	1952.874	.759995	1952.855	.699997	1952.83
6.740005	1952.81	37.08	1950.684	3.53999	1950.234	4.24001	1950.234	5.03999	1950.23
45.94	1950.23	46.98	1950.24	48.17	1950.24	49.56	1950.24	53.31	1950.12
53.65	1950.1	54	1950.07	54.38	1950.05	54.78	1950.02	55.2	1950
55.64	1949.97	56.11	1949.93	56.61	1949.9	57.14	1949.87	57.71	1949.83
84.12	1949.48	84.43	1949.4	84.75	1949.32	85.07	1949.24	85.39	1949.16
85.73	1949.07	86.06	1948.99	86.41	1948.9	86.76	1948.81	87.11	1948.72
87.48	1948.62	87.84	1948.53	88.22	1948.43	88.6	1948.34	88.99	1948.24
89.39	1948.14	89.79	1948.03	90.2	1947.93	90.61	1947.82	90.92	1947.72
91.24	1947.62	91.56	1947.51	91.88	1947.41	92.2	1947.31	92.52	1947.2
92.71	1947.14	92.84	1947.1	92.85	1947.1	93.16	1947	93.17	1947
93.48	1946.9	93.49	1946.9	93.79	1946.81	93.81	1946.8	94.11	1946.71
94.13	1946.7	94.43	1946.61	94.46	1946.6	94.75	1946.51	94.78	1946.5
95.08	1946.41	95.1	1946.4	95.2	1946.37	95.36	1946.4	95.38	1946.4
95.84	1946.5	95.87	1946.51	96.32	1946.6	96.78	1946.69	96.81	1946.7
97.26	1946.8	97.29	1946.8	97.75	1946.9	97.77	1946.9	98.23	1947
98.25	1947	98.71	1947.1	98.73	1947.1	99.2	1947.2	99.21	1947.2
99.68	1947.3	99.7	1947.3	99.95	1947.35	100.16	1947.4	100.18	1947.4
100.65	1947.5	100.66	1947.5	101.13	1947.6	101.14	1947.6	101.62	1947.7
102.1	1947.8	102.11	1947.8	102.58	1947.9	102.59	1947.9	103.07	1948
103.55	1948.1	103.8	1948.15	104.04	1948.2	104.53	1948.3	104.54	1948.3
105.02	1948.4	105.03	1948.4	105.51	1948.5	105.53	1948.5	106	1948.6
106.03	1948.61	106.49	1948.7	106.52	1948.71	106.98	1948.8	107.01	1948.81
107.47	1948.9	107.51	1948.91	107.96	1949	108	1949.01	108.45	1949.1
108.49	1949.11	108.94	1949.2	108.99	1949.21	109.42	1949.3	109.48	1949.31
109.91	1949.4	109.97	1949.41	110.4	1949.5	110.47	1949.51	110.89	1949.6
110.96	1949.61	111.38	1949.7	111.45	1949.71	111.87	1949.8	111.94	1949.81
112.36	1949.9	112.43	1949.91	112.85	1950	112.93	1950.01	113.34	1950.1
113.42	1950.12	113.83	1950.2	113.91	1950.22	114.32	1950.3	114.4	1950.32
114.81	1950.4	114.89	1950.42	115.3	1950.5	115.38	1950.52	115.79	1950.6
115.87	1950.62	116.28	1950.7	116.36	1950.72	116.77	1950.8	116.86	1950.82
117.26	1950.9	117.35	1950.92	117.75	1951	117.84	1951.02	118.24	1951.1
118.33	1951.12	118.73	1951.2	118.82	1951.22	119.22	1951.3	119.31	1951.32
119.71	1951.4	119.8	1951.42	120.2	1951.5	120.29	1951.52	120.69	1951.6
120.78	1951.62	121.18	1951.7	121.65	1951.8	121.66	1951.8	121.87	1951.9
121.96	1951.94	122.08	1952	122.21	1952.06	122.3	1952.1	122.44	1952.17
122.51	1952.2	122.67	1952.27	122.72	1952.3	122.89	1952.38	122.93	1952.4
122.97	1952.42	123.14	1952.5	123.19	1952.52	123.35	1952.6	123.41	1952.63
123.57	1952.7	123.63	1952.73	123.78	1952.8	123.87	1952.84	123.99	1952.9
124.12	1952.96	124.2	1953	124.4	1953.09	124.79	1953.09	127.52	1953.05
128.06	1953.09	128.18	1953.1	129.19	1953.18	129.5	1953.2	130.37	1953.27
130.82	1953.3	131.61	1953.36	132.14	1953.4	133.07	1953.47	133.46	1953.5
134.59	1953.59	134.78	1953.6	135.55	1953.66	136.09	1953.68	136.72	1953.7
137.76	1953.74	138.93	1953.78	139.43	1953.8	140.96	1953.88	141.09	1953.9
141.14	1953.91	141.64	1954	142.03	1954.07	142.95	1954.04	144.07	1954
145.49	1953.95	146.39	1953.94	146.51	1953.94	148.45	1954	150.29	1954.06
151.72	1954.1	153.24	1954.15	154.99	1954.2	155.62	1954.22	155.94	1954.23
156.12	1954.24	156.57	1954.28	157.05	1954.3	158.1	1954.34	159.48	1954.4
160.12	1954.43	160.54	1954.44	160.99	1954.5	161.73	1954.59	161.8	1954.6
162.11	1954.6	162.61	1954.6	162.85	1954.57	163.31	1954.6	163.47	1954.61
165.5	1954.7	166.59	1954.75	167.68	1954.8	169.41	1954.88	169.87	1954.9
171.09	1954.96	171.29	1954.9	171.31	1954.89	171.63	1954.8	171.7	1954.78
171.98	1954.7	172.26	1954.62	172.33	1954.6	172.64	1954.51	173	1954.5
173.25	1954.49	176.24	1954.4	177.75	1954.35	179.14	1954.31		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	84.12	.05	124.79	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
84.12	124.79	39.68	24.94	17.95	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2849.1

INPUT
Description:
Station Elevation Data num= 370

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1953.32	.9499969	1953.33	.139999	1953.266	.040009	1953.28	.220001	1953.16
11.13	1953.1	13.17	1953.06	16.23	1953	17.95	1952.97	18.10001	1952.96
21.32001	1952.92	3.01001	1952.87	26.41	1952.827	.90001	1952.77	31.5	1952.7
32.76001	1952.68	36.59	1952.637	.40001	1952.58	37.59	1952.584	1.68001	1952.5
42.37	1952.49	46.77	1952.447	.10001	1952.395	0.65001	1952.325	2.99001	1952.33
57.73	1952.35	58.64	1952.4	59.13	1952.43	60.34	1952.5	61.94	1952.59
65.89	1952.5	66.72	1952.487	0.10001	1952.4	71.58	1952.36	74.3	1952.3
76.29	1952.25	78.51	1952.2	80.9	1952.14	82.71	1952.1	85.44	1952.04
86.92	1952	87.68	1951.93	87.97	1951.9	88.02	1951.87	88.14	1951.8
88.19	1951.778	8.31001	1951.7	88.36	1951.67	88.47	1951.6	88.53	1951.57
88.64	1951.5	88.69	1951.478	8.81001	1951.4	88.86	1951.37	88.98	1951.3
89.03	1951.27	89.14	1951.2	89.2	1951.178	9.31001	1951.1	89.36	1951.07
89.48	1951	89.53	1950.97	89.64	1950.9	89.7	1950.878	9.81001	1950.8
89.87	1950.77	89.98	1950.7	90.04	1950.67	90.15	1950.6	90.2	1950.57
90.31001	1950.5	90.37	1950.46	90.48	1950.4	90.54	1950.36	90.65	1950.3
90.71	1950.26	90.82	1950.2	90.88	1950.16	90.98	1950.1	91.04	1950.06
91.15	1950	91.21	1949.96	91.32	1949.9	91.38	1949.86	91.48	1949.8
91.55	1949.76	91.65	1949.7	91.72	1949.66	91.82	1949.6	91.89	1949.56
91.99001	1949.5	92.05	1949.46	92.15	1949.4	92.22	1949.36	92.32	1949.3
92.39	1949.269	2.49001	1949.29	2.56001	1949.16	92.65	1949.1	92.73	1949.06
92.82	1949	92.9	1948.959	2.99001	1948.9	93.07	1948.85	93.16	1948.8
93.24001	1948.75	93.32	1948.7	93.41	1948.659	3.49001	1948.6	93.58	1948.55
93.66	1948.5	93.75	1948.45	93.83	1948.49	3.92001	1948.349	3.99001	1948.3
94.09	1948.24	94.16	1948.2	94.26	1948.14	94.33	1948.1	94.43	1948.04
94.49001	1948	94.61	1947.93	94.66	1947.9	94.78	1947.83	94.83	1947.8
94.95	1947.73	95	1947.7	95.13	1947.62	95.16	1947.695	1.31001	1947.51
95.33	1947.595	1.49001	1947.41	95.5	1947.4	95.59	1947.34	95.71	1947.3
95.98	1947.295	9.99001	1947.2	96.26	1947.1	96.27	1947.09	96.53	1947
96.55	1946.999	6.81001	1946.9	97.05	1946.81	97.08	1946.8	97.32	1946.71

97.35001	1946.7	97.58	1946.62	97.63	1946.6	97.88	1946.51	97.9	1946.5
98.12	1946.42	98.65	1946.5	98.75	1946.51	99.3	1946.6	99.78	1946.67
99.95	1946.7	100.1	1946.72	100.41	1946.77	100.6	1946.8	101.04	1946.87
101.26	1946.9	101.67	1946.96	101.91	1947	102.18	1947.04	102.56	1947.1
102.87	1947.15	103.21	1947.2	103.55	1947.25	103.86	1947.3	104.24	1947.36
104.51	1947.4	104.94	1947.47	105.16	1947.5	105.64	1947.57	105.82	1947.6
106.35	1947.68	106.47	1947.7	107.07	1947.79	107.12	1947.8	107.5	1947.86
107.7	1947.9	107.71	1947.9	108.2	1948	108.23	1948.01	108.69	1948.1
108.75	1948.11	109.19	1948.2	109.26	1948.21	109.68	1948.3	109.77	1948.32
110.17	1948.4	110.28	1948.42	110.67	1948.5	110.79	1948.53	111.16	1948.6
111.3	1948.63	111.65	1948.7	111.81	1948.73	112.15	1948.8	112.32	1948.83
112.64	1948.9	112.82	1948.94	113.14	1949	113.47	1949.07	113.63	1949.1
113.99	1949.17	114.12	1949.2	114.51	1949.28	114.62	1949.3	115.04	1949.38
115.11	1949.4	115.57	1949.49	115.61	1949.5	115.96	1949.57	116.36	1949.6
116.42	1949.6	116.5	1949.6	118.09	1949.7	118.47	1949.72	119.75	1949.8
120.59	1949.85	121.41	1949.9	122.98	1949.99	123.07	1950	123.23	1950.01
123.5	1950.1	123.58	1950.13	123.79	1950.2	123.93	1950.25	124.09	1950.3
124.26	1950.36	124.39	1950.4	124.59	1950.47	124.68	1950.5	124.89	1950.57
124.98	1950.6	125.19	1950.67	125.28	1950.7	125.5	1950.77	125.57	1950.8
125.8	1950.88	125.87	1950.9	126.1	1950.98	126.17	1951	126.41	1951.08
126.47	1951.1	126.71	1951.18	126.76	1951.2	127.02	1951.29	127.06	1951.3
127.33	1951.39	127.36	1951.4	127.65	1951.5	127.73	1951.53	128.08	1951.6
128.13	1951.61	128.55	1951.7	128.66	1951.72	129.03	1951.8	129.19	1951.83
129.5	1951.9	129.7	1951.94	129.96	1952	130.13	1952.05	130.35	1952.1
130.54	1952.16	130.71	1952.2	130.92	1952.27	131.03	1952.3	131.13	1952.33
131.34	1952.4	131.42	1952.43	131.64	1952.5	131.72	1952.53	131.94	1952.6
132.01	1952.62	132.25	1952.7	132.3	1952.72	132.55	1952.8	132.59	1952.81
132.85	1952.9	132.87	1952.91	133.12	1952.99	133.15	1953	133.16	1953
133.44	1953.1	133.45	1953.1	133.72	1953.2	133.74	1953.21	134.01	1953.3
134.04	1953.31	134.29	1953.4	134.34	1953.42	134.58	1953.5	134.64	1953.52
134.86	1953.6	134.94	1953.63	135.15	1953.7	135.31	1953.76	135.43	1953.8
135.96	1953.75	136.22	1953.7	136.63	1953.62	136.72	1953.6	137.16	1953.51
137.22	1953.5	137.71	1953.4	137.72	1953.4	137.79	1953.39	138.48	1953.3
138.59	1953.29	139.29	1953.2	139.66	1953.15	140.1	1953.1	140.7	1953.03
140.99	1953.1	141.2	1953.15	141.38	1953.2	141.71	1953.28	141.77	1953.3
142.16	1953.4	142.2	1953.41	143.01	1953.47	143.36	1953.5	143.86	1953.54
144.63	1953.6	144.64	1953.6	145.51	1953.69	145.6	1953.7	146.4	1953.78
146.55	1953.8	146.77	1953.82	147.51	1953.9	147.92	1953.94	148.46	1954
149.21	1954.08	149.42	1954.1	149.79	1954.14	150.48	1954.1	150.63	1954.09
152.26	1954	153.41	1953.94	154.05	1953.9	154.42	1953.91	155.72	1953.95
156.88	1953.91	157.03	1953.92	159.07	1954	159.72	1954.06	160.09	1954.1
160.9	1954.18	161.3	1954.2	161.66	1954.22	163.29	1954.3	164.79	1954.38
165.27	1954.4	166.73	1954.47	167.22	1954.45	167.63	1954.44	168.09	1954.5
168.27	1954.53	168.8	1954.6	169.15	1954.64	170.09	1954.6	172.08	1954.54
173.57	1954.5	173.98	1954.49	177.05	1954.4	177.49	1954.39	178.94	1954.35

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	86.92	.05	135.43	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.92	135.43	38.99	24.28	10.13	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2824.82

INPUT
Description: End heavy vegetation
Station Elevation Data num= 374

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1952.89	.3500061	1952.891	.580002	1952.852	.110001	1952.857	.130005	1952.84
16.21001	1952.84	16.39999	1952.84	16.48	1952.84	19.71001	1952.82	22	1952.8
25.60001	1952.75	26.16	1952.75	27.23	1952.76	28.13	1952.74	29.87	1952.7
31.13	1952.67	34.12	1952.6	34.77	1952.58	38.38	1952.53	8.78999	1952.49
39.92999	1952.47	40.37	1952.46	40.67999	1952.46	41.97	1952.42	42.78	1952.4
45.73	1952.32	46.36	1952.3	49.71	1952.21	49.94	1952.2	49.95	1952.2
52.02	1952.14	52.92	1952.1	53.03	1952.09	54.9	1952	55.23	1951.98
56.88	1951.9	57.44	1951.87	58.85	1951.8	59.74	1951.76	60.83	1951.7
62.09	1951.64	62.8	1951.6	64.53	1951.51	64.78	1951.5	65.72	1951.45
66.89	1951.42	67.37	1951.4	69.34	1951.34	70.52	1951.3	71.99	1951.25
73.67	1951.2	74.76	1951.17	76.82	1951.1	77.61	1951.07	79.97	1951
80.52	1950.98	83.12	1950.9	83.48	1950.89	86.27	1950.8	86.46	1950.79
89.42	1950.7	89.47	1950.7	90.85	1950.65	92.32	1950.6	93.5	1950.54
94.3	1950.5	94.4	1950.44	94.42	1950.42	94.45	1950.4	94.54	1950.34
94.59	1950.3	94.67	1950.24	94.73	1950.2	94.81	1950.14	94.87	1950.1
94.95	1950.04	95.01	1950	95.09	1949.95	95.15	1949.9	95.22	1949.85
95.29	1949.8	95.36	1949.75	95.43	1949.7	95.5	1949.65	95.57	1949.6
95.64	1949.55	95.71	1949.5	95.78	1949.45	95.85	1949.4	95.92	1949.35
95.99	1949.3	96.06	1949.25	96.13	1949.2	96.15	1949.14	96.17	1949.1
96.31	1948.92	96.32	1948.93	96.33	1948.91	96.34	1948.9	96.4	1948.9
96.45	1948.81	96.46	1948.81	96.47	1948.8	96.59	1948.71	96.6	1948.7
96.61	1948.69	96.73	1948.6	96.74	1948.59	96.85	1948.5	96.86	1948.49
97.14	1948.4	97.19	1948.35	97.25	1948.3	97.31	1948.25	97.37	1948.2
97.42	1948.15	97.48	1948.1	97.54	1948.05	97.6	1948	97.66	1947.95
97.71	1947.9	97.78	1947.85	97.83	1947.8	97.89	1947.74	97.94	1947.7
98.01	1947.64	98.06	1947.6	98.13	1947.54	98.18	1947.5	98.26	1947.43
98.29	1947.4	98.38	1947.32	98.41	1947.3	98.52	1947.2	98.54	1947.18
98.79	1947.1	98.81	1947.09	99.1	1947	99.14	1946.99	99.41	1946.9
99.69	1946.81	99.71	1946.8	100.01	1946.7	100.02	1946.7	100.09	1946.68
100.44	1946.6	100.5	1946.59	100.9	1946.5	101.01	1946.48	101.36	1946.4
101.5	1946.37	101.82	1946.3	101.98	1946.26	102.28	1946.2	102.46	1946.16
102.74	1946.1	102.93	1946.06	103.2	1946	103.4	1945.96	103.66	1945.9
103.87	1945.85	104.12	1945.8	104.34	1945.75	104.58	1945.7	104.8	1945.65
105.04	1945.6	105.27	1945.55	105.49	1945.5	105.59	1945.48	105.75	1945.44
105.95	1945.4	106.31	1945.32	106.92	1945.38	107	1945.39	107.01	1945.4
107.12	1945.5	107.23	1945.6	107.24	1945.6	107.35	1945.7	107.46	1945.8
107.57	1945.9	107.58	1945.9	107.69	1946	107.8	1946.1	107.91	1946.2
107.92	1946.2	108.03	1946.3	108.14	1946.4	108.25	1946.5	108.26	1946.5
108.37	1946.6	108.48	1946.7	108.59	1946.8	108.71	1946.9	108.82	1947
108.93	1947.1	109.04	1947.2	109.05	1947.2	109.16	1947.3	109.27	1947.4
109.36	1947.48	109.38	1947.5	109.5	1947.6	109.61	1947.7	109.72	1947.8
109.83	1947.9	109.84	1947.91	109.94	1948	109.95	1948.01	110.05	1948.1
110.07	1948.12	110.31	1948.11	110.45	1948.2	111.17	1948.2	111.37	1948.15
111.67	1948.2	111.9	1948.17	112.43	1948.1	113.1	1948.01	113.48	1948.1
113.73	1948.16	114.04	1948.2	114.7	1948.27	114.99	1948.3	115.52	1948.35
115.74	1948.4	115.82	1948.42	116.23	1948.5	116.42	1948.54	116.73	1948.6
116.97	1948.65	117.22	1948.7	117.51	1948.76	117.72	1948.8	118.03	1948.86
118.21	1948.9	118.55	1948.97	118.71	1949	119.06	1949.07	119.2	1949.1
119.56	1949.17	119.69	1949.2	120.07	1949.28	120.19	1949.3	120.57	1949.38
120.68	1949.4	121.07	1949.48	121.18	1949.5	121.57	1949.58	121.67	1949.6
121.79	1949.62	122.16	1949.7	122.3	1949.73	122.66	1949.8	122.82	1949.83
123.15	1949.9	123.35	1949.94	123.65	1950	123.91	1950.05	124.14	1950.1
124.5	1950.17	124.63	1950.2	124.98	1950.27	125.53	1950.28	127.54	1950.3
127.58	1950.3	127.6	1950.3	127.93	1950.4	127.98	1950.41	128.27	1950.5
128.56	1950.59	128.6	1950.6	128.92	1950.69	128.94	1950.7	129.1	1950.75

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  129.2  1950.8  129.23 1950.82  129.39  1950.9  129.46 1950.94  129.58    1951
 129.67 1951.05  129.77  1951.1  129.88 1951.16  129.96  1951.2  130.08 1951.26
 130.15  1951.3  130.28 1951.37  130.34  1951.4   130.4 1951.43  130.53  1951.5
  130.6 1951.54  130.72  1951.6   130.8 1951.64  130.91  1951.7     131 1951.75
  131.1  1951.8   131.2 1951.85  131.29  1951.9  131.42 1951.97  131.48    1952
 131.64 1952.09  131.67  1952.1  131.76 1952.15  134.55  1952.2  135.38 1952.22
 135.64  1952.2  135.66  1952.2  135.74  1952.2  138.12  1952.1  138.96 1952.18
 139.19  1952.2  139.31 1952.21  140.25  1952.3  140.34 1952.31  141.31  1952.4
 141.35  1952.4  141.88 1952.45  142.33  1952.5  142.34  1952.5  143.29  1952.6
 143.33  1952.6  144.26 1952.69  144.32  1952.7  144.38 1952.71   145.3  1952.8
 145.45 1952.81  146.29  1952.9  146.77 1952.95  147.28    1953   149.5  1953.1
 149.54  1953.1  149.68  1953.1   153.8 1953.03  154.74 1953.03  157.27 1953.04
 157.42    1953  157.51 1953.02  157.51    1953  157.86    1953   158.6 1953.06
 159.08  1953.1  159.92 1953.17  160.11  1953.2  160.15 1953.21  160.69  1953.3
 160.83 1953.32  161.27  1953.4  161.47 1953.43  161.86  1953.5  162.09 1953.54
 162.44  1953.6   162.7 1953.64  163.03  1953.7  163.26 1953.75  163.47  1953.8
 163.72 1953.86  163.86  1953.9  164.15 1953.97  164.25    1954   164.6 1954.09
 164.64  1954.1  164.85 1954.15  165.14 1954.19  165.19  1954.2   165.8 1954.28
 165.91  1954.3  166.48 1954.38  166.64  1954.4  167.11 1954.47  168.01 1954.46
 169.93 1954.42   170.8  1954.4  174.86 1954.31  175.64 1954.32

Manning's n Values        num=       3
    Sta   n Val     Sta   n Val     Sta   n Val
      0    .025    93.5     .05  131.67    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          93.5  131.67             22.37   25.04   27.85             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2799.78

INPUT
Description:
Station Elevation Data    num=     429
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1951.7.7299957 1951.681.399994 1951.661.779999 1951.673.259995  1951.7
3.710007 1951.714.130005 1951.727.399994  1951.8     8.5 1951.83   11.13  1951.9
   14.89 1951.99   15.16    195215.46001 1952.0115.50999 1952.01   16.33 1952.01
   23.37 1952.05    25.5 1952.0429.49001 1952.04   30.52 1952.02   31.14    1952
   32.47 1951.9734.85001  1951.9   36.02 1951.86   37.61  1951.8   38.91 1951.75
   40.37  1951.7   41.11 1951.67   42.21 1951.63   42.85 1951.61   43.08 1951.61
   43.38  1951.6   46.07 1951.55   48.72  1951.5   49.55 1951.48    50.3 1951.45
   50.73 1951.44   50.92 1951.43   52.78 1951.42   53.22  1951.4   53.27  1951.4
   53.39 1951.39   56.06  1951.3   58.48 1951.21   58.51  1951.2   58.57 1951.17
   58.69  1951.1   58.78 1951.05   64.23  1951.1   68.97 1951.14   70.68  1951.1
   70.93 1951.09   74.49    1951   75.13 1950.98    78.3  1950.9   79.19 1950.88
   82.11  1950.8   83.18 1950.77   85.92  1950.7   87.88 1950.65   88.14  1950.6
   88.22 1950.54   88.29  1950.5   88.41 1950.42   88.44  1950.4   88.56 1950.32
   88.59  1950.3   88.72 1950.21   88.74  1950.2   88.88 1950.11   88.89  1950.1
   89.04    1950   89.07 1949.98   89.19  1949.9   89.21 1949.89   89.35  1949.8
   89.37 1949.77   89.47  1949.7   89.53 1949.66   89.62  1949.6   89.69 1949.55
   89.76  1949.5   89.84 1949.45   89.91  1949.4   89.99 1949.34   90.05  1949.3
   90.14 1949.23   90.19  1949.2   90.29 1949.13   90.34  1949.1   90.44 1949.03
   90.48    1949   90.59 1948.92   90.62  1948.9   90.66 1948.88   90.77  1948.8
    90.8 1948.78   90.91  1948.7   90.94 1948.68   91.06  1948.6   91.08 1948.58
    91.2  1948.5   91.23 1948.48   91.34  1948.4   91.37 1948.38   91.49  1948.3
   91.51 1948.28   91.63  1948.2   91.65 1948.19   91.77  1948.1   91.79 1948.09
   91.92    1948   91.93 1947.99   92.06  1947.9   92.07 1947.89   92.21  1947.8
   92.21 1947.79   92.35  1947.7   92.49  1947.6    92.5 1947.59   92.65  1947.5
    92.8  1947.4   92.81  1947.4   92.96  1947.3   92.97 1947.29   93.11  1947.2
   93.12 1947.19   93.26  1947.1   93.28 1947.09   93.41    1947   93.44 1946.98
   93.57  1946.9   93.59 1946.88   93.72  1946.8   93.75 1946.78   93.87  1946.7
   93.91 1946.68   94.03  1946.6   94.06 1946.58   94.18  1946.5   94.22 1946.47
   94.33  1946.4   94.37 1946.37   94.49  1946.3    94.6 1946.22   94.64 1946.17
    94.7 1946.16   94.91  1946.1   95.14 1946.03   95.26    1946   95.55 1945.92
   95.61  1945.9   95.92 1945.81   95.96  1945.8   96.29 1945.71   96.31  1945.7
   96.58 1945.62   96.66  1945.6   96.67  1945.6   97.04 1945.51   97.09  1945.5
   97.42 1945.42   97.51  1945.4   97.59 1945.38   97.93  1945.3   98.07 1945.26
   98.34  1945.2   98.59 1945.14   98.76  1945.1   99.16    1945   99.18    1945
   99.21 1944.99   99.32    1945   99.55 1945.01  100.99  1945.1  101.58 1945.14
  102.03 1945.16  102.65 1945.15  103.13 1945.14  103.23  1945.2  103.26 1945.22
  103.39  1945.3  103.46 1945.35  103.54  1945.4   103.7 1945.45  103.74  1945.5
  103.79 1945.57  103.85  1945.6  103.92 1945.66  103.95 1945.66  103.98  1945.7
  104.13 1945.79  104.15  1945.8  104.31  1945.9  104.48    1946  104.49    1946
  104.54 1946.03  104.67  1946.1  104.68 1946.11  104.85  1946.2  104.88 1946.21
  105.04  1946.3  105.07 1946.32  105.22  1946.4  105.36 1946.47  105.42  1946.5
  105.46 1946.52  105.62  1946.6  105.75 1946.68  105.79  1946.7  105.84 1946.73
     106  1946.8  106.03 1946.81  106.24  1946.9   106.3 1946.92  106.49    1947
   106.7 1947.08  106.76  1947.1  106.99 1947.18  107.04  1947.2  107.29 1947.29
  107.31  1947.3  107.46 1947.36  107.62  1947.4  107.65 1947.41  107.99  1947.5
  108.05 1947.52  108.36  1947.6  108.45 1947.62  108.73  1947.7  108.84 1947.73
   109.1  1947.8  109.22 1947.83  109.48  1947.9  109.85 1947.96  109.98    1948
  110.37 1948.07  110.49  1948.1   110.9 1948.17  111.01  1948.2  111.44 1948.27
  111.56  1948.3  111.72 1948.33  112.14  1948.4   112.3 1948.43  112.72  1948.5
  112.88 1948.53   113.3  1948.6  113.45 1948.63  113.88  1948.7  114.03 1948.72
  114.46  1948.8   114.6 1948.82  115.04  1948.9  115.17 1948.92  115.62    1949
  115.75 1949.02   116.2  1949.1  116.32 1949.12  116.78  1949.2  116.88 1949.22
  117.36  1949.3  117.45 1949.31  117.94  1949.4     118 1949.41  118.52  1949.5
  118.55 1949.51  118.94 1949.57  119.13  1949.6  119.21 1949.61  119.81  1949.7
  120.39 1949.79  120.49  1949.8  120.56 1949.81  121.03  1949.9  121.41 1949.97
  121.47    1950  121.49 1950.01  121.72  1950.1  121.78 1950.13  121.99  1950.2
  122.05 1950.23  122.25  1950.3  122.31 1950.33  122.51  1950.4  122.73 1950.48
  122.79  1950.5  123.01 1950.58  123.06  1950.6  123.29 1950.68  123.33  1950.7
  123.57 1950.79  123.61  1950.8  123.86 1950.89  123.88  1950.9  124.14    1951
  124.15    1951   124.4 1951.09  124.43  1951.1  124.73  1951.2  124.74  1951.2
  125.03  1951.3  125.05 1951.31  125.33  1951.4  125.36 1951.41  125.63  1951.5
  125.67 1951.51  125.94  1951.6  125.98 1951.62  126.24  1951.7   126.3 1951.72
  126.54  1951.8  126.62 1951.83  126.84  1951.9  126.94 1951.93  127.14    1952
  127.27 1952.04  127.44  1952.1  127.61 1952.16  127.74  1952.2  127.96 1952.27
  128.04  1952.3  128.33 1952.39  128.34  1952.4   128.4 1952.42  128.94  1952.5
  129.18 1952.54  129.59  1952.6  130.03 1952.67  130.61  1952.7   131.1 1952.73
  132.35  1952.8  133.91 1952.89  134.08  1952.9  134.17 1952.91  134.45 1952.92
  137.75    1953  140.61 1953.07  141.11    1953  141.23 1952.98  141.84  1952.9
  142.09 1952.87  142.58  1952.8  142.92 1952.75  143.31  1952.7  143.72 1952.64
  144.04  1952.6  144.37 1952.55  144.77  1952.5   145.2 1952.44   145.5  1952.4
  146.16 1952.31  146.23  1952.3  146.35 1952.28  146.41  1952.3  146.46 1952.31
  146.77  1952.4  146.95 1952.45  147.13  1952.5  147.36 1952.57  147.48  1952.6
  147.58 1952.63  147.84  1952.7  147.95 1952.73  148.19  1952.8  148.31 1952.83
  148.55  1952.9  148.67 1952.93  148.91    1953  149.04 1953.04  149.26  1953.1
  149.41 1953.14  149.62  1953.2  149.79 1953.25  149.98  1953.3  150.03 1953.32
  150.18 1953.36  150.33  1953.4  150.59 1953.47  150.69  1953.5  150.98 1953.58
  151.12 1953.59  151.28  1953.6  151.67 1953.62  151.71 1953.63  151.93  1953.7
  151.97 1953.71   152.3  1953.8  152.63 1953.89  152.69  1953.9  152.72 1953.91
  153.14    1954   153.3 1954.04  153.59  1954.1  153.81 1954.15  154.03  1954.2
   154.3 1954.26  154.48  1954.3  154.77 1954.36  154.93  1954.4  155.24 1954.47
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  155.38  1954.5   155.7 1954.57  155.83  1954.6  156.16 1954.67  156.28  1954.7
  156.61 1954.77  156.73  1954.8  156.83 1954.82  156.85  1954.9  156.92 1954.92
  157.32    1955  157.38 1955.03  157.42  1955.1  157.58 1955.17  157.66  1955.2
  157.83 1955.27  157.89  1955.3  158.08 1955.38  158.13  1955.4  158.33 1955.48
  158.37  1955.5  158.58 1955.59  158.61  1955.6  158.84  1955.7  158.91 1955.73
  160.22  1955.8  161.35 1955.86  163.48 1955.82  163.61 1955.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   87.88    .035  140.61    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         87.88  140.61             23.04   25.15   28.16             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2774.63

INPUT
Description:
Station Elevation Data    num=     416
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1950.872.080002  1950.95.649994 1950.9410.25999    195113.98999 1951.04
15.31999 1951.07   16.81 1951.07   21.52    195125.03999 1950.96   26.02  1950.9
27.20999 1950.83   27.66  1950.8   28.08 1950.77   29.31  1950.7   29.38  1950.7
29.56999 1950.68   32.03 1950.6232.64999  1950.6   34.96 1950.54   36.23  1950.5
   37.89 1950.45   39.74  1950.442.07999 1950.34   43.28  1950.3   44.74 1950.26
    46.6  1950.2   46.98 1950.19   47.41 1950.18   49.03 1950.13   49.31 1950.13
50.25999  1950.1   50.39  1950.1   50.42  1950.1   50.43  1950.1   50.49 1950.09
   52.03 1950.03   52.31  1950.1   52.71  1950.2   52.72  1950.252.75999 1950.21
   52.91 1950.21   54.27 1950.27   55.37 1950.23   56.54  1950.2   58.12 1950.15
   59.99  1950.162.64999 1950.02   64.92 1950.01   65.24    1950   65.63 1949.99
   66.63 1949.99   66.87 1949.9969.82999  1949.972.68999 1949.81   75.87  1949.9
   76.29 1949.92    77.1    1950   77.78 1950.06   78.16  1950.178.89999 1950.17
   79.22  1950.2   80.05 1950.28   80.28  1950.3   81.23 1950.39   81.34  1950.4
82.00999 1950.46   83.32 1950.49   83.92  1950.586.39999 1950.55   88.11 1950.58
88.32999  1950.5   88.43 1950.46    88.6  1950.488.75999 1950.34   88.87  1950.3
   89.06 1950.23   89.14  1950.289.32999 1950.13   89.41  1950.1   89.61 1950.03
   89.68    1950   89.89 1949.92   89.95  1949.9   90.17 1949.82   90.22  1949.8
   90.45 1949.71   90.49  1949.7   90.74 1949.6190.75999  1949.6   90.89 1949.55
   90.99  1949.5      91 1949.591.18999  1949.4   91.21 1949.39   91.38  1949.3
   91.42 1949.2891.57999  1949.2   91.62 1949.18   91.78  1949.191.93999 1949.02
   91.98    194992.14999 1948.91   92.17  1948.9   92.36 1948.81   92.37  1948.8
   92.56 1948.71   92.57  1948.7   92.73  1948.6   92.88  1948.5   92.89 1948.49
   93.04  1948.4   93.06 1948.39    93.2  1948.3   93.22 1948.29   93.35  1948.2
   93.38 1948.1893.50999  1948.1   93.53 1948.08   93.66    194893.68999 1947.98
   93.82  1947.9   93.85 1947.88   93.97  1947.894.00999 1947.77   94.12  1947.7
   94.16 1947.67   94.27  1947.6   94.32 1947.57   94.43  1947.5   94.47 1947.47
94.57999  1947.4   94.62 1947.37   94.73  1947.3   94.78 1947.26   94.88  1947.2
   94.93 1947.16   95.03  1947.195.07999 1947.06   95.17    194795.25999 1946.94
   95.32  1946.9   95.41 1946.83   95.46  1946.8   95.56 1946.73    95.6  1946.7
   95.71 1946.62   95.74  1946.6   95.86 1946.52   95.88  1946.596.00999 1946.41
   96.03  1946.4   96.17  1946.396.17999 1946.29   96.35  1946.2   96.37 1946.19
96.53999  1946.196.56999 1946.08   96.72    194696.75999 1945.9896.89999  1945.9
   96.96 1945.87   97.09  1945.897.14999 1945.77   97.27  1945.7   97.34 1945.66
   97.46  1945.6   97.53 1945.56   97.64  1945.597.75999 1945.4497.81999  1945.4
   97.97 1945.3298.00999  1945.3   98.14 1945.2398.28999  1945.2   98.35 1945.19
    98.8  1945.199.06999 1945.05    99.3    194599.53999 1944.95    99.8  1944.9
  100.18 1944.82   100.3  1944.8  100.55 1944.75  101.33  1944.8  102.07 1944.85
  102.93  1944.9  103.33 1944.93  104.53    1945   104.7 1945.01   105.5 1945.06
  105.71  1945.1  105.73  1945.1  105.88 1945.13  106.24  1945.2  106.31 1945.21
  106.77  1945.3  106.88 1945.32   107.3  1945.4  107.43 1945.42  107.83  1945.5
  108.04 1945.54  108.37  1945.6  108.57 1945.66  108.64  1945.7  108.75 1945.77
  108.81  1945.8  108.92 1945.87  108.98  1945.9  109.09 1945.97  109.14    1946
  109.25 1946.07  109.31  1946.1  109.42 1946.17  109.48  1946.2  109.59 1946.27
  109.64  1946.3  109.75 1946.37  109.81  1946.4  109.92 1946.47  109.98  1946.5
  110.08 1946.57  110.14  1946.6  110.25 1946.67  110.31  1946.7  110.42 1946.77
  110.47  1946.8  110.54 1946.84  110.64  1946.9  110.71 1946.94  110.81    1947
  110.88 1947.05  110.97  1947.1  111.06 1947.15  111.14  1947.2  111.24 1947.26
  111.31  1947.3  111.45 1947.39  111.55  1947.4  111.72 1947.42  111.94 1947.44
  113.09  1947.4  114.61 1947.35  114.78  1947.4   115.1  1947.5  115.12 1947.51
  115.42  1947.6  115.44 1947.61  115.74  1947.7  116.08 1947.79  116.11  1947.8
  116.53  1947.9  116.54  1947.9  116.55  1947.9  116.73 1947.94  116.89    1948
  116.97 1948.03  117.17  1948.1  117.33 1948.16  117.44  1948.2  117.64 1948.27
  117.72  1948.3  117.94 1948.38  117.99  1948.4  118.23 1948.49  118.27  1948.5
  118.52 1948.59  118.55  1948.6  118.81  1948.7  118.82  1948.7  119.09  1948.8
   119.1  1948.8  119.37  1948.9   119.7    1949  119.71    1949  120.02 1949.09
  120.05  1949.1  120.35 1949.19  120.39  1949.2  120.68 1949.29  120.73  1949.3
  121.01 1949.38  121.07  1949.4  121.35 1949.48  121.41  1949.5  121.68 1949.58
  121.75  1949.6  122.01 1949.68  122.09  1949.7  122.35 1949.78  122.43  1949.8
  122.68 1949.88  122.77  1949.9  123.02 1949.97   123.1    1950  123.35 1950.07
  123.44  1950.1  123.56 1950.13  123.78  1950.2  123.95 1950.25  124.12  1950.3
  124.42 1950.39  124.99  1950.4  125.93 1950.36  127.68  1950.3  128.16 1950.28
  128.22  1950.3  128.25 1950.31  128.59  1950.4  128.86 1950.48  128.95  1950.5
  129.28 1950.59  129.32  1950.6  129.58 1950.67  130.26  1950.6  131.11 1950.51
  131.21  1950.5  131.23  1950.5  131.25  1950.5  131.26  1950.5  131.66  1950.6
  131.86 1950.65  132.07  1950.7  132.34 1950.77  132.48  1950.8  132.79 1950.88
  132.89  1950.9  133.21 1950.98   133.3    1951  133.44 1951.03  133.71  1951.1
  133.89 1951.14  134.12  1951.2  134.41 1951.27  134.54  1951.3  135.06  1951.3
  135.36 1951.25  138.34  1951.3  138.82 1951.26   139.6  1951.2  140.69 1951.11
  140.85  1951.1  141.15 1951.08  141.33  1951.1  141.46 1951.12  142.06  1951.2
  142.53 1951.26   142.8  1951.3   143.4 1951.38  143.53  1951.4  144.04 1951.47
  144.05 1951.47  144.14  1951.5  144.16 1951.51  144.37 1951.57  144.43  1951.6
  144.47 1951.62  144.56 1951.66  144.64  1951.7  144.73 1951.74  144.84  1951.8
  144.95 1951.85  145.05  1951.9  145.17 1951.96  145.25    1952  145.38 1952.06
  145.46  1952.1  145.59 1952.16  145.66  1952.2  145.74 1952.24  145.87  1952.3
  145.96 1952.35  146.07  1952.4  146.19 1952.46  146.27  1952.5  146.43 1952.58
  146.48  1952.6  146.68  1952.7  146.69  1952.7   146.7  1952.7  147.22  1952.8
  147.39 1952.83  147.75  1952.9  148.04 1952.95  148.28    1953  148.65 1953.07
   148.8  1953.1  149.24 1953.18  149.33  1953.2  149.84 1953.27  149.87 1953.27
  149.92  1953.3  149.99 1953.34  151.62 1953.36  152.49  1953.4  153.82 1953.46
  155.13  1953.5  155.78 1953.52    156  1953.6  156.13 1953.65  156.28  1953.7
  156.48 1953.77  156.55  1953.8  156.79 1953.89  156.83  1953.9  157.09    1954
   157.1    1954  157.27 1954.06  157.43  1954.1  157.48 1954.11  157.84  1954.2
  158.08 1954.26  158.26  1954.3  158.51 1954.36  158.99  1954.3  159.31 1954.26
  159.56 1954.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   88.11    .035  124.99    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         88.11  124.99             36.1   24.19   18.16             .1       .3

CROSS SECTION
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RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2750.44

INPUT
Description:
Station Elevation Data num= 325

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1950.025.209991		19507.179993	1949.997.559998		1949.98	14.09	1949.95	
17.92999	1949.919.70999	1949.8720.67999		1949.8621.64999		1949.8626.25999		1949.85	
27.48999	1949.8	29.92	1949.71	30.73	1949.7	30.84	1949.731.98999		1949.65
33.31	1949.6133.56999		1949.6	35.8	1949.53	36.17	1949.57	36.98	1949.5
39.5	1949.539.96999		1949.56	43.16	1949.57	44.77	1949.52	45.32	1949.53
45.84	1949.52	47.09	1949.5653.18999		1949.555.25999		1949.4863.21999		1949.43
67.17	1949.44	67.46	1949.44	68.23	1949.4	69.7	1949.32	70.12	1949.3
71.75	1949.21	72.05	1949.21	74.53	1949.22	75.34	1949.2	77.18	1949.15
78.50999	1949.1	80.34	1949.0382.18999		194986.75999		1949.0987.07999		1949.09
87.50999	1949.1	90.41	1949.19	90.87	1949.2	94.17	1949.3	94.18	1949.3
94.24	1949.31	94.49	1949.3694.68999		1949.395.00999		1949.2195.03999		1949.2
95.37	1949.1	95.38	1949.195.71999		1949	95.73	1949	95.8	1948.98
96.12	1948.9196.14999		1948.9	96.55	1948.81	96.6	1948.8	96.64	1948.79
97.03999	1948.7	97.12	1948.68	97.49	1948.6	97.6	1948.58	97.93	1948.5
98.07999	1948.47	98.38	1948.498.57999		1948.36	98.82	1948.399.07999		1948.24
99.27	1948.2	99.6	1948.1399.71999		1948.1	100.13	1948.01	100.16	1948
100.31	1947.97	100.52	1947.9	100.54	1947.89	100.82	1947.8	100.89	1947.78
101.13	1947.7	101.27	1947.65	101.44	1947.6	101.69	1947.52	101.74	1947.5
101.78	1947.49	101.89	1947.42	101.98	1947.4	102.01	1947.39	102.26	1947.3
102.3	1947.28	102.54	1947.2	102.58	1947.18	102.82	1947.1	103	1947.02
103.05	1947	103.23	1946.92	103.27	1946.9	103.45	1946.82	103.48	1946.8
103.67	1946.71	103.7	1946.7	103.9	1946.61	103.92	1946.6	104.12	1946.51
104.14	1946.5	104.34	1946.41	104.36	1946.4	104.57	1946.31	104.58	1946.3
104.59	1946.29	104.79	1946.2	105	1946.1	105.01	1946.1	105.23	1946
105.24	1946	105.36	1945.94	105.47	1945.9	105.71	1945.8	105.72	1945.8
105.94	1945.71	105.96	1945.7	105.98	1945.69	106.22	1945.6	106.26	1945.58
106.48	1945.5	106.56	1945.47	106.73	1945.4	106.87	1945.35	106.99	1945.3
107.2	1945.22	107.25	1945.2	107.36	1945.16	108.95	1945.1	109.52	1945.08
111.71	1945	114.34	1944.9	114.43	1944.9	116.1	1944.81	116.18	1944.9
116.22	1944.94	116.28	1945	116.32	1945.04	116.37	1945.1	116.42	1945.14
116.47	1945.2	116.51	1945.24	116.56	1945.29	116.59	1945.3	116.6	1945.3
116.99	1945.4	117.12	1945.43	117.36	1945.49	117.38	1945.5	117.77	1945.6
117.78	1945.6	118.08	1945.67	118.23	1945.7	118.26	1945.7	118.84	1945.8
119.01	1945.83	119.45	1945.9	119.8	1945.96	120.06	1946	120.65	1946.1
120.68	1946.1	120.72	1946.11	120.99	1946.2	121.01	1946.21	121.28	1946.3
121.32	1946.31	121.57	1946.4	121.62	1946.42	121.85	1946.5	121.93	1946.52
122.14	1946.6	122.23	1946.63	122.43	1946.7	122.53	1946.73	122.72	1946.8
122.82	1946.84	123.02	1946.9	123.14	1946.94	123.39	1947	123.51	1947.04
123.76	1947.1	123.88	1947.14	124.13	1947.2	124.31	1947.24	124.54	1947.3
124.75	1947.35	124.96	1947.4	125.19	1947.46	125.37	1947.5	125.64	1947.56
125.79	1947.6	126.09	1947.67	126.21	1947.7	126.55	1947.78	126.63	1947.8
127.02	1947.89	127.04	1947.9	127.21	1947.94	127.49	1948	127.52	1948.01
127.97	1948.1	128.04	1948.11	128.45	1948.2	128.55	1948.22	128.92	1948.3
129.1	1948.34	129.4	1948.4	129.73	1948.47	129.88	1948.5	130.12	1948.55
130.5	1948.6	130.67	1948.62	131.26	1948.7	131.76	1948.76	132.03	1948.8
132.29	1948.84	132.41	1948.9	132.55	1948.97	132.62	1949	132.77	1949.07
132.82	1949.1	132.99	1949.18	133.03	1949.2	133.21	1949.29	133.24	1949.3
133.44	1949.39	133.45	1949.4	133.55	1949.45	133.68	1949.5	133.71	1949.51
133.95	1949.6	134.01	1949.62	134.22	1949.7	134.31	1949.73	134.49	1949.8
134.6	1949.84	134.76	1949.9	134.89	1949.95	135.03	1950	135.17	1950.05
135.3	1950.1	135.45	1950.16	135.57	1950.2	135.73	1950.26	135.84	1950.3
135.97	1950.35	136.11	1950.4	136.35	1950.49	136.38	1950.5	136.42	1950.51
138.93	1950.6	141.82	1950.69	141.97	1950.7	142.38	1950.71	147.02	1950.74
147.26	1950.72	147.58	1950.72	147.71	1950.8	147.82	1950.86	147.88	1950.9
148.01	1950.98	148.05	1951	148.19	1951.08	148.22	1951.1	148.37	1951.18
148.39	1951.2	148.55	1951.29	148.57	1951.3	148.73	1951.4	148.74	1951.4
148.81	1951.44	148.95	1951.5	148.97	1951.51	149.21	1951.6	149.24	1951.61
149.46	1951.7	149.52	1951.72	149.71	1951.8	149.79	1951.83	149.97	1951.9
150.07	1951.94	150.14	1951.97	150.22	1952	150.35	1952.05	150.48	1952.1
150.63	1952.16	150.74	1952.2	150.86	1952.25	151	1952.3	151.12	1952.35
151.27	1952.4	151.38	1952.44	151.53	1952.5	151.64	1952.54	151.79	1952.6
151.9	1952.64	152.05	1952.7	152.12	1952.72	152.12	1952.73	152.34	1952.78
153.39	1952.78	157.36	1952.76	157.84	1952.8	157.97	1952.81	158.94	1952.9
159.49	1952.95	160.04	1953	160.93	1953.08	161.64	1953.08	163.76	1953.07
164.52	1953	164.85	1952.97	165.57	1952.9	166.2	1952.84	166.45	1952.82

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	94.24	.035	136.35	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.24	136.35	30.61	25.02	22.4	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2725.42

INPUT
Description:
Station Elevation Data num= 331

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1949.165.279999		1949.158.429993		1949.1411.81999		1949.1619.70999		1949.19
20.25999	1949.1920.65999		1949.19	22.06	1949.16	23.98	1949.126.40999		1949.02
27.84	1949.128.42999		1949.13	32.37	1949.233.32999		1949.22	33.88	1949.2
35.13999	1949.1637.28999		1949.138.96999		1949.05	39.6	1949	40.05	1948.98
41.53	1948.9	43.03	1948.8445.03999		1948.8549.32999		1948.8852.17999		1948.89
52.62	1948.8952.89999		1948.9	52.98	1948.9	53.13	1948.9	60.06	1948.8
61.87	1948.7863.53999		1948.7666.99999		1948.75	70.42	1948.7572.68999		1948.72
73.52	1948.73	76.73	1948.877.18999		1948.8177.63999		1948.84	78.09	1948.87
78.28	1948.89	78.53	1948.89	82.34	1948.9	85.12	1948.9385.46999		1948.92
85.66	1948.91	85.67	1948.985.67999		1948.985.96999		1948.81	85.99	1948.8
86.31999	1948.71	86.35	1948.7	86.67	1948.61	86.7	1948.6	86.74	1948.59
87.06999	1948.587.10999		1948.4987.42999		1948.4	87.49	1948.39	87.8	1948.3
87.85999	1948.28	88.17	1948.2	88.23	1948.18	88.53	1948.188.60999		1948.08
88.89999	1948	88.99	1947.98	89.27	1947.989.35999		1947.8889.63999		1947.8
89.74	1947.7790.00999		1947.7	90.12	1947.67	90.38	1947.6	90.49	1947.57
90.74999	1947.5	90.87	1947.47	91.12	1947.491.24999		1947.37	91.49	1947.3
91.63	1947.26	91.87	1947.2	92.02	1947.1692.23999		1947.192.39999		1947.06
92.62	1947	92.78	1946.9692.98999		1946.9	93.16	1946.85	93.37	1946.8
93.55	1946.7593.73999		1946.793.92999		1946.65	94.12	1946.694.31999		1946.55
94.5	1946.5	94.7	1946.45	94.87	1946.4	95.09	1946.34	95.25	1946.3
95.48	1946.2495.62999		1946.2	95.87	1946.1496.00999		1946.196.25999		1946.04
96.39999	194696.53999		1945.96	96.78	1945.9	96.95	1945.86	97.17	1945.8
97.37	1945.75	97.56	1945.797.82999		1945.6397.93999		1945.698.21999		1945.53
98.28	1945.5	98.3	1945.49	98.5	1945.498.67999		1945.3298.71999		1945.3
98.92	1945.2198.93999		1945.2	99.16	1945.1	99.17	1945.199.25999		1945.06
99.64999	1945	99.84	1944.97	100.34	1944.9	100.76	1944.84	101.04	1944.8
101.59	1944.72	101.73	1944.7	102.38	1944.61	102.43	1944.6	102.9	1944.53

```
  103.48  1944.6  103.75 1944.63  103.93  1944.6  103.94  1944.6  104.53  1944.5
  104.56 1944.49  105.12  1944.4  105.18 1944.39  105.71  1944.3  105.79 1944.28
  106.29  1944.2   106.4 1944.18  106.87  1944.1   107.4 1944.01  107.46    1944
  107.51 1944.01  107.92  1944.1  108.24 1944.17  108.25 1944.18  108.36  1944.2
  108.71 1944.28   108.8  1944.3  109.16 1944.38  109.24  1944.4  109.62 1944.49
  109.68  1944.5  110.07 1944.59  110.12  1944.6  110.24 1944.62  110.58  1944.7
  110.67 1944.72  111.02  1944.8   111.1 1944.82  111.46  1944.9  111.52 1944.91
   111.9    1945  111.94 1945.01  112.34  1945.1  112.39 1945.11  112.74  1945.2
  112.75  1945.2  113.13  1945.3  113.15 1945.31  113.52  1945.4  113.55 1945.41
  113.91  1945.5  113.94 1945.51  114.21  1945.6  114.24 1945.61  114.42  1945.7
   114.6 1945.78  114.64  1945.8  114.83  1945.9  114.85 1945.91  115.03    1946
  115.05 1946.01   115.1  1946.1  115.19 1946.14  115.32  1946.2  115.42 1946.24
  115.55  1946.3  115.65 1946.34  115.77  1946.4  115.88 1946.45     116  1946.5
  116.12 1946.55  116.23  1946.6  116.36 1946.65  116.46  1946.7   116.6 1946.76
  116.69  1946.8   116.8 1946.85  116.92  1946.9  117.08 1946.96  117.16    1947
  117.35 1947.08  117.52  1947.1  117.66 1947.12  118.29  1947.2  118.58 1947.24
  119.05  1947.3  119.41 1947.35  119.81  1947.4  120.54  1947.5  120.58  1947.5
  120.64 1947.52   120.9 1947.56  120.96  1947.6  121.15  1947.7  121.17 1947.71
  121.35 1947.79  121.37  1947.8  121.58 1947.89  121.61  1947.9  121.81 1947.99
  121.84    1948  122.04 1948.08  122.07  1948.1  122.27 1948.18  122.31  1948.2
   122.5 1948.28  122.54  1948.3  122.58 1948.32  122.78  1948.4  122.82 1948.42
  123.01  1948.5  123.07 1948.53  123.24  1948.6  123.31 1948.63  123.48  1948.7
  123.56 1948.74  123.71  1948.8  123.81 1948.84  123.94  1948.9  124.06 1948.95
  124.18    1949  124.31 1949.06  124.41  1949.1  124.57 1949.17  124.64  1949.2
  124.83 1949.28  124.88  1949.3   125.1 1949.39  125.11  1949.4   125.2 1949.44
  125.89 1949.47  126.35  1949.5  127.03 1949.54  128.14  1949.6  128.24 1949.61
  128.46 1949.62   128.7  1949.7  128.71  1949.7     129  1949.8  129.02 1949.81
   129.3  1949.9  129.33 1949.91  129.59    1950  129.63 1950.01  129.88  1950.1
  130.03 1950.15  130.04 1950.15  131.19 1950.16  131.25 1950.16  131.27 1950.16
  131.73  1950.2  131.98 1950.22  133.26  1950.3  133.81 1950.34  134.78  1950.4
  140.82 1950.46  141.99 1950.47  142.08 1950.48  142.09 1950.48   142.1 1950.48
  142.18 1950.47  144.09  1950.4  144.58 1950.38   145.1 1950.37  145.82  1950.4
  146.63 1950.44  146.86  1950.5  146.99 1950.53  147.23  1950.6  147.46 1950.66
  147.61  1950.7  147.73 1950.73  147.98  1950.8   148.1 1950.83  148.35  1950.9
  148.47 1950.93  148.72    1951  148.83 1951.03  149.09  1951.1   149.2 1951.13
  149.46  1951.2  149.57 1951.23  149.83  1951.3  150.21 1951.26  150.28  1951.3
  151.45  1951.3   151.5 1951.29  152.11  1951.2  152.12  1951.2  152.64 1951.12
  152.76  1951.1  153.39    1951   153.4    1951  154.02  1950.9  154.06 1950.89
  154.66  1950.8  154.78 1950.78  155.29  1950.7  155.79 1950.62  156.07  1950.7
  156.12 1950.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   85.12    .035  125.11    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         85.12  149.83             21.47   25.25    27.5             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2700.17

INPUT
Description:
Station Elevation Data    num=     234
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.811.389999  1948.89.380005 1948.76   11.75 1948.7712.85001 1948.76
   13.25 1948.7613.68001 1948.75   17.17 1948.7717.43001 1948.7619.65001 1948.72
20.99001  1948.724.09001 1948.6427.76001  1948.6   29.28 1948.5931.60001 1948.57
   42.02  1948.545.86001 1948.4749.61001  1948.4   52.77 1948.3452.92001 1948.33
53.86001  1948.3   54.59 1948.2755.24001 1948.27   59.16 1948.27   62.73  1948.3
63.10001 1948.31   63.45  1948.3   63.65 1948.2965.04001  1948.266.35001 1948.12
   66.62  1948.168.17001    1948    68.2    194868.31001 1947.99   70.91  1947.9
   71.44 1947.88   74.01  1947.8   75.13 1947.75   76.23  1947.777.10001 1947.66
78.50001  1947.6   79.76 1947.5580.82001  1947.582.71001 1947.42   83.27  1947.4
84.79001 1947.3485.35001  1947.386.81001  1947.286.82001  1947.287.82001  1947.1
88.31001 1947.0588.81001    1947   89.38 1946.9489.81001  1946.9   90.45 1946.84
    90.8  1946.8   91.55 1946.73    91.8  1946.7    92.7 1946.6192.79001  1946.6
   93.22 1946.56   93.48  1946.5   93.51 1946.49   93.94  1946.493.99001 1946.39
94.39001  1946.3   94.48 1946.28   94.84  1946.2   95.22 1946.12    95.3  1946.1
    95.7 1946.0195.75001    1946   96.19  1945.996.21001  1945.996.49001 1945.84
96.61001  1945.896.64001 1945.7996.93001  1945.7   97.02 1945.6797.25001  1945.6
   97.38 1945.5697.57001  1945.5   97.73 1945.45   97.89  1945.498.07001 1945.34
98.21001  1945.3   98.41 1945.2498.53001  1945.298.74001 1945.1398.85001  1945.1
99.07001 1945.0399.17001    194599.40001 1944.9399.49001  1944.9   99.73 1944.83
99.81001  1944.8  100.06 1944.72  100.13  1944.7  100.38 1944.62  100.45  1944.6
  100.71 1944.52  100.77  1944.5  101.03 1944.42  101.09  1944.4  101.36 1944.32
  101.42  1944.3  101.68 1944.22  101.74  1944.2   101.8 1944.18  102.06  1944.1
  102.16 1944.07  102.38    1944  102.58 1943.94   102.7  1943.9  102.96 1943.87
   106.4 1943.81  107.28  1943.8  113.07 1943.75  114.35  1943.8  116.62  1943.9
  116.64  1943.9  116.67  1943.9  116.73  1943.9  116.76 1943.91  116.87 1943.92
  117.22    1944  117.51 1944.07  117.66  1944.1  118.03 1944.18  118.11  1944.2
   118.5 1944.29  118.55  1944.3  118.95 1944.39  118.99  1944.4   119.4 1944.49
  119.43  1944.5  119.85  1944.6  119.87  1944.6   120.3  1944.7  120.32  1944.7
  120.74  1944.8  120.76  1944.8  121.19  1944.9   121.2  1944.9  121.63    1945
  121.64    1945  122.07  1945.1  122.08  1945.1  122.52  1945.2  122.96  1945.3
  122.97  1945.3   123.4  1945.4  123.41  1945.4  123.84  1945.5  123.85  1945.5
  124.29  1945.6  124.73  1945.7  125.17  1945.8  125.18  1945.8  125.61  1945.9
  125.62  1945.9  126.06    1946   126.5  1946.1  126.94  1946.2  127.38  1946.3
  127.39  1946.3  127.82  1946.4  127.83  1946.4  128.27  1946.5  128.71  1946.6
  129.15  1946.7  129.59  1946.8  130.04  1946.9  130.48    1947  130.75 1947.06
  130.92  1947.1  131.37  1947.2  131.81  1947.3  131.82  1947.3  132.26  1947.4
  132.71  1947.5  133.15  1947.6  133.16  1947.6   133.6  1947.7  133.61  1947.7
  134.04  1947.8  134.09 1947.81  134.49  1947.9  135.13 1947.99   135.2    1948
  136.16  1948.1   136.2  1948.1  137.19  1948.2   137.2  1948.2  138.19  1948.3
   138.2  1948.3  139.19  1948.4   139.2  1948.4   140.2  1948.5   141.2  1948.6
  141.37 1948.62   142.2  1948.7   143.2  1948.8  143.22  1948.8  143.34 1948.81
  143.39 1948.82  143.49 1948.83   144.5 1948.89  144.65  1948.9  145.83 1948.98
  146.18    1949  147.12 1949.06  147.71  1949.1  148.39 1949.14  149.24  1949.2
  149.61 1949.22  150.77  1949.3  150.79  1949.3  150.85 1949.31  152.05 1949.35
  153.42  1949.4  153.55  1949.4  153.74 1949.41   154.6  1949.5  154.71 1949.51
  155.57  1949.6  155.83 1949.63  156.55  1949.7  157.39 1949.79   158.8  1949.7
  159.01 1949.69  159.53 1949.66  160.35 1949.67  161.38  1949.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02563.10001    .035  141.37    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         62.73  141.37             16.35   24.37   29.93             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2675.8
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INPUT
Description:
Station Elevation Data    num=     272
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1948.9     .03  1948.91.570007 1948.863.650009  1948.84.930008 1948.76
5.860001 1948.737.290009 1948.768.740005 1948.7517.96001  1948.720.96001 1948.65
   26.41  1948.626.54001  1948.627.64001 1948.5833.18001 1948.51   34.38  1948.5
37.50001 1948.49    39.2 1948.4742.39001 1948.4248.43001 1948.4453.51001  1948.4
   58.63 1948.3158.80001  1948.359.12001 1948.29   59.27 1948.2959.50001  1948.3
60.17001 1948.3262.46001  1948.463.14001 1948.4264.08001 1948.4365.31001  1948.5
65.40001  1948.565.53001  1948.567.33001 1948.5367.73001 1948.5468.06001  1948.5
68.24001 1948.48   68.91  1948.469.35001 1948.35   69.77  1948.3   70.34 1948.23
70.62001  1948.271.01001 1948.1672.03001 1948.1572.42001  1948.173.01001 1948.04
73.71001    194874.68001 1947.9475.23001  1947.976.24001 1947.8276.30001 1947.82
   76.52 1947.8176.61001 1947.82   81.41 1947.8485.12001 1947.8685.92001  1947.8
86.46001 1947.76   87.34  1947.788.35001 1947.6388.76001  1947.690.00001 1947.51
90.18001  1947.590.35001 1947.4991.60001  1947.4   91.66  1947.491.89001 1947.38
92.15001 1947.3492.30001  1947.392.36001 1947.2892.65001  1947.292.78001 1947.16
93.01001  1947.193.17001 1947.0593.36001    194793.53001 1946.9593.72001  1946.9
93.90001 1946.8594.07001  1946.894.26001 1946.7594.42001  1946.794.62001 1946.65
94.78001  1946.694.97001 1946.54   95.13  1946.595.33001 1946.4495.49001  1946.4
95.69001 1946.34   95.84  1946.396.05001 1946.24    96.2  1946.296.40001 1946.14
96.55001  1946.196.76001 1946.04   96.91    194697.11001 1945.9497.26001  1945.9
97.47001 1945.8497.62001  1945.897.82001 1945.7497.97001  1945.798.18001 1945.64
98.33001  1945.698.53001 1945.5498.68001  1945.598.84001 1945.4599.03001  1945.4
99.23001 1945.3499.39001  1945.399.64001 1945.2399.74001  1945.2  100.09  1945.1
   100.1  1945.1  100.14 1945.09  100.81    1945  100.96 1944.98  101.56  1944.9
  101.83 1944.86  102.31  1944.8  102.67 1944.75  103.08  1944.7  103.46 1944.65
  103.81  1944.6  104.24 1944.54  104.56  1944.5  105.03 1944.44  105.31  1944.4
  105.83 1944.33  106.07  1944.3  106.65 1944.22  106.82  1944.2  107.49 1944.11
  107.57  1944.1  107.65 1944.09  108.45    1944  108.81 1943.96  109.22  1943.9
  109.57 1943.86  109.99  1943.8  110.16 1943.78  110.33 1943.76  110.75  1943.7
  111.27 1943.63  112.52  1943.6   115.5 1943.66  117.17  1943.7  119.85 1943.76
  121.55 1943.78  122.55 1943.79  122.67  1943.8   122.7  1943.8  123.75  1943.9
  123.88 1943.91  124.84    1944  124.91 1944.01  125.77 1944.09   125.9  1944.1
  125.93  1944.1  126.93 1944.19  127.08  1944.2  127.22 1944.21  128.23  1944.3
  128.59 1944.33   129.5  1944.4  130.45 1944.49  130.55  1944.5  130.83 1944.53
  131.06  1944.6  131.11 1944.62  131.34  1944.7  131.53 1944.76  131.64  1944.8
  131.83 1944.86  131.93  1944.9  132.12 1944.97  132.22    1945  132.42 1945.07
  132.52  1945.1  132.72 1945.17  132.81  1945.2  133.02 1945.27  133.11  1945.3
  133.32 1945.37   133.4  1945.4  133.61 1945.47   133.7  1945.5  133.91 1945.57
  133.99  1945.6  134.21 1945.67  134.29  1945.7  134.51 1945.78  134.58  1945.8
  134.81 1945.88  134.88  1945.9  135.11 1945.98  135.17    1946  135.41 1946.08
  135.47  1946.1  135.71 1946.18  135.76  1946.2  136.01 1946.28  136.05  1946.3
  136.31 1946.39  136.35  1946.4  136.61 1946.49  136.64  1946.5  136.91 1946.59
  136.94  1946.6  137.21 1946.69  137.23  1946.7  137.52  1946.8  137.53  1946.8
  137.82  1946.9  137.93 1946.94   138.1    1947  138.11    1947  138.38  1947.1
  138.39  1947.1  138.65 1947.19  138.67  1947.2  138.93 1947.29  138.95  1947.3
   139.2 1947.39  139.23  1947.4  139.48 1947.49   139.5  1947.5  139.75 1947.59
  139.78  1947.6  140.03 1947.69  140.06  1947.7   140.3 1947.79  140.34  1947.8
  140.58 1947.88  140.62  1947.9  140.86 1947.98   140.9    1948  141.13 1948.08
  141.18  1948.1  141.41 1948.18  141.46  1948.2  141.69 1948.28  141.74  1948.3
  141.96 1948.38  142.02  1948.4  142.24 1948.48   142.3  1948.5  142.52 1948.58
  142.58  1948.6   142.8 1948.68  142.86  1948.7  143.07 1948.78  143.14  1948.8
  143.35 1948.88  143.42  1948.9  143.49 1948.93   143.7    1949  143.79 1949.03
  143.98  1949.1  144.11 1949.15  144.26  1949.2  144.45 1949.27  144.52  1949.3
  144.71 1949.36  145.92  1949.3  147.48 1949.22  147.91  1949.2  148.67 1949.16
  149.14 1949.17  152.75  1949.2  160.47 1949.27  160.85  1949.3  162.11 1949.39
  162.79  1949.4  162.82  1949.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02567.33001    .035  144.52    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         59.27  144.52             25.2   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2650.79

INPUT
Description:
Station Elevation Data    num=     294
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.36     .21 1948.35    1.49  1948.3     4.8 1948.23    5.96  1948.2
     6.8 1948.25    7.74  1948.2    8.05 1948.21    8.09  1948.2     8.4 1948.21
   12.98 1948.22   13.66 1948.22    15.4 1948.22   15.93 1948.21   16.15  1948.2
    16.7 1948.18   17.06  1948.2   17.64 1948.24   18.63  1948.3   19.44 1948.35
    20.2  1948.4   20.62 1948.43   20.96 1948.45   22.08 1948.44   23.15 1948.44
   24.32  1948.4   25.61 1948.36   25.77 1948.36   26.15  1948.4   26.32 1948.43
   26.67  1948.5   26.85 1948.53    27.2  1948.6   27.44 1948.65   28.18  1948.6
   28.54 1948.58   31.08  1948.5   33.97 1948.41   34.39  1948.4   37.08 1948.32
   37.62  1948.3   37.65  1948.3   40.49  1948.2   40.74 1948.19   40.75 1948.19
    40.9 1948.19   43.62  1948.1   44.54 1948.11   44.78  1948.1   45.12 1948.12
   51.81  1948.1   52.12  1948.1   54.79 1948.12   55.23  1948.1   55.48 1948.12
   55.52  1948.1   56.42 1948.08   56.76 1948.09   60.91 1948.04   65.66 1948.02
   66.05 1948.06    66.7  1948.1   66.84 1948.11    68.2  1948.2   68.27  1948.2
   68.28  1948.2   68.42  1948.2   68.61  1948.2   72.88 1948.25   75.56 1948.28
   75.85  1948.2   75.93 1948.18   76.14 1948.17   76.48  1948.1      77 1948.17
   77.19  1948.2   77.78 1948.28   78.26  1948.2   78.65 1948.13   78.84  1948.1
   79.42    1948   79.43    1948   79.47 1947.99   79.56  1947.9   79.57 1947.88
   79.65  1947.8   79.68 1947.77   79.75  1947.7   79.79 1947.66   79.84  1947.6
   79.89 1947.55   79.94  1947.5   79.99 1947.45   80.03  1947.4   80.08 1947.35
   80.13  1947.3   80.19 1947.24   80.22  1947.2   80.31  1947.1   80.32  1947.1
   80.32 1947.09   80.58    1947   80.64 1946.98   80.87  1946.9      81 1946.87
   81.23  1946.8   81.36 1946.76   81.59  1946.7   81.73 1946.66   81.95  1946.6
    82.1 1946.56   82.31  1946.5   82.47 1946.46   82.67  1946.4   82.84 1946.35
   83.03  1946.3   83.21 1946.25   83.39  1946.2   83.58 1946.15   83.75  1946.1
   83.95 1946.04   84.11    1946   84.32 1945.94   84.47  1945.9    84.7 1945.84
   84.83  1945.8   85.08 1945.73   85.19  1945.7   85.46 1945.63   85.55  1945.6
   85.84 1945.52   85.91  1945.5   86.22 1945.41   86.27  1945.4   86.61  1945.3
   86.63  1945.3    86.8 1945.25   86.96  1945.2   86.98  1945.2   87.27  1945.1
   87.32 1945.08   87.58    1945   87.68 1944.97    87.9  1944.9   88.04 1944.85
   88.21  1944.8   88.42 1944.73   88.52  1944.7   88.82  1944.6   88.83  1944.6
   89.32  1944.5   89.33 1944.49   89.78  1944.4   89.83 1944.39   90.26  1944.3
   90.33 1944.29   90.74  1944.2   90.82 1944.18   91.21  1944.1   91.31 1944.08
   91.69    1944   92.09 1943.92   92.17  1943.9   92.61 1943.81   92.72  1943.8
   92.77  1943.8   94.34  1943.7   94.89 1943.67   95.96  1943.6   96.93 1943.54
   97.57  1943.5   98.35 1943.45      99 1943.46    99.9 1943.47  101.57 1943.48
  106.54  1943.4  106.68 1943.41   108.1  1943.5  108.87 1943.55  109.61  1943.6
  110.39 1943.65  111.12  1943.7   111.9 1943.75  112.63  1943.8  113.42 1943.85
  114.15  1943.9  114.95 1943.95  115.66    1944   116.5 1944.06  117.17  1944.1
  117.49 1944.13  118.14  1944.2  118.44  1944.3  118.45  1944.3  118.51 1944.32
  118.73 1944.38  118.79  1944.4  119.05 1944.47  119.13  1944.5  119.38 1944.57
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119.48	1944.6	119.71	1944.67	119.82	1944.7	120.05	1944.77	120.17	1944.8
120.39	1944.87	120.51	1944.9	120.74	1944.96	120.86	1945	121.08	1945.06
121.2	1945.1	121.42	1945.16	121.55	1945.2	121.77	1945.26	121.89	1945.3
122.11	1945.36	122.24	1945.4	122.45	1945.46	122.58	1945.5	122.8	1945.56
122.93	1945.6	123.14	1945.66	123.27	1945.7	123.49	1945.76	123.62	1945.8
123.83	1945.86	123.96	1945.9	124.18	1945.96	124.31	1946	124.52	1946.06
124.65	1946.1	124.86	1946.16	125	1946.2	125.21	1946.26	125.34	1946.3
125.55	1946.36	125.69	1946.4	125.9	1946.46	126.03	1946.5	126.24	1946.56
126.38	1946.6	126.59	1946.66	126.72	1946.7	126.93	1946.76	127.07	1946.8
127.28	1946.86	127.41	1946.9	127.62	1946.96	127.76	1947	127.97	1947.06
128.1	1947.1	128.31	1947.16	128.45	1947.2	128.65	1947.26	128.79	1947.3
129	1947.36	129.14	1947.4	129.34	1947.46	129.48	1947.5	129.69	1947.56
129.83	1947.6	130.03	1947.66	130.17	1947.7	130.38	1947.76	130.51	1947.8
130.72	1947.86	130.86	1947.9	131.07	1947.96	131.2	1948	131.41	1948.06
131.55	1948.1	131.76	1948.16	131.89	1948.2	132.1	1948.26	132.24	1948.3
132.45	1948.36	132.58	1948.4	132.75	1948.45	132.93	1948.5	133.14	1948.56
133.27	1948.6	133.57	1948.69	133.62	1948.7	133.73	1948.73	134.38	1948.7
134.6	1948.69	136.37	1948.6	137.45	1948.55	138.37	1948.5	139	1948.51
140.66	1948.55	145.87	1948.55	148.27	1948.5	150.6	1948.53		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	77.78	.035	133.73	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
77.78	133.73	21.98	24.6	26.83	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2626.19

INPUT
Description:
Station Elevation Data num= 286

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1948.43.1599884	1948.442.809998		1948.45.799988		1948.368.909988		1948.3	
9.769989	1948.28	16.39	1948.216.48999	1948.2	16.62	1948.220.01999		1948.2	
20.09	1948.220.10999	1948.220.12999		1948.2	20.62	1948.320.80999		1948.34	
21.13999	1948.421.32999	1948.4422.21999		1948.4522.23999		1948.522.64999		1948.45	
23.69999	1948.4623.88999	1948.524.87999		1948.5	25.16	1948.44	25.34	1948.4	
25.62	1948.34	25.8	1948.3	26.09	1948.2426.25999	1948.2	26.55	1948.14	
26.70999	1948.127.16999	194827.53999		1947.9733.39999		1947.9738.95999		1947.96	
42.53999	1947.9543.78999	1947.9544.87999		1947.9646.14999		1947.9547.70999		1947.95	
51.8	1947.9354.18999	1947.91	55.91	1947.956.84999		1947.8563.92999		1947.82	
65.28999	1947.8465.75999	1947.8766.03999		1947.9	66.09	1947.94	66.16	1948	
66.23	1948.0666.26999	1948.166.34999		1948.1766.38999		1948.266.46999		1948.27	
66.50999	1948.3	66.59	1948.3766.62999	1948.466.70999		1948.4766.73999		1948.5	
66.77999	1948.5366.85999	1948.666.92999		1948.66	66.98	1948.767.05999		1948.77	
67.24	1948.868.57999	1948.7268.70999		1948.7	68.87	1948.67	69.34	1948.6	
69.48	1948.58	69.87	1948.5270.06999	1948.570.59999		1948.45	70.8	1948.4	
71.12	1948.371.12999	1948.371.44999		1948.271.45999		1948.271.77999		1948.1	
71.78999	1948.172.10999	1948	72.12	194872.43999		1947.972.44999		1947.9	
72.76999	1947.872.77999	1947.873.10999		1947.773.14999		1947.6973.41999		1947.6	
73.42999	1947.673.73999	1947.573.74999		1947.5	74.05	1947.474.06999		1947.39	
74.37	1947.374.39999	1947.2974.67999		1947.274.71999		1947.1974.99999		1947.1	
75.03999	1947.0975.30999	1947	75.37	1946.9875.62999		1946.975.68999		1946.88	
75.93999	1946.876.01999	1946.7876.24999		1946.7	76.34	1946.6776.56999		1946.6	
76.66999	1946.5776.87999	1946.576.99999		1946.4677.19999		1946.477.31999		1946.36	
77.50999	1946.377.64999	1946.2677.82999		1946.2	77.98	1946.1578.13999		1946.1	
78.30999	1946.0578.45999	194678.64999		1945.9478.76999		1945.9	78.98	1945.83	
79.09	1945.879.31999	1945.7379.39999		1945.779.64999		1945.6279.71999		1945.6	
79.98999	1945.5180.02999	1945.580.32999		1945.480.34999		1945.480.48999		1945.36	
80.69999	1945.381.07999	1945.2	81.09	1945.281.46999		1945.181.48999		1945.1	
81.85999	1945.0181.87999	194582.23999		1944.9182.26999		1944.982.62999		1944.81	
82.65999	1944.883.01999	1944.7183.04999		1944.783.39999		1944.6183.43999		1944.6	
83.78999	1944.5183.82999	1944.584.17999		1944.4184.21999		1944.484.56999		1944.31	
84.60999	1944.384.95999	1944.2185.00999		1944.2	85.34	1944.1185.39999		1944.1	
85.73	1944.0185.78999	1944	86.12	1943.9186.17999		1943.986.50999		1943.81	
86.56999	1943.886.89999	1943.7286.95999		1943.787.28999		1943.6287.34999		1943.6	
87.67999	1943.5287.73999	1943.588.06999		1943.4288.12999		1943.488.45999		1943.32	
88.52999	1943.388.67999	1943.26	89.81	1943.2390.15999		1943.2290.24999		1943.2	
92.95	1943.23	98.92	1943.3	100.58	1943.35	100.89	1943.4	101.09	1943.43
101.51	1943.5	101.91	1943.56	102.13	1943.6	102.31	1943.63	102.76	1943.7
103	1943.74	103.38	1943.8	103.99	1943.9	104	1943.9	104.03	1943.9
105.84	1944	107.58	1944.09	107.59	1944.1	107.74	1944.2	107.77	1944.22
107.88	1944.3	108.01	1944.39	108.03	1944.4	108.17	1944.5	108.2	1944.52
108.61	1944.6	108.68	1944.62	109.09	1944.7	109.23	1944.73	109.58	1944.8
109.75	1944.84	110.07	1944.9	110.27	1944.94	110.55	1945	110.77	1945.04
111.04	1945.1	111.28	1945.15	111.53	1945.2	111.78	1945.25	112.04	1945.3
112.29	1945.35	112.54	1945.4	112.8	1945.46	112.99	1945.5	113.32	1945.57
113.48	1945.6	113.84	1945.68	113.96	1945.7	114.37	1945.78	114.45	1945.8
114.89	1945.89	114.94	1945.9	115.38	1945.99	115.43	1946	115.95	1946.1
116	1946.11	116.47	1946.2	116.56	1946.22	117	1946.3	117.11	1946.32
117.52	1946.4	117.66	1946.43	118.04	1946.5	118.2	1946.53	118.56	1946.6
118.74	1946.63	119.09	1946.7	119.28	1946.74	119.61	1946.8	119.82	1946.84
120.13	1946.9	120.35	1946.94	120.66	1947	120.89	1947.04	121.18	1947.1
121.42	1947.15	121.7	1947.2	121.95	1947.25	122.22	1947.3	122.48	1947.35
122.75	1947.4	123.01	1947.45	123.27	1947.5	123.54	1947.55	123.79	1947.6
124.07	1947.65	124.32	1947.7	124.59	1947.75	124.84	1947.8	125.17	1947.86
125.36	1947.9	125.78	1947.98	125.88	1948	126.29	1948.08	129.52	1948.08
136.2	1948.1	140.57	1948.11	140.72	1948.1	140.84	1948.09	142.23	1948
143	1947.95	143.74	1947.9	144.77	1947.83	145.25	1947.8	145.7	1947.77
146.18	1947.74								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	67.24	.035	126.29	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
67.24	126.29	19.32	24.41	28.81	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2601.78

INPUT
Description:
Station Elevation Data num= 280

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1948.01.6100006	19483.910004		1947.954.110001		1947.945.410004		1947.9	
6.419998	1947.87 8.51001	1947.89.840012		1947.7611.60001		1947.7	13.7	1947.67	
13.96001	1947.6715.32001	1947.67	19.87	1947.64	23.09	1947.625.42001		1947.57	
26.58	1947.5732.47001	1947.5	35.7	1947.45	35.76	1947.4536.47001		1947.43	
38.77	1947.4738.79001	1947.48	39.02	1947.4841.56001		1947.5	42.76	1947.51	

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   48.69 1947.5251.03001 1947.5251.92001  1947.553.85001 1947.4656.46001  1947.4
   58.83 1947.3559.64001 1947.33   59.84  1947.460.06001 1947.48   60.13  1947.5
60.39001 1947.5960.42001  1947.6    60.7  1947.760.90001 1947.77   60.98  1947.8
60.99001  1947.861.24001  1947.9   61.26 1947.9161.50001    194861.54001 1948.01
   61.76  1948.161.81001 1948.12   62.02  1948.262.07001 1948.2262.28001  1948.3
   62.34 1948.3262.54001  1948.462.60001 1948.43    62.8  1948.5   62.87 1948.53
63.06001  1948.6   63.13 1948.6363.32001  1948.763.40001 1948.73   63.58  1948.8
   63.77 1948.8764.31001 1948.83   64.53  1948.9   64.95 1948.84   65.05  1948.8
65.14001 1948.76   65.27  1948.7   65.37 1948.6665.49001  1948.6   65.59 1948.56
65.71001  1948.565.81001 1948.4665.93001  1948.466.04001 1948.3566.15001  1948.3
   66.26 1948.25   66.38  1948.266.49001 1948.1566.60001  1948.1    66.7 1948.04
66.78001    1948   66.87 1947.96   67.02  1947.9   67.12 1947.86   67.27  1947.8
67.39001 1947.7567.50001  1947.7   67.62 1947.6567.72001  1947.667.82001 1947.55
   67.94  1947.5   68.01 1947.45   68.12  1947.4   68.19 1947.35   68.26  1947.3
   68.33 1947.2468.40001  1947.2   68.48 1947.1468.53001  1947.1   68.62 1947.04
68.67001    1947   68.77 1946.9368.81001  1946.9   68.91 1946.83   68.95  1946.8
69.06001 1946.72   69.09  1946.769.21001 1946.6169.22001  1946.669.35001  1946.5
69.36001  1946.569.43001 1946.4569.54001  1946.4   69.55  1946.4   69.77  1946.3
    69.8 1946.2970.00001  1946.270.04001 1946.18   70.23  1946.170.28001 1946.08
70.46001    1946   70.52 1945.97   70.69  1945.9   70.76 1945.8770.92001  1945.8
71.00001 1945.7771.15001  1945.7   71.23 1945.66   71.38  1945.671.47001 1945.56
71.61001  1945.5    71.7 1945.46   71.84  1945.4   71.94 1945.3672.07001  1945.3
72.21001 1945.24    72.3  1945.2   72.51 1945.11   72.58  1945.172.64001 1945.09
73.74001    194574.32001 1944.9574.89001  1944.9    75.8 1944.82   76.05  1944.8
76.37001 1944.77   76.94  1944.7   77.55 1944.62   77.72  1944.6   78.44 1944.51
78.51001  1944.5   78.97 1944.4479.07001  1944.4   79.13 1944.3779.31001  1944.3
   79.47 1944.2479.56001  1944.279.76001 1944.12    79.8  1944.180.04001    1944
   80.05    194480.17001 1943.9580.32001  1943.9   80.61  1943.8   80.88 1943.71
   80.91  1943.781.17001 1943.6181.21001  1943.681.24001 1943.5981.51001  1943.5
82.21001 1943.41    82.3 1943.483.18001 1943.3584.32001 1943.3984.64001  1943.4
   85.33 1943.4285.53001  1943.4   85.61 1943.3986.46001  1943.3    86.8 1943.26
87.39001  1943.287.90001 1943.1488.31001  1943.1    88.7 1943.0689.24001    1943
90.40001    1943   91.16 1943.0791.43001  1943.191.67001 1943.1292.46001  1943.2
   92.69 1943.2293.48001  1943.3   94.45 1943.3994.51001  1943.4   95.02 1943.45
95.43001  1943.595.46001  1943.596.26001 1943.59   96.33  1943.697.10001 1943.69
97.21001  1943.7   97.95 1943.78   98.09  1943.898.81001 1943.8898.96001  1943.9
99.67001 1943.98   99.84    1944  100.53 1944.08  100.72  1944.1   101.4 1944.18
   101.6  1944.2  102.27 1944.28  102.47  1944.3   102.7 1944.32  103.44  1944.4
  103.71 1944.43  104.49  1944.5  104.77 1944.53  105.55  1944.6  105.84 1944.63
   106.6  1944.7  106.91 1944.73  107.66  1944.8     108 1944.83  108.72  1944.9
  109.11 1944.94  109.64    1945  110.12 1945.04  110.79  1945.1  111.41 1945.18
   111.6 1945.19  111.64  1945.2   111.7 1945.21  111.91  1945.3  112.12 1945.39
  112.14  1945.4  112.24 1945.45  112.39 1945.49  112.41  1945.5  112.69 1945.59
  112.72  1945.6  112.99 1945.69  113.04  1945.7   113.3 1945.78  113.35  1945.8
   113.6 1945.88  113.66  1945.9  113.91 1945.98  113.98    1946  114.22 1946.08
  114.29  1946.1  114.54 1946.18   114.6  1946.2  114.85 1946.28  114.91  1946.3
  115.16 1946.38  115.23  1946.4  115.47 1946.48  115.54  1946.5  115.78 1946.58
  115.85  1946.6  116.09 1946.68  116.17  1946.7  116.41 1946.78  116.48  1946.8
  116.72 1946.88  116.79  1946.9  117.03 1946.98  117.11    1947  117.34 1947.08
  117.42  1947.1  117.66 1947.18  117.73  1947.2  118.32 1947.24  119.53  1947.3
  121.17 1947.38  122.81 1947.37  125.71 1947.37   131.8 1947.35  139.99 1947.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   64.53     .05  121.17    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          64.53  121.17             24.17   25.19   26.43             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 2576.59

INPUT
Description:
Station Elevation Data    num=     277
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1947.141.360001  1947.13.070007 1947.05 4.51001    19477.070007 1946.92
7.650009  1946.97.979996 1946.8710.04001  1946.9   10.11 1946.92   11.03  1946.9
12.04001 1946.9513.01001    1947   14.38 1947.08   14.72  1947.115.01001 1947.13
17.60001 1947.13   18.39 1947.13    19.7 1947.14   22.05 1947.1622.06001 1947.16
   22.59 1947.12   23.13  1947.2   23.34 1947.23   23.84  1947.324.10001 1947.34
   24.54  1947.424.85001 1947.4525.24001  1947.5   25.61 1947.55   25.93  1947.6
   26.36 1947.66   26.62  1947.7   32.94 1947.79   33.19 1947.79    33.3 1947.79
   33.88 1947.77   34.18  1947.8      35 1947.87   35.28  1947.9    35.3  1947.9
    36.2    1948   36.28 1948.01   37.12  1948.1   37.28 1948.12   38.04  1948.2
38.31001 1948.23   38.55 1948.26   38.96  1948.3   39.41 1948.35   39.87  1948.4
   40.63 1948.48   40.79  1948.541.10001 1948.53   41.46  1948.5   41.87 1948.46
   42.51  1948.4   43.48 1948.31   47.05  1948.3   48.79  1948.3   48.84  1948.3
   48.86  1948.3   50.15  1948.4   50.53 1948.43   51.45  1948.5   52.12 1948.55
   52.75  1948.6   55.68 1948.69   55.73  1948.7   58.22 1948.79   58.26 1948.79
   58.27 1948.79   59.71  1948.8   63.26  1948.7   63.51 1948.69   64.11 1948.68
64.35001  1948.6   64.43 1948.57   64.65  1948.5   64.78 1948.46   64.96  1948.4
   65.12 1948.35   65.26  1948.3   65.44 1948.24   65.57  1948.2   65.76 1948.14
   65.87  1948.1   66.08 1948.03   66.18    1948   66.39 1947.93   66.48  1947.9
    66.7 1947.83   66.79  1947.8   67.01 1947.73   67.09  1947.767.17001 1947.67
    67.4  1947.6   67.48 1947.57    67.7  1947.5   67.79 1947.47      68  1947.4
68.10001 1947.3768.31001  1947.3   68.41 1947.27   68.61  1947.2   68.72 1947.16
   68.91  1947.1   69.03 1947.06   69.21    1947   69.34 1946.96   69.47  1946.9
69.60001 1946.86   69.69  1946.8   69.79 1946.76   69.88  1946.7   69.97 1946.64
   70.05  1946.6   70.14 1946.54   70.22  1946.570.31001 1946.44   70.39  1946.4
   70.48 1946.34   70.55  1946.3   70.65 1946.24   70.72  1946.2   70.82 1946.14
   70.89  1946.170.99001 1946.0471.06001    1946   71.16 1945.94   71.22  1945.9
   71.32 1945.84   71.39  1945.871.49001 1945.74   71.55  1945.7   71.66 1945.63
   71.72  1945.6   71.82 1945.53   71.88  1945.571.99001 1945.43   72.05  1945.4
   72.16 1945.33   72.21  1945.3   72.32 1945.23    72.4  1945.2   72.51 1945.13
72.60001  1945.1   72.71 1945.03    72.8    1945   73.03 1944.91   73.07  1944.9
   73.18 1944.86   73.59  1944.8    73.8 1944.77   74.25  1944.7   74.61 1944.65
   74.91  1944.6   75.34 1944.54   75.57  1944.5   75.84 1944.46   76.23  1944.4
   76.58 1944.35    76.9  1944.3   77.37 1944.2377.56001  1944.2   78.14 1944.11
   78.32  1944.1   78.54 1944.09   79.79    1944   80.27 1943.9780.56001  1943.9
   80.64 1943.88   80.98  1943.8   81.36 1943.71   81.41  1943.7    81.7 1943.63
   82.03  1943.6   82.17 1943.59   83.03  1943.583.43001 1943.46   84.03  1943.4
   84.58 1943.35   85.04  1943.3   85.42 1943.26   86.04  1943.2   86.76 1943.13
   87.04  1943.187.68001 1943.06   88.03 1943.06   89.47  1943.191.32001 1943.13
   92.64  1943.2    93.2 1943.23   94.41  1943.3   95.64 1943.3796.18001  1943.4
   97.84 1943.49   97.92  1943.5   97.98  1943.5   99.25  1943.6   99.88 1943.65
  100.59  1943.7  101.49 1943.77  101.89  1943.8  102.72 1943.88  102.92  1943.9
   103.6 1943.98  103.79    1944  104.48 1944.08  104.66  1944.1  104.82 1944.12
  105.53  1944.2  105.72 1944.22  106.41  1944.3  106.61 1944.32  107.28  1944.4
  107.51 1944.43  108.16  1944.5  108.41 1944.53  109.03  1944.6  109.31 1944.63
  109.91  1944.7  110.48 1944.77  110.75 1944.77  110.98  1944.8  111.19 1944.82
  111.91  1944.9  112.14 1944.93  112.84    1945  113.08 1945.03  113.77  1945.1
  114.17 1945.14  114.71  1945.2  115.45 1945.28  115.65  1945.3  115.93 1945.33
   116.2  1945.4  116.31 1945.43  116.58  1945.5  116.82 1945.56  116.97  1945.6
  117.12 1945.64  117.35  1945.7  117.49 1945.74  117.73  1945.8  117.86 1945.83
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  118.12  1945.9  118.22 1945.93   118.5    1946  118.57 1946.02  118.88  1946.1
   118.9  1946.1  118.95 1946.12  119.55 1946.18   119.7  1946.2   120.3 1946.27
   120.6  1946.3  121.09 1946.35  121.51  1946.4  121.96 1946.45  122.41  1946.5
  123.01 1946.57  123.32  1946.6  124.08 1946.68  124.31  1946.7  124.35  1946.7
  124.83 1946.73  125.73 1946.77  126.51 1946.77  127.18  1946.8  128.08 1946.81
  131.75 1946.88     133  1946.9  133.98 1946.92   138.6    1947  139.97 1947.02
   144.2  1947.1  144.94 1947.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   59.71    .035  124.83    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         59.71  124.83             36.89   25.23   18.12             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2551.36

INPUT
Description:
Station Elevation Data    num=     361
     Sta    Elev     Sta     Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1947.19     .41 1947.12     .54  1947.1     .58 1947.09     .86    1947
   1.049 1946.94    1.16  1946.9    1.45 1946.81   1.471  1946.81.529999 1946.78
 2.23999 1946.78 4.48999 1946.754.830002  1946.84.839996 1946.81 4.87999  1946.8
5.080002 1946.786.789993  1946.78.119995 1946.638.799988  1946.69.729996 1946.55
   10.47 1946.5211.14999  1946.611.68999 1946.6711.81999  1946.7   11.89 1946.72
   12.22  1946.812.40999 1946.85   12.61  1946.912.87999 1946.9713.00999    1947
   13.33 1947.0813.40999  1947.1   13.48 1947.1213.79999  1947.213.92999 1947.23
    14.2  1947.3   14.45 1947.35   14.59  1947.4   14.75 1947.4614.81999 1947.49
   14.86 1947.49   14.87  1947.514.87999  1947.5   15.17  1947.615.18999 1947.61
15.45999  1947.715.50999 1947.7115.75999  1947.8   15.83 1947.82   16.06  1947.9
   16.17 1947.9416.34999    194816.51999 1948.0616.64999  1948.116.89999 1948.19
16.93999  1948.217.04999 1948.2317.23999  1948.2   17.75 1948.11   17.81  1948.1
17.84999 1948.0917.87999  1948.1   17.92 1948.1118.28999  1948.2   18.47 1948.25
   18.59 1948.21   18.62  1948.2   18.87 1948.12   18.95  1948.1   19.17 1948.03
19.27999    194819.46999 1947.9419.60999  1947.919.78999 1947.8519.92999  1947.8
20.09999 1947.7520.25999  1947.7   20.42 1947.65   20.59  1947.6   20.74 1947.55
   20.92  1947.521.17999 1947.4221.24999  1947.421.31999 1947.38   21.48  1947.4
21.60999 1947.4522.03999 1947.45    22.2  1947.422.42999 1947.3322.52999  1947.3
22.81999 1947.2123.82999 1947.2724.24999 1947.29   24.42  1947.324.95999 1947.32
25.06999  1947.425.10999 1947.43    25.2  1947.525.27999 1947.55   25.34  1947.6
25.42999 1947.67   25.48  1947.725.56999 1947.7725.60999  1947.825.71999 1947.88
25.74999  1947.9   25.87 1947.99   25.88    1948   25.95 1948.0526.00999    1948
   26.02 1947.99   26.12  1947.926.14999 1947.88   26.23  1947.8   26.27 1947.77
26.34999  1947.726.38999 1947.6626.45999  1947.626.50999 1947.5526.56999  1947.5
26.63999 1947.4426.67999  1947.426.78999  1947.3    26.8 1947.2927.63999  1947.2
   28.34  1947.128.77999 1947.04   29.16 1947.04   29.55 1947.0530.64999  1947.1
   30.73 1947.1430.84999  1947.230.96999 1947.26   31.05  1947.331.17999 1947.37
   31.24  1947.431.38999 1947.4731.43999  1947.531.59999 1947.5831.63999  1947.6
31.81999 1947.69   31.84  1947.731.96999 1947.7732.24999  1947.832.34999 1947.81
   33.12  1947.9   33.62 1947.9633.99999    194834.57999 1948.0735.25999 1948.01
35.38999    194836.25999 1947.9336.57999  1947.9   37.24 1947.8437.74999  1947.8
    38.2 1947.7638.89999  1947.739.14999 1947.68   40.02  1947.640.07999  1947.6
40.31999 1947.57   40.81  1947.5   41.23 1947.44   42.77 1947.43   46.67 1947.42
   46.99  1947.447.70999 1947.36   48.95  1947.349.28999 1947.28   50.17  1947.2
50.56999 1947.1651.21999  1947.1   52.92 1947.07   53.31    1947   53.67 1946.91
53.71999  1946.9   53.95 1946.84   54.34 1946.85   55.06 1946.86   55.38 1946.85
56.07999 1946.83   57.05 1946.8359.06999 1946.8159.27999  1946.8   61.73 1946.71
   61.84  1946.762.57999 1946.6463.06999 1946.6763.17999 1946.6863.28999  1946.7
63.38999 1946.72   63.87  1946.864.25999 1946.87   64.45  1946.964.49999 1946.91
64.92999 1946.91   64.95  1946.9   64.98 1946.89   65.17  1946.865.20999 1946.78
65.38999  1946.765.42999 1946.6865.60999  1946.6   65.66 1946.5865.82999  1946.5
65.88999 1946.47   66.05  1946.4   66.12 1946.37   66.27  1946.366.35999 1946.26
   66.49  1946.266.59999 1946.1566.70999  1946.166.85999 1946.0366.92999    1946
   67.13  1945.967.13999  1945.9   67.17 1945.89   67.48  1945.867.53999 1945.78
   67.84  1945.767.95999 1945.6768.18999  1945.6   68.48 1945.55   68.84  1945.5
69.09999 1945.4769.57999  1945.4   69.67 1945.3969.89999 1945.3670.03999 1945.31
70.07999  1945.370.31999 1945.2270.38999  1945.2   70.62 1945.13    70.7  1945.1
   70.92 1945.03   71.02    1945    71.3 1944.93   71.42  1944.9    71.8 1944.81
71.85999  1944.8   72.24 1944.7172.31999  1944.772.32999  1944.7   72.92  1944.6
   72.99 1944.5973.50999  1944.5   73.63 1944.4874.09999  1944.474.24999 1944.37
74.67999  1944.375.14999 1944.2275.24999  1944.2   75.48 1944.1677.71999  1944.1
   79.84 1944.04   80.34    194480.45999 1943.99   81.48  1943.9   81.77 1943.87
   82.62  1943.8   83.05 1943.7684.37999  1943.786.03999 1943.6286.50999  1943.6
    86.7 1943.59   88.03 1943.53   88.64 1943.53   89.41 1943.53   89.75 1943.53
   89.95 1943.51      90  1943.590.67999 1943.4290.84999  1943.490.98999 1943.38
    91.7  1943.3   92.28 1943.2393.32999  1943.297.03999 1943.2797.51999  1943.3
    98.8 1943.3998.92999  1943.4   99.28 1943.42  101.56  1943.5  102.92 1943.55
  103.54  1943.6  103.77 1943.62  104.67  1943.7  105.74 1943.79   105.8  1943.8
  105.93 1943.81  109.77  1943.9  110.26 1943.96  110.47    1944  110.57 1944.02
  110.98  1944.1  111.16 1944.14  111.48  1944.2  111.71 1944.24  111.99  1944.3
  112.23 1944.35   112.5  1944.4  112.75 1944.45     113  1944.5  113.26 1944.55
  113.51  1944.6  113.78 1944.65  114.01  1944.7  114.29 1944.75  114.52  1944.8
   114.8 1944.85  115.03  1944.9  115.31 1944.96  115.53    1945  115.82 1945.06
  116.04  1945.1  116.32 1945.16  116.54  1945.2  116.83 1945.26  117.05  1945.3
  117.34 1945.36  117.56  1945.4  117.88 1945.46  118.33  1945.5  118.66 1945.52
  120.71  1945.6  121.77 1945.64  122.49  1945.7  122.62 1945.71  123.67  1945.8
  123.94 1945.82  124.85  1945.9   125.2 1945.93  126.03    1946  126.44 1946.03
  127.21  1946.1  128.06 1946.17  128.39  1946.2  129.53  1946.3  129.57  1946.3
  129.68 1946.31  131.28  1946.4  131.79 1946.43  132.75 1946.48  133.04  1946.5
  133.85 1946.55  134.81  1946.6  135.79 1946.66  136.58  1946.7  137.68 1946.76
  138.34  1946.8  139.07 1946.84  140.11  1946.9  141.01 1946.95  141.87    1947
  143.06 1947.07  143.64  1947.1  145.31 1947.19  145.41  1947.2  145.63 1947.21
  147.01 1947.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02564.92999    .035  118.33    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         64.45  117.88             19.09   24.92   30.78             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2526.44

INPUT
Description:
Station Elevation Data    num=     269
     Sta    Elev     Sta     Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1944.511.610001 1944.572.520004  1944.64.099991 1944.655.490005  1944.7
6.529999 1944.738.459991  1944.88.770004 1944.819.490005 1944.8312.53999 1944.86
```

15.39999	1944.9	22.92	1944.98	23.23	1944.97	24.88	1944.92	25.42	1944.92
25.86	1944.91	26.17	1944.91	26.45	1944.93	26.56	1944.93	32.37	1944.9
34.6	1944.89	35.43999	1944.88	35.47	1944.88	35.7	1944.88	36.21	1944.9
38.15	1944.99	38.35	1945	38.43	194	538.50999	1945	39.58	1944.95
42.7	1944.94	44.58	1944.94	45.8	1945	47.21	1945.07	47.82	1945.1
48.1	1945.11	48.99	1945.14	49.83	1945.15	0.75999	1945.19	50.91	1945.2
51.00999	1945.21	51.29	1945.22	52.03	1945.26	52.91	1945.24	53.71	1945.22
54.59	1945.3	55.4	1945.37	55.71	1945.3	55.92	1945.23	55.99	1945.2
56.08	1945.17	56.28	1945.1	56.38	1945.07	56.57	1945	56.67	1944.96
56.85	1944.9	56.98	1944.85	57.14	1944.8	57.32	1944.74	57.42	1944.7
57.65	1944.62	57.97	1944.7	58.04	1944.72	58.16	1944.75	8.18999	1944.7
58.83	1944.6	59.03	1944.57	59.5	1944.5	59.91	1944.44	60.18	1944.4
60.54	1944.35	60.85	1944.3	61.16	1944.26	61.53	1944.2	61.75	1944.17
62.2	1944.1	62.29	1944.09	62.49	1944.06	62.6	1944	62.79	1943.9
62.8	1943.89	62.99	1943.8	63.17	1943.7	63.18	1943.7	63.25	1943.67
63.63	1943.63	64.04	1943.6	64.66	1943.55	65.24	1943.5	65.74	1943.45
66.39	1943.4	67.07	1943.3	67.50999	1943.3	68.32	1943.22	68.59	1943.2
69.52	1943.11	69.67	1943.1	70.68	1943	70.73	1943	71.35	1942.94
71.78	1942.91	71.84	1942.97	1.93999	1942.89	73.06	1942.8	73.72	1942.75
74.27	1942.7	74.68	1942.67	75.74	1942.62	75.96	1942.61	76.11	1942.6
76.18999	1942.59	77.47	1942.5	78.23	1942.45	78.86	1942.4	79.91	1942.33
80.28	1942.3	81.89	1942.21	82	1942.2	82.1	1942.19	82.56	1942.17
83.42	1942.16	84.98	1942.15	85.49	1942.16	86.27	1942.1	86.82	1942.07
88.00999	1942.09	88.57	1942.1	91.1	1942.14	91.35	1942.1	91.41	1942.09
91.98	1942	92.28	1941.95	92.61	1941.9	93.03	1941.83	93.56	1941.9
93.92999	1941.95	94.37	1942	95.02	1942.08	95.17999	1942.1	95.98	1942.2
95.99	1942.2	96	1942.2	96.05	1942.2	96.07	1942.21	96.3	1942.2
97.47	1942.15	98.39	1942.17	99.82	1942.2	100.87	1942.22	101.29	1942.25
101.52	1942.3	101.53	1942.3	102.06	1942.4	102.29	1942.44	102.61	1942.5
102.62	1942.5	103.17	1942.6	103.19	1942.6	103.72	1942.7	103.77	1942.71
104.28	1942.8	104.34	1942.81	104.84	1942.9	104.93	1942.92	105.39	1943
105.52	1943.02	105.95	1943.1	106.12	1943.13	106.5	1943.2	106.74	1943.24
107.06	1943.3	107.38	1943.36	107.62	1943.4	108.06	1943.48	108.17	1943.5
108.49	1943.56	108.73	1943.6	108.75	1943.6	109.3	1943.7	109.42	1943.72
109.87	1943.8	110.33	1943.79	110.48	1943.78	111.32	1943.77	112.16	1943.8
112.68	1943.72	112.85	1943.7	113.03	1943.67	113.38	1943.7	113.53	1943.71
114.7	1943.8	114.82	1943.81	115.15	1943.82	116.19	1943.84	117.63	1943.81
118.23	1943.83	118.81	1943.85	118.92	1943.85	119.87	1943.9	120.41	1943.94
121.73	1944	121.96	1944.02	122.87	1944.1	122.97	1944.11	123.09	1944.12
123.18	1944.1	123.22	1944.09	123.62	1944	123.81	1943.96	123.83	1943.94
123.85	1943.9	124.44	1943.85	127.65	1943.86	128.84	1943.8	129.55	1943.76
129.63	1943.76	130.38	1943.8	131.44	1943.86	132.51	1943.86	133.26	1943.86
133.96	1943.8	134.34	1943.76	134.91	1943.7	135.77	1943.6	138.34	1943.6
138.52	1943.6	140.51	1943.7	142.29	1943.79	142.53	1943.8	143.05	1943.85
143.64	1943.9	143.85	1943.92	144.1	1944	144.18	1944.03	144.42	1944.1
144.55	1944.14	144.73	1944.2	144.9	1944.25	145.05	1944.3	145.22	1944.35
145.36	1944.4	145.56	1944.46	145.68	1944.5	145.91	1944.57	145.99	1944.6
146.27	1944.69	146.31	1944.7	146.55	1944.78	146.82	1944.79	147.15	1944.8
148.18	1944.84	149.6	1944.89	149.61	1944.9	149.72	1945	149.73	1945.01
149.82	1945.1	149.85	1945.12	149.93	1945.2	149.96	1945.23	150.03	1945.3
150.07	1945.34	150.14	1945.4	150.18	1945.44	150.24	1945.5	150.31	1945.56
150.35	1945.6	150.62	1945.56	150.77	1945.5	150.92	1945.44		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	55.4	.035	122.97	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
55.4	122.87	44.23	24.96	30.79	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2501.48

INPUT
Description:
Station Elevation Data num= 128

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1942.18	.36	1942.1	1.15	1941.94	1.9	1941.8	2.03	1941.74
2.25	1941.63	2.83	1941.53	3.22	1941.5	3.92	1941.49	4.52	1941.5
4.530003	1941.37	4.560001	1941.34	4.580002	1941.25	4.59	1941.24	4.650002	1940.9
4.66	1940.84	4.670002	1940.75	4.68	1940.7	4.69	1940.6	4.7	1940.44
4.71	1939.93	4.720001	1939.78	4.73	1939.74	4.740002	1939.6	4.75	1939.5
4.77	1939.22	4.780003	1937.74	4.780003	1937.84	4.810001	1937.57	5.150002	1937.52
5.66	1937.45	6.030003	1937.46	6.440002	1937.34	6.98	1937.38	8.110001	1937.21
8.400002	1937.17	9.57	1937.07	11.04	1936.96	11.65	1936.9	12.04	1936.87
12.77	1936.8	13.78	1936.7	14.02	1936.68	15.9	1936.6	16.96	1936.55
18.08	1936.5	19.96	1936.41	20.32	1936.39	20.69	1936.4	21.34	1936.41
22.5	1936.49	23.71	1936.58	23.95	1936.6	24.95	1936.67	25.31	1936.7
26.19	1936.77	26.7	1936.8	27.46	1936.86	28.1	1936.9	28.74	1936.95
29.53	1937	30.93	1937.1	32.12	1937.18	32.39	1937.2	33.8	1937.29
34.92	1937.36	35.08	1937.44	35.19	1937.5	35.39	1937.82	35.4	1938
35.42	1938.45	35.43	1938.62	35.44	1938.72	35.45	1938.92	35.46	1939.02
35.47	1939.22	35.48	1939.42	35.49	1939.52	35.5	1939.72	35.51	1939.86
35.52	1940.04	35.53	1940.81	35.53	1940.71	35.53	1940.51	35.54	1940.32
35.54	1940.42	35.54	1940.58	35.54	1940.68	35.55	1940.4	35.63	1941.41
35.64	1941.5	35.68	1941.7	35.7	1941.8	37.49	1941.9	37.74	1941.98
37.78	1942.03	37.98	1942.11	38.41	1942.14	38.55	1942.2	38.68	1942.26
39.14	1942.46	39.37	1942.56	39.6	1942.66	40.98	1943.26	41.21	1943.36
41.44	1943.46	41.67	1943.56	41.9	1943.65	42.18	1943.75	42.31	1943.8
42.48	1943.86	42.81	1943.96	43.14	1944.07	43.7	1944.26	44.26	1944.1
44.62	1944	44.81	1943.94	45.2	1943.83	45.58	1943.73	45.96	1943.62
47.08	1943.3	47.44	1943.2	48.14	1943	48.42	1942.9	48.92	1942.7
49.35	1942.6	51.03	1942.56	52.2	1942.55				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	4.52	.013	35.7	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
4.52	35.7	20.64	15.87	22.6	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2485.61

INPUT
Description: Upstream of N 5th Street Culvert
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1942.16	.64	1942.2	.78	1942.31	.83	1942.4	.86	1942.46
.86	1942.4	.86	1942.38	.86	1942.3	.86	1942.27	.86	1942.2
.86	1942.15	.87	1941.71	.88	1941.6	.88	1941.67	.89	1941.2
.9	1940.79	.91	1940.3	.92	1939.79	.93	1939.29	.94	1938.71

```
     .95 1938.26     .96  1937.7     .97 1937.08     .98 1936.38     .99 1935.94
       1  1935.8    1.01 1935.29    1.02 1934.79    1.03 1934.29    1.04 1933.79
    1.05 1933.29    1.06 1932.69    1.07 1932.19    1.08 1931.69    1.09 1931.19
     1.1 1930.58    1.11 1930.07    1.12  1929.6    1.13 1929.44    2.15  1929.3
     2.6 1929.26    3.42 1929.22    3.86  1929.2    4.17  1929.2    5.23 1929.18
    5.82 1929.17    6.37 1929.15    6.86 1929.15    8.14 1929.16    9.22  1929.2
    9.61 1929.22   11.36  1929.3   11.73 1929.33   12.85  1929.4   13.32 1929.44
    13.5  1929.5   13.52  1929.8   13.53  1930.2   13.54  1930.7   13.55  1931.2
   13.56  1931.6   13.57  1932.1   13.58  1932.6   13.59    1933    13.6  1933.5
   13.61    1934   13.62  1934.4   13.63  1934.9   13.64  1935.4   13.65  1935.8
   13.66  1936.3   13.67  1936.7   13.68  1937.2   13.69  1937.7    13.7    1938
   13.71  1938.6   13.72  1939.1   13.73  1939.5   13.74    1940   13.75  1940.4
   13.76  1940.9   13.77  1941.4   13.78 1941.81   13.79  1941.9   13.79  1941.8
    13.8  1942.4    13.8 1942.41    13.8  1942.5    13.8 1942.54   13.81 1942.48
   13.83 1942.36   13.85  1942.3   13.86 1942.25    14.1 1942.27   14.18  1942.2
   14.43 1942.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025     .86    .013    13.8    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .86    13.8            85.04   85.71    86.5             .1       .3

CULVERT


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 2484.00

INPUT
Description: Culvert crossing under North 5th Street

Distance from Upstream XS =       1
Deck/Roadway Width        =      70
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     .86 1942.46  1929.1    13.8 1942.54  1929.1

Upstream Bridge Cross Section Data
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1942.16     .64  1942.2     .78 1942.31     .83  1942.4     .86 1942.46
     .86  1942.4     .86 1942.38     .86  1942.3     .86 1942.27     .86  1942.2
     .86 1942.15     .87 1941.71     .88  1941.6     .88 1941.67     .89  1941.2
      .9 1940.79     .91  1940.3     .92 1939.79     .93 1939.29     .94 1938.71
     .95 1938.26     .96  1937.7     .97 1937.08     .98 1936.38     .99 1935.94
       1  1935.8    1.01 1935.29    1.02 1934.79    1.03 1934.29    1.04 1933.79
    1.05 1933.29    1.06 1932.69    1.07 1932.19    1.08 1931.69    1.09 1931.19
     1.1 1930.58    1.11 1930.07    1.12  1929.6    1.13 1929.44    2.15  1929.3
     2.6 1929.26    3.42 1929.22    3.86  1929.2    4.17  1929.2    5.23 1929.18
    5.82 1929.17    6.37 1929.15    6.86 1929.15    8.14 1929.16    9.22  1929.2
    9.61 1929.22   11.36  1929.3   11.73 1929.33   12.85  1929.4   13.32 1929.44
    13.5  1929.5   13.52  1929.8   13.53  1930.2   13.54  1930.7   13.55  1931.2
   13.56  1931.6   13.57  1932.1   13.58  1932.6   13.59    1933    13.6  1933.5
   13.61    1934   13.62  1934.4   13.63  1934.9   13.64  1935.4   13.65  1935.8
   13.66  1936.3   13.67  1936.7   13.68  1937.2   13.69  1937.7    13.7    1938
   13.71  1938.6   13.72  1939.1   13.73  1939.5   13.74    1940   13.75  1940.4
   13.76  1940.9   13.77  1941.4   13.78 1941.81   13.79  1941.9   13.79  1941.8
    13.8  1942.4    13.8 1942.41    13.8  1942.5    13.8 1942.54   13.81 1942.48
   13.83 1942.36   13.85  1942.3   13.86 1942.25    14.1 1942.27   14.18  1942.2
   14.43 1942.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025     .86    .013    13.8    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
           .86    13.8             .1       .3

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     .16 1937.46 1927.94   11.99  1935.4 1927.92

Downstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.43     .16 1937.46     .16 1929.87     .17 1929.01     .18 1927.94
      .61927.939    5.31 1927.93     5.4 1927.93    5.85 1927.93    7.01 1927.93
   11.93 1927.92   11.99  1935.4   12.09  1935.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
           .16   11.99             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1           Box       4      12
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                  1      67     .013     .013        0                   .5                1
Upstream   Elevation =  1929.4
           Centerline Station =  7.38
Downstream Elevation =  1927.93
           Centerline Station =  6.06

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 2399.9
```

```
INPUT
Description: Downstream of N. 5th Street Culvert Crossing
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.43     .16 1937.46     .16 1929.87     .17 1929.01     .18 1927.94
      .61927.939    5.31 1927.93     5.4 1927.93    5.85 1927.93    7.01 1927.93
   11.93 1927.92   11.99  1935.4   12.09  1935.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   11.99            23.41   23.41   23.41             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2376.49

INPUT
Description:
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.45     .15 1937.43     .17 1935.82     .17 1927.75    5.67 1927.75
    6.03 1927.74    6.19 1927.74    6.42 1927.75    6.94 1927.75   11.56  1927.8
   11.84 1927.76   12.07 1927.72   12.11 1927.72   12.14 1930.34   12.24 1937.46
   12.35 1937.47    12.4 1937.47   12.48 1937.48

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .15   12.24              25      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2351.49

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.47     .22 1937.44     .25 1935.67     .37 1927.53     .44 1927.52
    1.19 1927.47    3.97 1927.42    5.83 1927.43    9.66 1927.43   11.19 1927.48
   11.88 1927.51   12.17 1927.51   12.22 1930.46   12.33 1937.46   12.48 1937.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .22   12.33              50      50      50             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2301.49

INPUT
Description:
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.48     .25 1937.47     .25 1937.45     .29 1934.95     .43 1926.92
     .68 1926.92     .77 1926.92     .99 1926.91    1.03 1926.91    6.04  1926.8
    6.17  1926.8    7.11  1926.8    8.58 1926.83   11.44 1926.91   11.86 1926.92
   11.87 1926.92   11.88 1926.92    11.9 1926.92   11.95 1926.93   11.97 1926.94
   12.16 1926.97   12.19 1928.02   12.26 1931.37   12.39 1937.36   12.42 1937.38
   12.88 1937.38

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .25   12.39              25   25.01      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2276.48

INPUT
Description:
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.17    .059 1937.17     .06 1937.17     .23 1937.16     .33 1928.39
     .35 1926.66     .59 1926.65     .92 1926.63    2.78  1926.6    4.79 1926.55
    6.08 1926.55    7.18 1926.54    9.03 1926.61   11.86 1926.67   12.02 1926.69
   12.09 1926.69   12.25 1934.29    12.3 1936.86   12.51 1936.82   12.99 1936.84

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .23    12.3            50.02      50   49.99             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2226.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1936.19     .39 1936.13     .48 1929.53     .53 1926.01    2.11 1925.99
    5.85 1925.92    6.09 1925.91    6.28 1925.91    7.86 1925.92    8.59 1925.96
   11.81 1926.11   12.08 1926.11   12.18 1931.27   12.23 1934.91   12.86 1935.02
```

```
Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .39   12.23               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2201.48

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1935.69     .45 1935.62     .55 1927.48     .58 1925.71    3.95 1925.66
    6.11 1925.62    6.36 1925.62   10.19 1925.72   11.76 1925.77   11.87 1925.78
   12.11 1925.78   12.14 1928.27   12.24 1934.73   12.54 1934.77

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .45   12.24               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2176.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1935.14     .23  1935.1     .27 1931.91     .35  1925.4    2.34 1925.37
    6.16 1925.39   10.83 1925.42   11.16 1925.42   11.31 1925.42    11.4 1925.42
   11.48 1925.43   11.86 1925.45   11.94 1930.87      12 1934.74   12.12 1934.76

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .23      12               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2151.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.71     .13 1934.69      .2 1931.22     .33 1925.08    3.55 1925.09
    5.66  1925.1    5.99  1925.1    6.87 1925.12   11.67  1925.2   11.92 1932.86
   11.96 1933.77   11.98 1934.74      12 1934.74   12.03 1934.73   12.13 1934.73

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .13   11.98              25.18      25   24.82             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2126.48

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.51    .003 1934.51     .08  1934.5     .08 1934.45.3199997 1924.77
2.559999 1924.79    5.69 1924.81    5.94 1924.819.459999 1924.87    11.7 1924.92
   11.79 1927.67   11.95 1934.72   12.09 1934.71   12.23  1934.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .08   11.95              25.01   25.01   25.01             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2101.47

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.63     .22 1934.62     .27 1934.62     .51 1925.92     .55 1924.72
     .55 1924.52    1.95 1924.53    5.63 1924.54    8.48 1924.55    9.15 1924.56
   11.98 1924.63   12.05  1929.4   12.17 1934.71   12.31  1934.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .27   12.17               25   25.01   25.01             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2076.46
```

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1930.09	.32	1930.09	.37	1924.45	.37	1924.29	.7	1924.29
5.09	1924.34	12.25	1924.42	12.25	1924.71	12.31	1930.13	12.81	1930.14
12.83	1930.14	12.88	1929.18	13	1929.2				

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.32	12.31	25	25.01	25.01	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2051.45

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1929.41	.16	1929.4	.17	1924.22	.17	1924.16	4.42	1924.15
11.97	1924.15	11.98	1924.15	12.03	1924.15	12.06	1929.45	12.06	1929.46
12.14	1929.45								

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.16	12.06	24.83	24.93	25.12	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2026.52

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1929.43	.07	1929.62	.08	1929.19	.16	1923.85	1.85	1923.85
1.91	1923.85	2.96	1923.84	4.02	1923.85	12.1	1923.9	12.1	1924.84
12.13	1929.45	12.24	1929.45	12.28	1929.45				

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.07	12.13	25	25	25.02	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2001.52

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1928.9	.03	1928.9	.16	1923.47	.49	1923.48	3.84	1923.52
11.96	1923.62	11.98	1926.37	11.99	1929.45	12.27	1929.15	12.57	1928.79
12.6	1928.79	12.61	1928.74	13.05	1928.65				

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	11.99	25.02	25	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1976.52

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1925.94	.9	1925.91	.97	1923.2	4.77	1923.24	12.32	1923.33
12.81	1923.34	12.85	1928.5	12.86	1928.76	12.86	1928.79	12.89	1928.79
12.9	1928.74	13.46	1928.73	13.54	1928.1	13.54	1928.13	14.06	1928.23

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.9	12.86	25.12	25	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1951.52

INPUT
Description:
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-8.8	1928	-8.52	1924	0	1923.01	3.15	1922.92	3.22	1922.92
7.1	1922.96	15.09	1923.03	15.12	1927.05	15.13	1928.15	15.26	1928.14
15.71	1928.12	16.47	1928.32						

Manning's n Values num= 1

Sta	n Val
-8.8	.013

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -8.8   15.13             75.59   74.96   75.08             .1      .3
Ineffective Flow      num=       1
   Sta L   Sta R    Elev  Permanent
    -8.8       0  1929.5       F

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1876.56

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.85     .16 1927.02     .18 1924.17     .23 1922.08    4.37 1922.11
    4.48 1922.11   12.15 1922.08   12.18 1923.61   12.22 1926.79   12.46  1926.8
    12.9  1926.8   12.94 1926.61   13.83 1926.31

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   12.22               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1851.56

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.79     .19 1926.84     .36 1926.84      .8 1926.87     .82 1925.41
     .86 1921.83    5.18 1921.82    9.63  1921.8   12.78 1921.78    12.8 1923.19
   12.85  1926.8      13  1926.8    13.5  1926.8   13.52  1926.6   13.85 1926.47
   13.89 1926.25    14.3  1926.3

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .8   12.85            25.01      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1826.56

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.93     .18 1926.92     .27 1926.93     .35 1922.31     .36  1921.6
    2.11 1921.59    4.71 1921.57    12.2 1921.52   12.26 1926.03   12.27 1926.77
   12.74 1926.77   12.85 1926.77   12.92 1926.12   13.59 1925.85

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .013    12.2    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .27   12.27               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1801.56

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.88     .16 1926.87     .19 1924.12     .24 1921.28    4.68 1921.24
     6.5 1921.23   12.01 1921.24   12.05 1924.05   12.08 1926.79   12.38 1926.79
   12.67 1926.79   12.69 1926.12   12.74 1925.72   13.32  1925.5

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .013   12.08    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   12.08               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1776.56

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.83     .22 1926.79     .22 1926.34     .27 1920.94    1.95 1920.94
    4.85 1920.95   12.02 1920.96   12.06 1925.95   12.07 1926.82   12.15 1926.82
    12.7 1926.81   12.71 1926.52   12.74 1925.31   12.97 1925.32      13 1925.31
   13.25 1925.22

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .013   12.07    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .22   12.07              24.9   24.98   25.08             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1751.58
```

```
INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.86     .13 1926.88     .44 1926.82     .47 1923.65      .5 1920.72
    5.28 1920.71   12.23  1920.7   12.31  1920.7   12.36 1926.76   12.36  1926.8
   12.95 1926.77   12.95 1926.75   12.97 1924.77   12.99 1924.77    13.2 1924.78

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .013   12.36    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .44   12.36               25   25.01      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1726.57

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.78     .51 1926.86     .55 1926.85      .6 1920.94     .61  1920.5
    2.37  1920.5     5.6 1920.46   11.16 1920.39   11.17 1921.09   11.19 1926.76
   11.77 1926.71   11.84  1926.7   11.89 1924.94   11.89 1924.71   12.95 1924.45

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .013   11.19    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .55   11.19             25.01      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1701.57

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.81    .071 1926.82     .12 1924.43     .15 1920.21    3.11 1920.16
     5.4 1920.13    9.34 1920.08    9.36 1922.98    9.37 1926.77    9.61 1926.78
   10.01 1926.74   10.03 1925.73   10.74  1925.2   10.77 1924.11   12.18 1924.27

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .013    9.37    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0    9.37             39.81   34.17   29.44             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1667.4

INPUT
Description: Upstream of Losee Crossing
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1924.47    3.09 1924.45    3.11 1926.62    3.35 1926.74    3.46 1926.74
    3.49 1926.74    4.24 1926.74    4.25 1926.74    4.46 1919.81    4.46 1919.74
    8.19 1919.72   11.93 1919.71    14.5  1919.7   14.51 1920.87   14.56 1924.58
   15.23 1924.43    15.3 1924.71   15.36 1924.44   15.37 1923.83   15.49 1923.64
   18.95 1923.83

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4.24   14.56           142.41   137.6  131.13             .1      .3

CULVERT


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1660

INPUT
Description: Culvert Crossing @ Losee
Distance from Upstream XS =       2
Deck/Roadway Width        =     133
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4.24    1924  1919.5   14.56    1924  1919.7

Upstream Bridge Cross Section Data
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1924.47    3.09 1924.45    3.11 1926.62    3.35 1926.74    3.46 1926.74
    3.49 1926.74    4.24 1926.74    4.25 1926.74    4.46 1919.81    4.46 1919.74
    8.19 1919.72   11.93 1919.71    14.5  1919.7   14.51 1920.87   14.56 1924.58
   15.23 1924.43    15.3 1924.71   15.36 1924.44   15.37 1923.83   15.49 1923.64
   18.95 1923.83

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4.24   14.56             .1      .3

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0    1924 1918.74    32.2    1924 1918.72
```

```
Downstream Bridge Cross Section Data
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1923.76.3200016 1923.76.4900017 1923.72.6400013 1923.711.450001 1923.45
    2.08 1923.212.640001 1923.05   10.56 1918.74   10.81 1918.74   15.34 1918.73
   20.86 1918.72   21.36  1918.9   21.92 1919.48   28.94 1923.28   29.03  1923.3
   29.67  1923.4   30.24 1923.58    32.2 1923.59

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
             0    32.2            .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1           Box       3       8
FHWA Chart # 58- Rectangular concrete
FHWA Scale # 1 - Side tapered; Less favorable edges
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                  1     135     .013     .013        0                  .5               1
Upstream   Elevation =  1919.75
           Centerline Station =  9.88
Downstream Elevation =  1918.75
           Centerline Station =  15.34

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1529.8

INPUT
Description:
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1923.76.3200016 1923.76.4900017 1923.72.6400013 1923.711.450001 1923.45
    2.08 1923.212.640001 1923.05   10.56 1918.74   10.81 1918.74   15.34 1918.73
   20.86 1918.72   21.36  1918.9   21.92 1919.48   28.94 1923.28   29.03  1923.3
   29.67  1923.4   30.24 1923.58    32.2 1923.59

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0    32.2             18.7   28.27   39.36             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1501.53

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1923.19    2.88 1923.03    4.61 1922.93   12.94 1918.77   14.41 1918.07
   14.96 1917.81   17.59 1917.77   22.66 1917.69   22.91 1917.68    23.2 1917.83
   23.29 1917.86   33.69 1922.53   33.91 1922.53

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4.61   33.91            25.78   25.03   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1476.5

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1921.66    3.98 1922.34    6.95 1922.06    9.67 1920.72    17.7 1916.94
   19.73 1916.91   20.39  1916.9   26.17 1916.84   32.93 1920.28   34.96 1920.98
   37.27 1922.02   37.99 1922.02

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.98   37.99            26.88   25.13   24.27             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1451.37

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1922.33    8.18 1921.95   10.97 1921.84   11.13 1921.76   12.05 1921.53
   14.24 1920.39    22.8 1916.04    24.2 1916.04    25.3 1916.05   31.76 1916.09
    36.6 1918.52   42.39 1921.47   42.44 1921.46   42.69 1921.46   43.77 1921.46
    82.1    1922   92.88  1922.5

Manning's n Values        num=       1
     Sta   n Val
```

```
      0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         10.97   42.39             25.89      25   25.01             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1426.37

INPUT
Description:
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -18.84  1922.5  -10.35    1922       0 1922.13    3.88 1921.98    4.34 1921.75
    5.21 1920.96    9.76  1918.7   15.89 1915.51   18.52 1915.46   19.46 1915.44
   24.55 1915.44   31.38 1918.91   35.52 1920.89   36.28 1920.89    36.4 1920.88
    53.3    1921   75.49    1922   89.43  1922.5

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -18.84    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.88   35.52             25.38   25.02   25.08             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1401.35

INPUT
Description:
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -16.78  1922.5       0 1920.43     .01 1920.43     .03 1920.47     .81 1920.34
    1.06 1920.28     1.7 1919.87   11.59 1914.97    12.4 1914.97   14.87 1914.92
   19.94 1914.82   20.97 1915.41   22.67 1916.15   31.28 1920.27   31.99 1920.27
   51.65    1921    70.5    1922    85.1  1922.5

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -16.78    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0   31.28             27.16   25.15   22.91             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1376.2

INPUT
Description:
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -22.69  1922.5       0 1919.93     .14 1919.91    2.35 1919.39    7.99 1915.76
   10.32  1914.6   13.98 1914.58   16.44 1914.56   18.24 1914.53   25.15 1918.46
   27.63 1919.55   28.33 1919.52   28.93 1919.51   29.47 1919.56   29.56 1919.58
   29.59 1919.59   35.39    1920   52.69    1921   69.87    1922   88.98  1922.5

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -22.69    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2.35   27.63             25.55   25.03   24.62             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1351.17

INPUT
Description:
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -23.36  1922.5       0 1919.22    1.63 1919.18    1.92 1919.19    2.18 1919.17
    6.98 1916.54    8.35 1916.22   11.82 1913.98   15.55 1913.96   16.43 1913.93
   18.59 1913.87   20.66 1913.91   25.72 1916.43   29.75 1918.81   30.04 1918.83
   30.67  1918.8   31.29 1918.96   31.34 1918.92   31.88 1918.97   36.89    1919
   54.98    1920   73.17    1921   93.23    1922  105.87  1922.5

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -23.36    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2.18   29.75             25.06   25.01   24.96             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1326.16

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -22.19  1922.5       0  1918.7     2.2 1918.52    2.21 1918.63     2.6 1918.49
    2.67 1918.47    4.24  1917.6   16.89 1913.15   17.31 1913.16   18.11 1913.17
   21.65 1913.23   23.28 1913.98   31.83 1918.31   31.96 1918.31   32.34 1918.41
   32.37 1918.42    49.4    1919   73.69    1920   92.22    1921  109.33    1922
  127.56  1922.5

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -22.19    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2.21   32.34             27.06   25.02   23.19             .1      .3

CROSS SECTION
```

```
RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1301.14

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -24.25  1922.5       0 1918.28    1.38 1918.18    1.38 1918.23    1.57 1918.16
    1.82 1918.08    7.79 1914.81   13.96 1912.67   16.56 1912.72   18.91 1912.76
    20.7 1912.79   27.28 1915.85   31.58 1918.05   31.65 1918.05   32.22  1918.2
   32.46 1918.19   32.51 1918.16   33.07 1918.16   71.15    1919   86.37    1920
  103.83    1921  182.58    1922  198.43  1922.5

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -24.25    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1.38   32.22               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1276.14

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -23.54  1922.5       0  1917.9      .7 1917.85     1.1 1917.72    1.19 1917.67
   11.15 1912.19   12.42 1912.21    17.1  1912.3   19.83 1912.35   19.85 1912.35
   28.02 1916.15   31.49 1917.76   31.52 1917.77   31.95 1917.76   31.96 1917.76
   32.01 1917.76   32.99 1917.76   63.81    1918    85.9    1919  102.39    1920
  188.54    1921     218    1922

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -23.54    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            .7   31.52             25.88   24.99   24.17             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1251.15

INPUT
Description:
Station Elevation Data    num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -22.03  1922.5       0 1917.43    1.97 1917.28    2.16 1917.22     2.4 1917.17
    7.73 1914.26   12.39  1911.7   16.55 1911.78   17.74  1911.8   21.48 1911.88
    27.1 1914.49   32.61 1917.14   32.82 1917.13   33.05 1917.18   76.45    1918
  100.69    1919  194.94    1920  217.57    1921  241.06    1922

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -22.03    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1.97   32.61             25.55   24.97   24.47             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1226.18

INPUT
Description:
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -22.35  1922.5       0 1916.84    1.72 1916.71    2.16 1916.62    2.17 1916.62
   11.73 1911.45   12.18  1911.2   17.92 1911.32   21.25 1911.39   21.65 1911.39
   22.15 1911.63   31.96 1916.34   32.02 1916.37   41.24    1917   64.26    1917
   88.32    1918  150.82    1919  220.35    1920  241.33    1921  267.81    1922

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -22.35    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1.72   31.96             26.31   24.84    23.7             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1201.34

INPUT
Description:
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -31.82  1922.5  -25.79    1922  -18.26    1921   -9.72    1920   -2.69    1919
       0 1916.37    2.33 1916.21    2.53 1916.17    2.71 1916.13    7.17 1913.72
   12.57 1910.67   16.88 1910.76   17.85 1910.77   21.82 1910.79    27.7  1913.6
   32.58 1915.96   32.82 1916.01   33.17 1916.01   33.56 1916.01   40.91    1916
   58.99    1917  106.99    1918  175.49    1919  212.27    1920  238.69    1921
   306.7    1922

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -31.82    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2.33   32.58             52.63   49.74   48.01             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1151.6
```

```
INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -29.51  1922.5       0 1921.24    8.04 1915.35     9.5 1914.33   17.35 1909.61
   23.41 1909.76   23.97 1909.77   26.84 1909.83   28.49 1910.45   37.45 1914.47
   38.26 1914.96   38.45 1914.96   38.48 1914.96   38.88 1914.96  117.11    1916
  157.58    1917  195.53    1918  235.56    1919  256.07    1920  329.12    1921
  445.12    1922

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -29.51    .013       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0   38.26             51.5   49.89   51.66             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1101.71

INPUT
Description:
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1922.07   11.49  1914.9   20.36  1909.4   23.12 1909.22   23.61 1909.19
   25.58 1909.06   33.59 1913.94   38.23  1916.1   43.02    1916   54.27 1917.96
      58 1917.88   58.29 1917.87   62.65    1917   65.78    1916   68.88    1915
   72.06    1914   75.78    1913   82.38    1913   91.32    1914  126.42    1915
  161.02    1916  183.84    1917   238.9    1918  280.42    1919  331.42    1920
  353.87    1921  413.24    1921   449.5    1922

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .013   38.23    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0   38.23             24.1   25.09   26.33             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1076.62

INPUT
Description:
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1922.21     .47 1922.21    5.46 1919.18   22.42    1909   22.46 1909.01
   26.12 1909.18   27.99 1909.27   28.09 1909.32   43.24 1916.81    45.7 1917.05
   50.79 1917.31   55.03 1917.05    57.6 1916.56   58.71 1916.86   59.42    1917
   66.19    1918    72.3    1918   74.23    1917   76.05    1916   80.05    1915
   86.02    1914   89.84    1914 108.396    1915  110.08    1916  111.69    1917
  113.58    1917  118.43    1916  122.82    1915  127.34    1914  132.33    1913
  143.64    1914  151.02    1915   163.8    1916  182.77    1917  246.91    1918
  271.02    1919  312.02    1919  334.46    1920  397.13    1921  413.95    1922

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .013   43.24    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            .47   43.24            25.83   24.95    24.9             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1051.67

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1922.22     .76 1922.23    19.2 1911.05   22.52 1908.91   22.87 1908.86
   23.36 1908.87   28.18 1909.01   28.79 1909.02   30.49  1909.7   35.24 1911.99
   42.12  1915.2   53.56 1916.83   53.62 1916.83   53.71 1916.83   57.29 1916.19
   60.88 1915.55  173.53    1916  186.56    1917  223.85    1918  275.11    1919
  300.19    1920   511.7    1921   718.7    1922

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    19.2     .03   42.12    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            .76   42.12          2419.14   17.29   42.27             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1034.38

INPUT
Description:
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1922.23    2.86 1922.28    3.68 1922.09   13.72 1916.46   19.07    1914
   25.57 1909.82   30.65 1909.04   36.66  1909.2    37.7 1909.23   38.59 1909.25
   41.91 1910.57   43.54 1910.68   47.95  1910.8   49.77 1911.08   50.43 1911.18
   54.65 1912.03   59.26 1912.38   77.72 1913.47   82.67 1913.63   94.44 1914.24
  109.54  1915.2  110.47  1915.3   110.8 1915.34   167.5    1917  198.66    1918
  225.62    1919  287.77    1920  374.11    1921  434.63    1921  657.52    1922

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   19.07     .03   41.91    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            2.86   54.65            32.88   22.88   10.46             .1       .3

CROSS SECTION
```

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1011.5

INPUT
Description: Upstream of UPRR Crossing
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-75.7	1922	-10.87	1921	0	1920.57	3.42	1920.46	7.945	1920.15
14.41	1919.89	20.89	1919.49	25.06	1919.36	42.32	1917.61	44.18	1917.32
49.42	1917.17	58.82	1915.54	73.29	1912.9	73.67	1912.9	74.81	1912.71
77.33	1912.35	95.44	1910.16	99.21	1908.34	99.92	1908.2	101.72	1908.28
101.95	1908.33	109.22	1910.06	113.93	1910.71	118.45	1911.52	119.63	1911.5
124.39	1911.63	139.24	1912.77	146.4	1913.74	157.18	1914.72	164.55	1914.29
173.88	1914.92	185.7	1916.26	205.27	1920	955.88	1922		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-75.7	.025	-10.87	.025	0	.025

Bank Sta: Left Right Coeff Contr. Expan.
73.29 157.18 .1 .3

SUMMARY OF MANNING'S N VALUES

River:FL-ALIGN

Reach	River Sta.	n1	n2	n3	n4	n5	n6
FL-ALIGN	3398.92	.016	.013	.016	.013		
FL-ALIGN	3373.92	.016	.013	.016	.013	.016	
FL-ALIGN	3348.92	.016	.016	.013	.016		
FL-ALIGN	3323.92	.016	.013	.016	.013		
FL-ALIGN	3298.92	.016	.016	.013	.016		
FL-ALIGN	3273.6	.016	.013	.016	.013	.016	
FL-ALIGN	3248.92	.016	.013	.016	.013	.016	
FL-ALIGN	3223.92	.016	.025	.013	.016	.013	.016
FL-ALIGN	3210.22	.016	.025	.035	.016		
FL-ALIGN	3198.92	.016	.025	.035	.025		
FL-ALIGN	3173.92	.025	.035	.025			
FL-ALIGN	3148.92	.025	.035	.025			
FL-ALIGN	3098.95	.025	.035	.025			
FL-ALIGN	3073.97	.025	.035	.025			
FL-ALIGN	3048.96	.025	.05	.025			
FL-ALIGN	3023.98	.025	.05	.025			
FL-ALIGN	2998.98	.025	.05	.025			
FL-ALIGN	2973.99	.025	.05	.025			
FL-ALIGN	2948.99	.025	.05	.025			
FL-ALIGN	2923.99	.025	.05	.025			
FL-ALIGN	2898.97	.025	.05	.05			
FL-ALIGN	2874.04	.025	.05	.025			
FL-ALIGN	2849.1	.025	.05	.025			
FL-ALIGN	2824.82	.025	.05	.025			
FL-ALIGN	2799.78	.025	.035	.025			
FL-ALIGN	2774.63	.025	.035	.025			
FL-ALIGN	2750.44	.025	.035	.025			
FL-ALIGN	2725.42	.025	.035	.025			
FL-ALIGN	2700.17	.025	.035	.025			
FL-ALIGN	2675.8	.025	.035	.025			
FL-ALIGN	2650.79	.025	.035	.025			
FL-ALIGN	2626.19	.025	.035	.025			
FL-ALIGN	2601.78	.025	.05	.025			
FL-ALIGN	2576.59	.025	.035	.025			
FL-ALIGN	2551.36	.025	.035	.025			
FL-ALIGN	2526.44	.025	.035	.025			
FL-ALIGN	2501.48	.025	.013	.025			
FL-ALIGN	2485.61	.025	.013	.025			
FL-ALIGN	2484.00	Culvert					
FL-ALIGN	2399.9	.013					
FL-ALIGN	2376.49	.013					
FL-ALIGN	2351.49	.013					
FL-ALIGN	2301.49	.013					
FL-ALIGN	2276.48	.013					
FL-ALIGN	2226.48	.013					
FL-ALIGN	2201.48	.013					
FL-ALIGN	2176.48	.013					
FL-ALIGN	2151.48	.013					
FL-ALIGN	2126.48	.013					
FL-ALIGN	2101.47	.013					
FL-ALIGN	2076.46	.013					
FL-ALIGN	2051.45	.013					
FL-ALIGN	2026.52	.013					
FL-ALIGN	2001.52	.013					
FL-ALIGN	1976.52	.013					
FL-ALIGN	1951.52	.013					
FL-ALIGN	1876.56	.013					
FL-ALIGN	1851.56	.013					
FL-ALIGN	1826.56	.013	.025				
FL-ALIGN	1801.56	.013	.025				
FL-ALIGN	1776.56	.013	.025				
FL-ALIGN	1751.58	.013	.025				
FL-ALIGN	1726.57	.013	.025				
FL-ALIGN	1701.57	.013	.025				
FL-ALIGN	1667.4	.013					
FL-ALIGN	1660	Culvert					
FL-ALIGN	1529.8	.013					
FL-ALIGN	1501.53	.013					
FL-ALIGN	1476.5	.013					
FL-ALIGN	1451.37	.013					
FL-ALIGN	1426.37	.013	.013				
FL-ALIGN	1401.35	.013	.013				
FL-ALIGN	1376.2	.013	.013				
FL-ALIGN	1351.17	.013	.013				
FL-ALIGN	1326.16	.013	.013				
FL-ALIGN	1301.14	.013	.013				
FL-ALIGN	1276.14	.013	.013				
FL-ALIGN	1251.15	.013	.013				
FL-ALIGN	1226.18	.013	.013				
FL-ALIGN	1201.34	.013	.013				
FL-ALIGN	1151.6	.013	.013				
FL-ALIGN	1101.71	.013	.025				
FL-ALIGN	1076.62	.013	.025				
FL-ALIGN	1051.67	.025	.03	.025			
FL-ALIGN	1034.38	.025	.03	.025			
FL-ALIGN	1011.5	.025	.025	.025			

SUMMARY OF REACH LENGTHS

River: FL-ALIGN

Reach	River Sta.	Left	Channel	Right
FL-ALIGN	3398.92	25.01	25	25.02
FL-ALIGN	3373.92	25.03	25	25.05
FL-ALIGN	3348.92	25.18	25	26.53
FL-ALIGN	3323.92	27.48	25	31.71
FL-ALIGN	3298.92	28.27	25.32	26.5
FL-ALIGN	3273.6	26	24.68	24.56
FL-ALIGN	3248.92	25.13	25	30.09
FL-ALIGN	3223.92	14.07	13.7	14.32
FL-ALIGN	3210.22	11.65	11.3	11.82
FL-ALIGN	3198.92	25.32	25	25.98
FL-ALIGN	3173.92	25.43	25	25.55
FL-ALIGN	3148.92	55.38	49.97	47.04
FL-ALIGN	3098.95	20.29	24.98	28.02
FL-ALIGN	3073.97	25	25.01	25.07
FL-ALIGN	3048.96	28.34	24.98	23.09
FL-ALIGN	3023.98	21.46	25	27.03
FL-ALIGN	2998.98	28.33	24.99	23.13
FL-ALIGN	2973.99	23.9	25	25.86
FL-ALIGN	2948.99	26.22	25	25.08
FL-ALIGN	2923.99	15.83	25.02	30.98
FL-ALIGN	2898.97	17.15	24.93	30.48
FL-ALIGN	2874.04	39.68	24.94	17.95
FL-ALIGN	2849.1	38.99	24.28	10.13
FL-ALIGN	2824.82	22.37	25.04	27.85
FL-ALIGN	2799.78	23.04	25.15	28.16
FL-ALIGN	2774.63	36.1	24.19	18.16
FL-ALIGN	2750.44	30.61	25.02	22.4
FL-ALIGN	2725.42	21.47	25.25	27.5
FL-ALIGN	2700.17	16.35	24.37	29.93
FL-ALIGN	2675.8	25.2	25.01	25.01
FL-ALIGN	2650.79	21.98	24.6	26.83
FL-ALIGN	2626.19	19.32	24.41	28.81
FL-ALIGN	2601.78	24.17	25.19	26.43
FL-ALIGN	2576.59	36.89	25.23	18.12
FL-ALIGN	2551.36	19.09	24.92	30.78
FL-ALIGN	2526.44	44.23	24.96	30.79
FL-ALIGN	2501.48	20.64	15.87	22.6
FL-ALIGN	2485.61	85.04	85.71	86.5
FL-ALIGN	2484.00	Culvert		
FL-ALIGN	2399.9	23.41	23.41	23.41
FL-ALIGN	2376.49	25	25	25
FL-ALIGN	2351.49	50	50	50
FL-ALIGN	2301.49	25	25.01	25
FL-ALIGN	2276.48	50.02	50	49.99
FL-ALIGN	2226.48	25	25	25
FL-ALIGN	2201.48	25	25	25
FL-ALIGN	2176.48	25	25	25
FL-ALIGN	2151.48	25.18	25	24.82
FL-ALIGN	2126.48	25.01	25.01	25.01
FL-ALIGN	2101.47	25	25.01	25.01
FL-ALIGN	2076.46	25	25.01	25.01
FL-ALIGN	2051.45	24.83	24.93	25.12
FL-ALIGN	2026.52	25	25	25.02
FL-ALIGN	2001.52	25.02	25	25
FL-ALIGN	1976.52	25.12	25	25
FL-ALIGN	1951.52	75.59	74.96	75.08
FL-ALIGN	1876.56	25	25	25
FL-ALIGN	1851.56	25.01	25	25
FL-ALIGN	1826.56	25	25	25
FL-ALIGN	1801.56	25	25	25
FL-ALIGN	1776.56	24.9	24.98	25.08
FL-ALIGN	1751.58	25	25.01	25
FL-ALIGN	1726.57	25.01	25	25
FL-ALIGN	1701.57	39.81	34.17	29.44
FL-ALIGN	1667.4	142.41	137.6	131.13
FL-ALIGN	1660	Culvert		
FL-ALIGN	1529.8	18.7	28.27	39.36
FL-ALIGN	1501.53	25.78	25.03	25.01
FL-ALIGN	1476.5	26.88	25.13	24.27
FL-ALIGN	1451.37	25.89	25	25.01
FL-ALIGN	1426.37	25.38	25.02	25.08
FL-ALIGN	1401.35	27.16	25.15	22.91
FL-ALIGN	1376.2	25.55	25.03	24.62
FL-ALIGN	1351.17	25.06	25.01	24.96
FL-ALIGN	1326.16	27.06	25.02	23.19
FL-ALIGN	1301.14	25	25	25
FL-ALIGN	1276.14	25.88	24.99	24.17
FL-ALIGN	1251.15	25.55	24.97	24.47
FL-ALIGN	1226.18	26.31	24.84	23.7
FL-ALIGN	1201.34	52.63	49.74	48.01
FL-ALIGN	1151.6	51.5	49.89	51.66
FL-ALIGN	1101.71	24.1	25.09	26.33
FL-ALIGN	1076.62	25.83	24.95	24.9
FL-ALIGN	1051.67	2419.14	17.29	42.27
FL-ALIGN	1034.38	32.88	22.88	10.46
FL-ALIGN	1011.5			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: FL-ALIGN

Reach	River Sta.	Contr.	Expan.
FL-ALIGN	3398.92	.1	.3
FL-ALIGN	3373.92	.1	.3
FL-ALIGN	3348.92	.1	.3
FL-ALIGN	3323.92	.1	.3
FL-ALIGN	3298.92	.1	.3
FL-ALIGN	3273.6	.1	.3
FL-ALIGN	3248.92	.1	.3
FL-ALIGN	3223.92	.1	.3
FL-ALIGN	3210.22	.1	.3
FL-ALIGN	3198.92	.1	.3
FL-ALIGN	3173.92	.1	.3
FL-ALIGN	3148.92	.1	.3
FL-ALIGN	3098.95	.1	.3
FL-ALIGN	3073.97	.1	.3

FL-ALIGN	3048.96		.1	.3
FL-ALIGN	3023.98		.1	.3
FL-ALIGN	2998.98		.1	.3
FL-ALIGN	2973.99		.1	.3
FL-ALIGN	2948.99		.1	.3
FL-ALIGN	2923.99		.1	.3
FL-ALIGN	2898.97		.1	.3
FL-ALIGN	2874.04		.1	.3
FL-ALIGN	2849.1		.1	.3
FL-ALIGN	2824.82		.1	.3
FL-ALIGN	2799.78		.1	.3
FL-ALIGN	2774.63		.1	.3
FL-ALIGN	2750.44		.1	.3
FL-ALIGN	2725.42		.1	.3
FL-ALIGN	2700.17		.1	.3
FL-ALIGN	2675.8		.1	.3
FL-ALIGN	2650.79		.1	.3
FL-ALIGN	2626.19		.1	.3
FL-ALIGN	2601.78		.1	.3
FL-ALIGN	2576.59		.1	.3
FL-ALIGN	2551.36		.1	.3
FL-ALIGN	2526.44		.1	.3
FL-ALIGN	2501.48		.1	.3
FL-ALIGN	2485.61		.1	.3
FL-ALIGN	2484.00	Culvert		
FL-ALIGN	2399.9		.1	.3
FL-ALIGN	2376.49		.1	.3
FL-ALIGN	2351.49		.1	.3
FL-ALIGN	2301.49		.1	.3
FL-ALIGN	2276.48		.1	.3
FL-ALIGN	2226.48		.1	.3
FL-ALIGN	2201.48		.1	.3
FL-ALIGN	2176.48		.1	.3
FL-ALIGN	2151.48		.1	.3
FL-ALIGN	2126.48		.1	.3
FL-ALIGN	2101.47		.1	.3
FL-ALIGN	2076.46		.1	.3
FL-ALIGN	2051.45		.1	.3
FL-ALIGN	2026.52		.1	.3
FL-ALIGN	2001.52		.1	.3
FL-ALIGN	1976.52		.1	.3
FL-ALIGN	1951.52		.1	.3
FL-ALIGN	1876.56		.1	.3
FL-ALIGN	1851.56		.1	.3
FL-ALIGN	1826.56		.1	.3
FL-ALIGN	1801.56		.1	.3
FL-ALIGN	1776.56		.1	.3
FL-ALIGN	1751.58		.1	.3
FL-ALIGN	1726.57		.1	.3
FL-ALIGN	1701.57		.1	.3
FL-ALIGN	1667.4		.1	.3
FL-ALIGN	1660	Culvert		
FL-ALIGN	1529.8		.1	.3
FL-ALIGN	1501.53		.1	.3
FL-ALIGN	1476.5		.1	.3
FL-ALIGN	1451.37		.1	.3
FL-ALIGN	1426.37		.1	.3
FL-ALIGN	1401.35		.1	.3
FL-ALIGN	1376.2		.1	.3
FL-ALIGN	1351.17		.1	.3
FL-ALIGN	1326.16		.1	.3
FL-ALIGN	1301.14		.1	.3
FL-ALIGN	1276.14		.1	.3
FL-ALIGN	1251.15		.1	.3
FL-ALIGN	1226.18		.1	.3
FL-ALIGN	1201.34		.1	.3
FL-ALIGN	1151.6		.1	.3
FL-ALIGN	1101.71		.1	.3
FL-ALIGN	1076.62		.1	.3
FL-ALIGN	1051.67		.1	.3
FL-ALIGN	1034.38		.1	.3
FL-ALIGN	1011.5		.1	.3

Appendix C-2

Existing Condition HY8 Analysis for Downstream Tail Water Elevation at UPRR Embankment

HY-8 Culvert Analysis Report

EXISTING UPRR CULVERT - SCENARIO #1

Table 1 - Summary of Culvert Flows at Crossing: EX 8'x4' RCB Crossing-SECN

Headwater Elevatio	Total Discharge (c	Culvert 1 Discharg (cfs)	Roadway Discharg (cfs)	Iterations
1912.88	5.00	5.00	0.00	1
1913.07	91.40	91.40	0.00	1
1913.60	177.80	177.80	0.00	1
1914.48	264.20	264.20	0.00	1
1915.70	350.60	350.60	0.00	1
1917.26	437.00	437.00	0.00	1
1919.71	523.40	523.40	0.00	1
1922.50	609.80	594.78	14.87	13
1922.70	696.20	599.67	96.16	7
1922.85	782.60	603.07	178.75	5
1922.97	869.00	605.94	262.80	5
1922.41	592.73	592.73	0.00	Overtopping

Rating Curve Plot for Crossing: EX 8'x4' RCB Crossing-SECNARIO-1

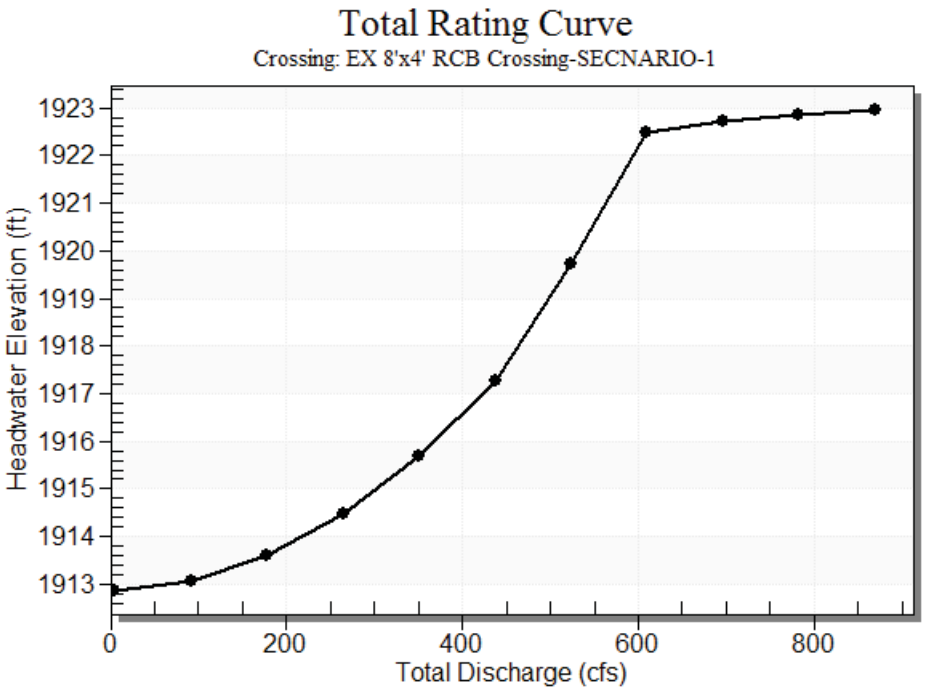


Table 2 - Culvert Summary Table: Culvert 1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (f	Outlet Control Depth (f	Flow Type	Normal Depth (f	Critical Depth (f	Outlet Depth (f	Tailwater Depth (f	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
5.00	5.00	1912.88	0.355	4.879	4-FF	0.055	0.230	4.000	8.380	0.156	0.000
91.40	91.40	1913.01	2.345	5.070	4-FF	0.706	1.598	4.000	8.380	2.856	0.000
177.80	177.80	1913.60	3.825	5.603	4-FF	1.097	2.490	4.000	8.380	5.556	0.000
264.20	264.20	1914.48	5.299	6.479	4-FF	1.430	3.242	4.000	8.380	8.256	0.000
350.60	350.60	1915.70	7.027	7.697	4-FF	1.735	3.916	4.000	8.380	10.956	0.000
437.00	437.00	1917.20	9.148	9.257	4-FF	2.023	4.000	4.000	8.380	13.656	0.000
523.40	523.40	1919.71	11.713	11.159	4-FF	2.292	4.000	3.000	8.380	21.808	0.000
609.80	594.78	1922.50	14.495	12.989	4-FF	2.509	4.000	3.230	8.380	23.018	0.000
696.20	599.67	1922.70	14.702	13.123	4-FF	2.524	4.000	3.247	8.380	23.085	0.000
782.60	603.07	1922.85	14.846	13.217	4-FF	2.534	4.000	3.257	8.380	23.145	0.000
869.00	605.94	1922.97	14.969	13.297	4-FF	2.543	4.000	3.266	8.380	23.191	0.000

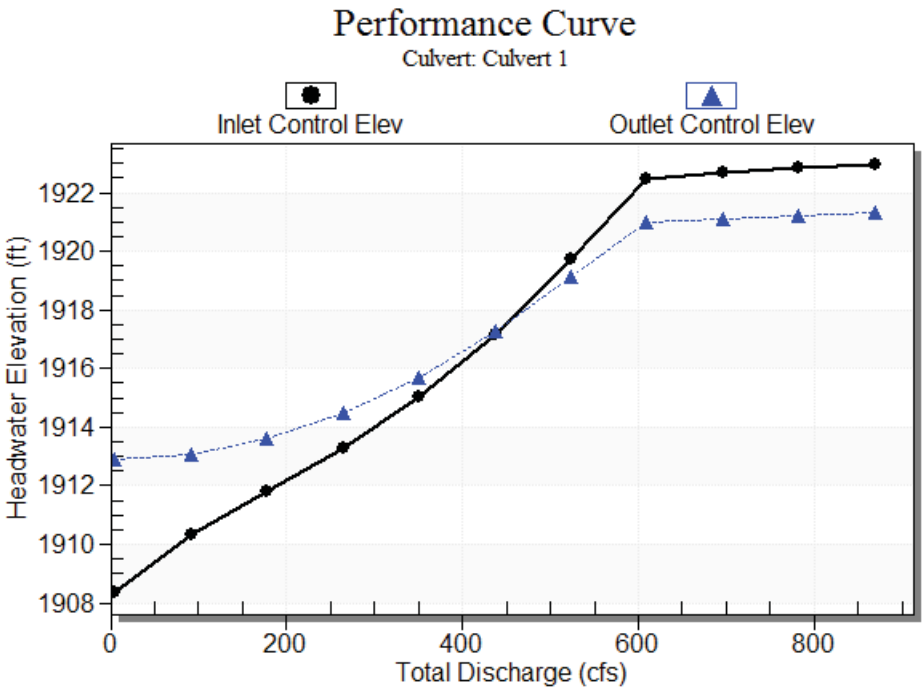
****

Inlet Elevation (invert): 1908.00 ft, Outlet Elevation (invert): 1904.50 ft

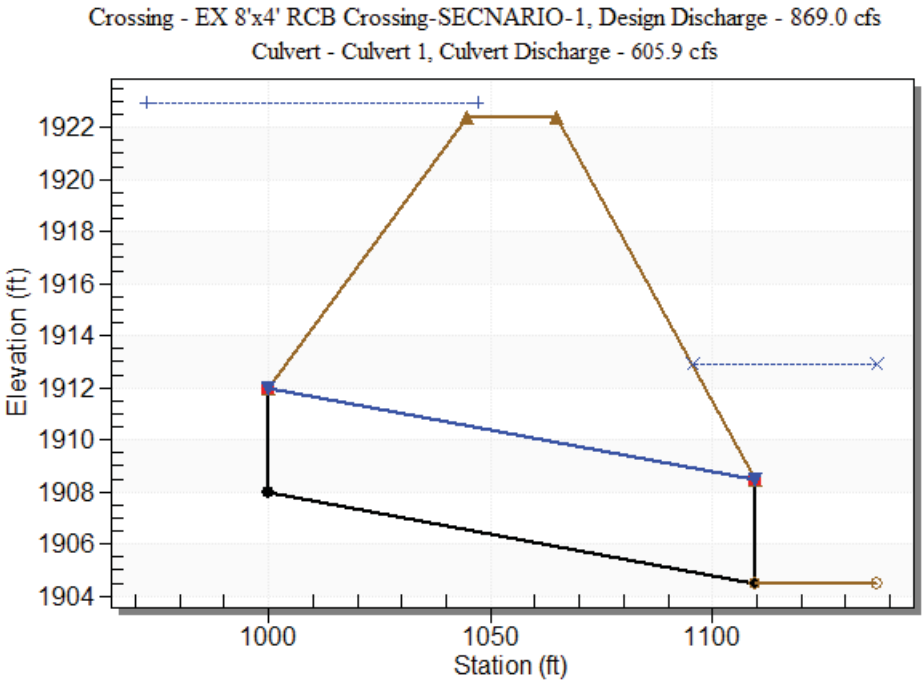
Culvert Length: 109.66 ft, Culvert Slope: 0.0319

****

Culvert Performance Curve Plot: Culvert 1



Water Surface Profile Plot for Culvert: Culvert 1



Site Data - Culvert 1

Site Data Option: Culvert Invert Data
Inlet Station: 1000.00 ft
Inlet Elevation: 1908.00 ft
Outlet Station: 1109.60 ft
Outlet Elevation: 1904.50 ft
Number of Barrels: 1

Culvert Data Summary - Culvert 1

Barrel Shape: Concrete Box
Barrel Span: 8.00 ft
Barrel Rise: 4.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Inlet Type: Conventional
Inlet Edge Condition: 1:1 Bevel (45º flare) Wingwall
Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: EX 8'x4' RCB Cross...SCENARIO 1)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)
5.00	1912.88	8.38
91.40	1912.88	8.38
177.80	1912.88	8.38
264.20	1912.88	8.38
350.60	1912.88	8.38
437.00	1912.88	8.38
523.40	1912.88	8.38
609.80	1912.88	8.38
696.20	1912.88	8.38
782.60	1912.88	8.38
869.00	1912.88	8.38

Tailwater Channel Data - EX 8'x4' RCB Crossing-SECNARIO-1

Tailwater Channel Option: Enter Constant Tailwater Elevation
Constant Tailwater Elevation: 1912.88 ft

Roadway Data for Crossing: EX 8'x4' RCB Crossing-SECNARIO-1

Roadway Profile Shape: Constant Roadway Elevation
Crest Length: 232.00 ft
Crest Elevation: 1922.41 ft
Roadway Surface: Gravel
Roadway Top Width: 20.00 ft

HY-8 Culvert Analysis Report

EXISTING UPRR CULVERT - SCENARIO #2

Table 1 - Summary of Culvert Flows at Crossing: EX 8'x4' RCB Crossing-SECN

Headwater Elevatio	Total Discharge (c	Culvert 1 Discharg (cfs)	Roadway Discharg (cfs)	Iterations
1916.82	5.00	5.00	0.00	1
1916.90	59.60	59.60	0.00	1
1917.12	114.20	114.20	0.00	1
1917.47	168.80	168.80	0.00	1
1917.96	223.40	223.40	0.00	1
1918.59	278.00	278.00	0.00	1
1919.35	332.60	332.60	0.00	1
1920.26	387.20	387.20	0.00	1
1921.29	441.80	441.80	0.00	1
1922.43	496.40	494.59	1.28	24
1922.60	551.00	502.00	48.46	7
1922.41	493.84	493.84	0.00	Overtopping

Rating Curve Plot for Crossing: EX 8'x4' RCB Crossing-SECNARIO-2

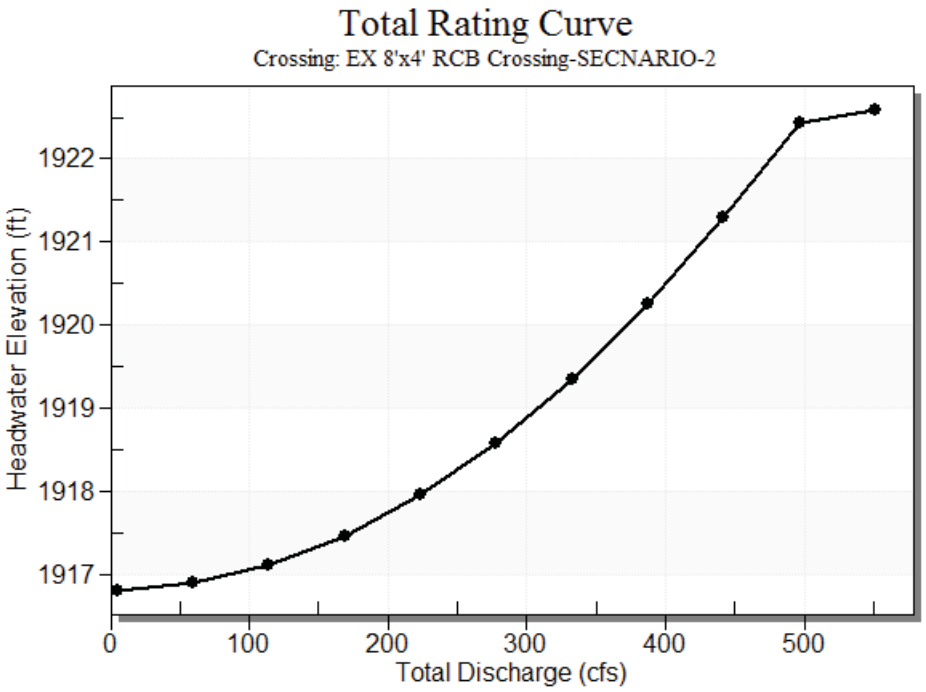


Table 2 - Culvert Summary Table: Culvert 1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (f	Outlet Control Depth (f	Flow Type	Normal Depth (f	Critical Depth (f	Outlet Depth (f	Tailwater Depth (f	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
5.00	5.00	1916.82	0.355	8.819	4-FF	0.055	0.230	4.000	12.320	0.156	0.000
59.60	59.60	1916.90	1.740	8.900	4-FF	0.530	1.202	4.000	12.320	1.863	0.000
114.20	114.20	1917.12	2.757	9.117	4-FF	0.825	1.854	4.000	12.320	3.569	0.000
168.80	168.80	1917.41	3.677	9.472	4-FF	1.059	2.405	4.000	12.320	5.275	0.000
223.40	223.40	1917.90	4.584	9.963	4-FF	1.280	2.899	4.000	12.320	6.981	0.000
278.00	278.00	1918.59	5.553	10.590	4-FF	1.481	3.354	4.000	12.320	8.688	0.000
332.60	332.60	1919.35	6.638	11.355	4-FF	1.675	3.780	4.000	12.320	10.394	0.000
387.20	387.20	1920.20	7.873	12.256	4-FF	1.857	4.000	4.000	12.320	12.100	0.000
441.80	441.80	1921.29	9.279	13.294	4-FF	2.038	4.000	4.000	12.320	13.806	0.000
496.40	494.59	1922.41	10.808	14.427	4-FF	2.202	4.000	4.000	12.320	15.456	0.000
551.00	502.00	1922.60	11.036	14.596	4-FF	2.225	4.000	4.000	12.320	15.687	0.000

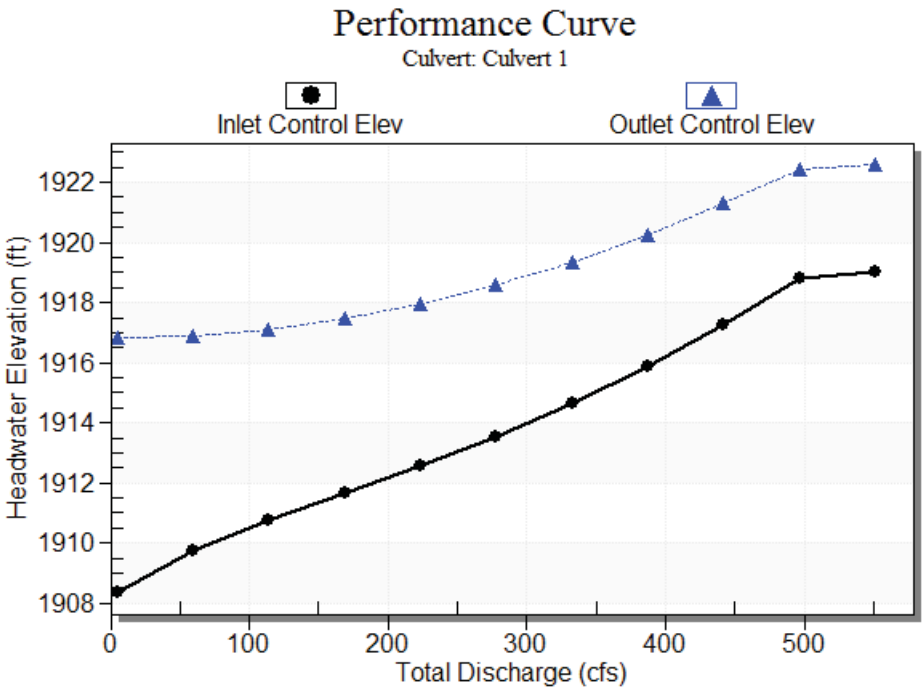
****

Inlet Elevation (invert): 1908.00 ft, Outlet Elevation (invert): 1904.50 ft

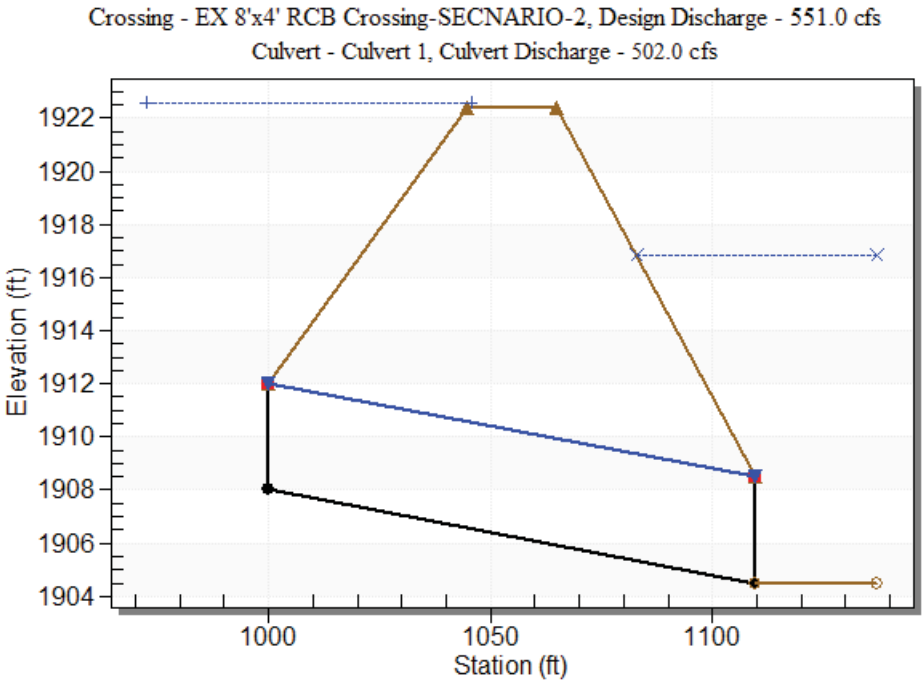
Culvert Length: 109.66 ft, Culvert Slope: 0.0319

****

Culvert Performance Curve Plot: Culvert 1



Water Surface Profile Plot for Culvert: Culvert 1



Site Data - Culvert 1

Site Data Option: Culvert Invert Data
Inlet Station: 1000.00 ft
Inlet Elevation: 1908.00 ft
Outlet Station: 1109.60 ft
Outlet Elevation: 1904.50 ft
Number of Barrels: 1

Culvert Data Summary - Culvert 1

Barrel Shape: Concrete Box
Barrel Span: 8.00 ft
Barrel Rise: 4.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Inlet Type: Conventional
Inlet Edge Condition: 1:1 Bevel (45º flare) Wingwall
Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: EX 8'x4' RCB Cross...SCENARIO 2)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)
5.00	1916.82	12.32
59.60	1916.82	12.32
114.20	1916.82	12.32
168.80	1916.82	12.32
223.40	1916.82	12.32
278.00	1916.82	12.32
332.60	1916.82	12.32
387.20	1916.82	12.32
441.80	1916.82	12.32
496.40	1916.82	12.32
551.00	1916.82	12.32

Tailwater Channel Data - EX 8'x4' RCB Crossing-SECNARIO-2

Tailwater Channel Option: Enter Constant Tailwater Elevation
Constant Tailwater Elevation: 1916.82 ft

Roadway Data for Crossing: EX 8'x4' RCB Crossing-SECNARIO-2

Roadway Profile Shape: Constant Roadway Elevation
Crest Length: 232.00 ft
Crest Elevation: 1922.41 ft
Roadway Surface: Gravel
Roadway Top Width: 20.00 ft

Appendix C-3

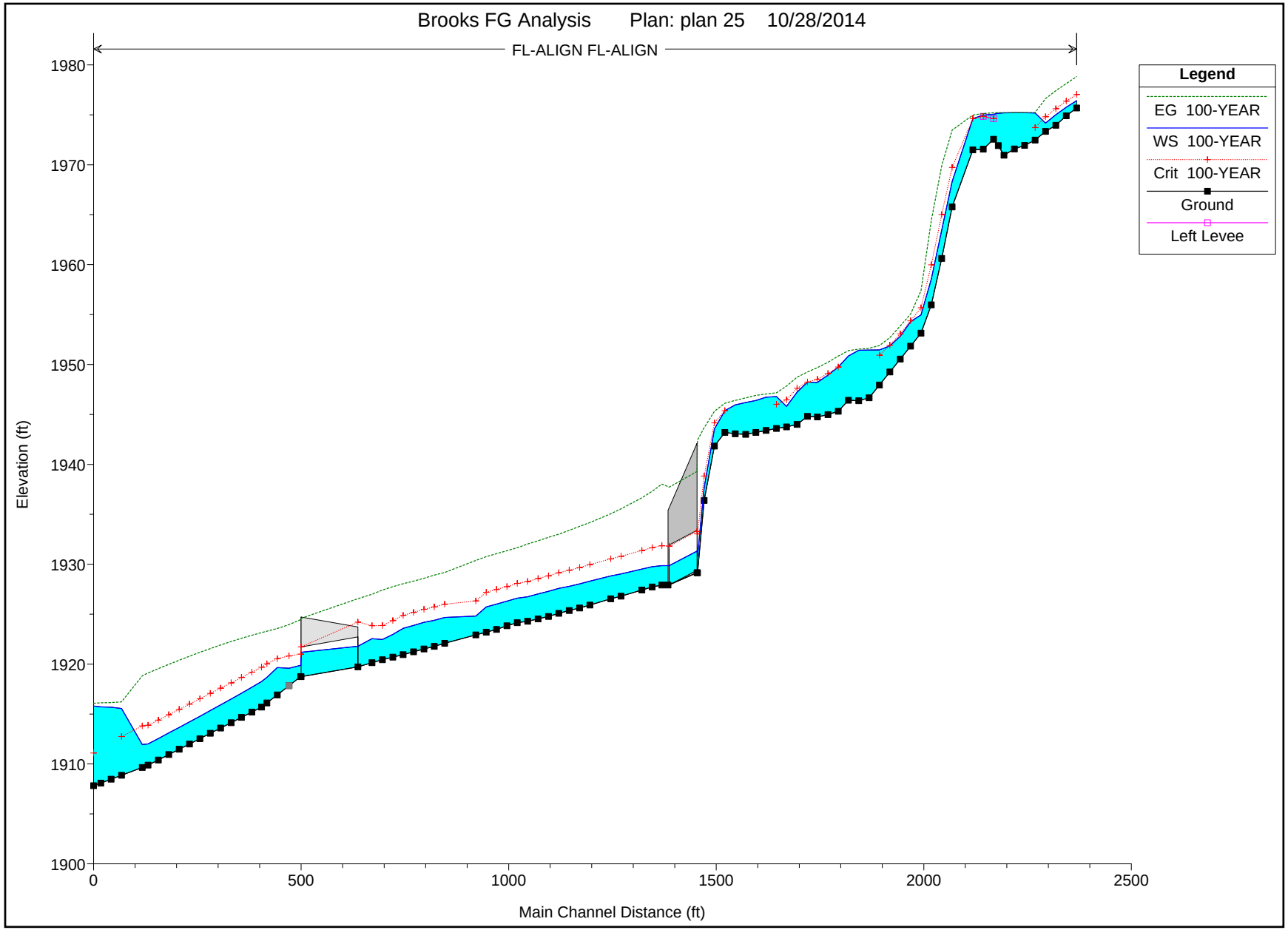
Proposed Condition HEC-RAS Analysis

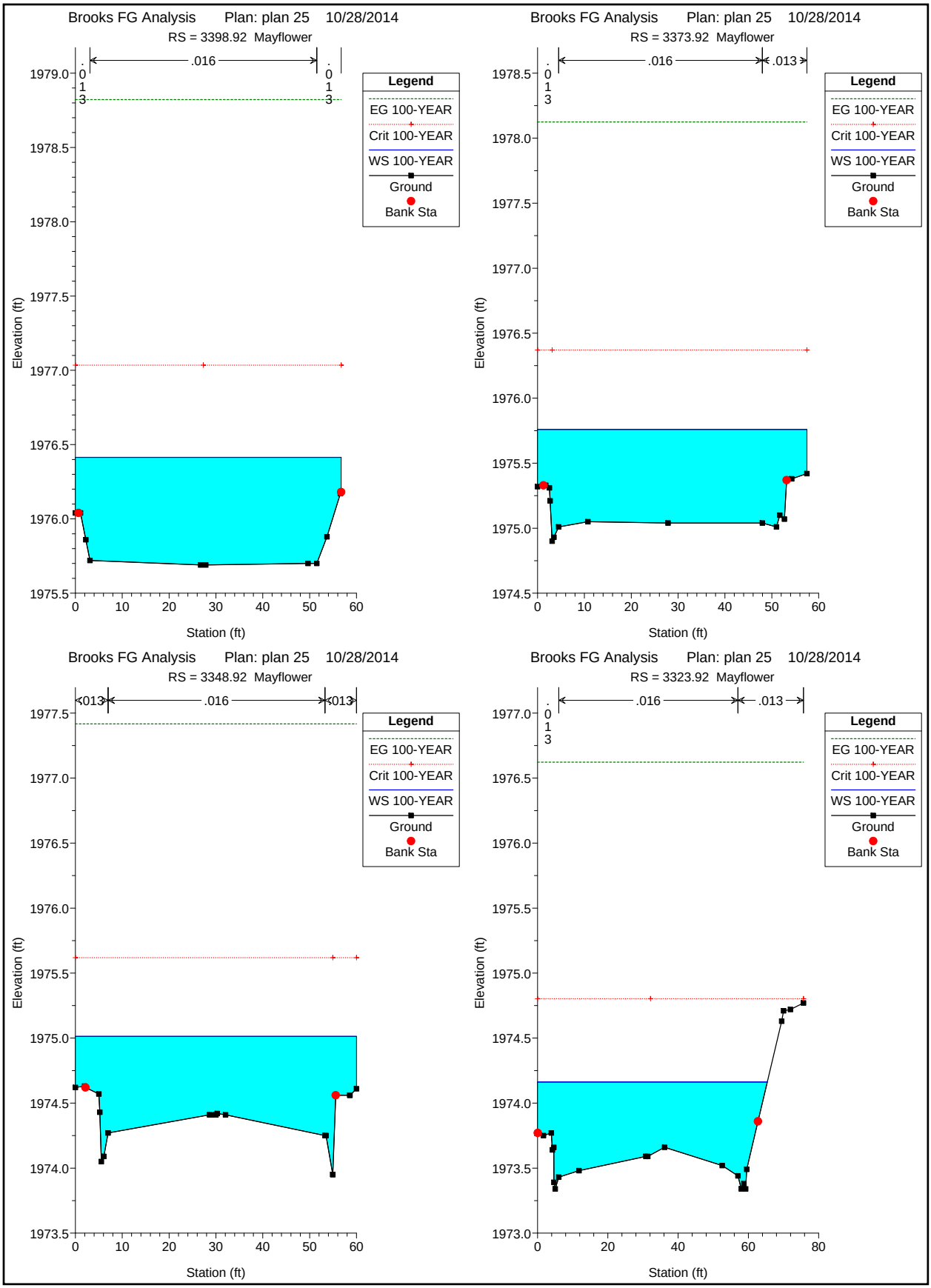
HEC-RAS Plan: 25 River: FL-ALIGN Reach: FL-ALIGN Profile: 100-YEAR

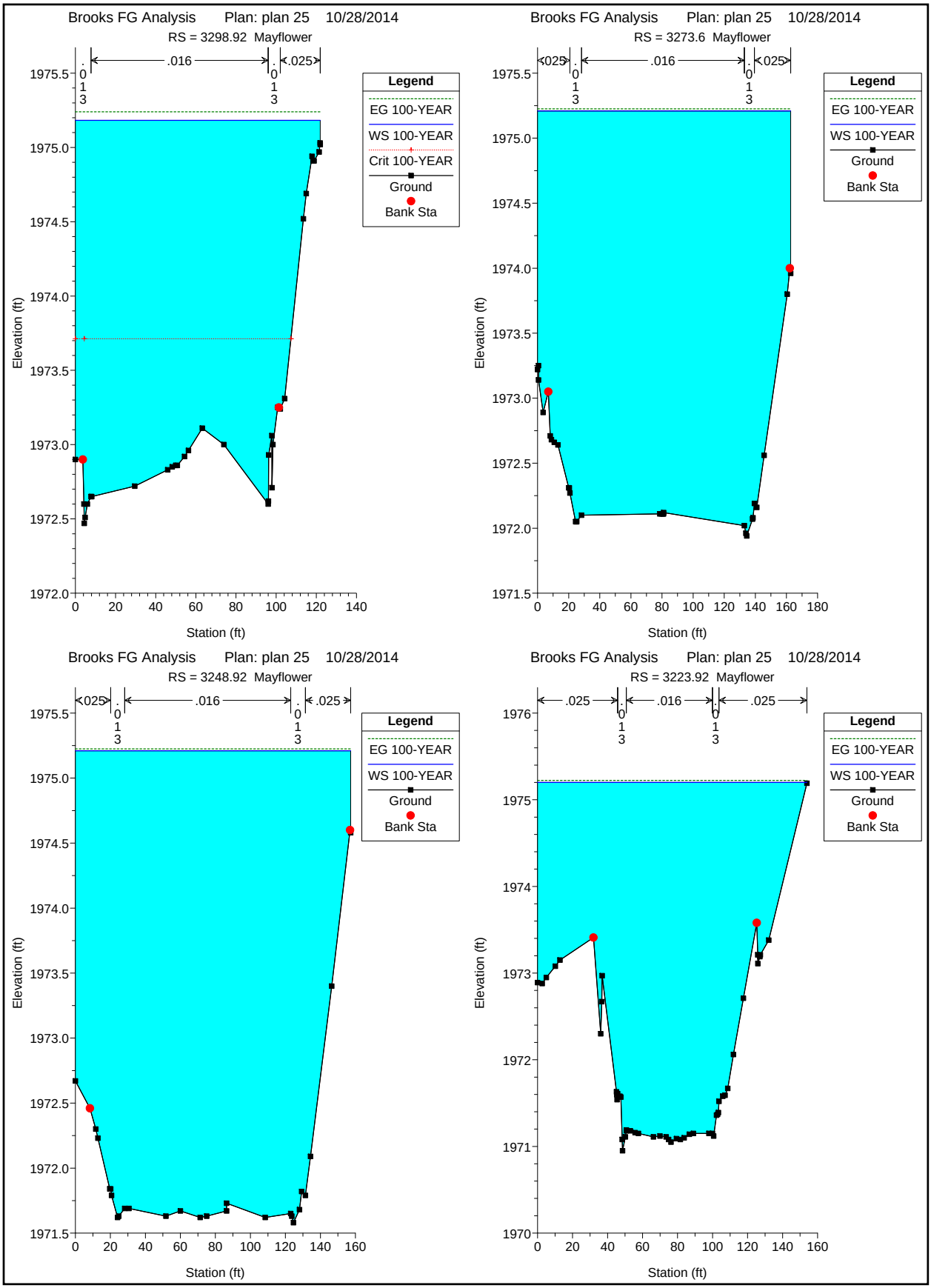
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
FL-ALIGN	3398.92	100-YEAR	480.00	1975.69	1976.41	1977.03	1978.82	0.028579	12.47	38.60	56.74	2.66
FL-ALIGN	3373.92	100-YEAR	480.00	1974.90	1975.76	1976.37	1978.12	0.026563	12.46	39.12	57.50	2.60
FL-ALIGN	3348.92	100-YEAR	480.00	1973.95	1975.01	1975.62	1977.42	0.029561	12.56	38.70	60.00	2.70
FL-ALIGN	3323.92	100-YEAR	480.00	1973.34	1974.16	1974.80	1976.62	0.033621	12.61	38.29	65.39	2.86
FL-ALIGN	3298.92	100-YEAR	480.00	1972.47	1975.18	1973.71	1975.24	0.000137	1.96	258.48	121.96	0.23
FL-ALIGN	3273.6	100-YEAR	480.00	1971.94	1975.21		1975.23	0.000031	1.03	473.44	162.74	0.11
FL-ALIGN	3248.92	100-YEAR	480.00	1971.58	1975.21		1975.23	0.000023	0.97	505.64	157.29	0.09
FL-ALIGN	3223.92	100-YEAR	480.00	1970.95	1975.20		1975.22	0.000039	1.29	431.16	153.91	0.12
FL-ALIGN	3210.22	100-YEAR	480.00	1971.92	1975.16		1975.22	0.000686	1.81	248.89	150.44	0.23
FL-ALIGN	3198.92	100-YEAR	480.00	1972.55	1975.05	1974.63	1975.20	0.002208	2.14	168.88	140.49	0.36
FL-ALIGN	3173.92	100-YEAR	480.00	1971.56	1974.98	1974.84	1975.13	0.003499	2.92	155.91	151.31	0.46
FL-ALIGN	3148.92	100-YEAR	480.00	1971.49	1974.62	1974.62	1974.98	0.008281	5.37	106.68	164.78	0.73
FL-ALIGN	3098.95	100-YEAR	480.00	1965.77	1968.32	1969.74	1973.47	0.128308	18.21	26.36	19.38	2.75
FL-ALIGN	3073.97	100-YEAR	480.00	1960.62	1963.45	1965.02	1969.88	0.149328	20.36	23.58	16.05	2.96
FL-ALIGN	3048.96	100-YEAR	480.00	1955.97	1958.55	1959.98	1964.42	0.323881	19.44	24.70	19.36	3.03
FL-ALIGN	3023.98	100-YEAR	480.00	1953.14	1954.97	1955.68	1957.39	0.184945	12.48	38.46	39.63	2.23
FL-ALIGN	2998.98	100-YEAR	480.00	1951.84	1954.29	1954.37	1955.05	0.039488	7.01	68.43	52.55	1.08
FL-ALIGN	2973.99	100-YEAR	480.00	1950.54	1952.83	1953.07	1953.87	0.054517	8.16	58.83	45.82	1.27
FL-ALIGN	2948.99	100-YEAR	480.00	1949.25	1951.86	1951.93	1952.70	0.036745	7.35	65.27	44.11	1.07
FL-ALIGN	2923.99	100-YEAR	480.00	1947.95	1951.45	1950.94	1951.89	0.015012	5.33	90.14	50.40	0.70
FL-ALIGN	2898.97	100-YEAR	480.00	1946.67	1951.45		1951.62	0.004589	3.28	146.27	69.38	0.40
FL-ALIGN	2874.04	100-YEAR	480.00	1946.37	1951.42		1951.54	0.001882	2.51	174.46	93.22	0.26
FL-ALIGN	2849.1	100-YEAR	480.00	1946.42	1950.85		1951.38	0.013690	5.85	82.02	35.99	0.68
FL-ALIGN	2824.82	100-YEAR	480.00	1945.32	1949.75	1949.75	1950.84	0.032801	8.38	57.31	27.03	1.01
FL-ALIGN	2799.78	100-YEAR	480.00	1944.99	1948.93	1949.10	1950.22	0.018400	9.12	52.64	24.65	1.10
FL-ALIGN	2774.63	100-YEAR	480.00	1944.75	1948.21	1948.51	1949.70	0.022339	9.76	49.16	24.15	1.21
FL-ALIGN	2750.44	100-YEAR	480.00	1944.81	1948.23	1948.24	1949.25	0.015174	8.11	59.19	29.48	1.01
FL-ALIGN	2725.42	100-YEAR	480.00	1944.00	1947.23	1947.62	1948.73	0.025155	9.82	48.86	26.75	1.28
FL-ALIGN	2700.17	100-YEAR	480.00	1943.75	1945.80	1946.45	1947.84	0.044932	11.47	41.86	28.58	1.67
FL-ALIGN	2675.8	100-YEAR	480.00	1943.60	1946.78	1946.01	1947.17	0.004877	4.99	96.22	43.34	0.59
FL-ALIGN	2650.79	100-YEAR	480.00	1943.40	1946.73		1947.04	0.003645	4.49	106.94	45.35	0.52
FL-ALIGN	2626.19	100-YEAR	480.00	1943.20	1946.40		1946.90	0.006898	5.69	84.34	40.33	0.69
FL-ALIGN	2601.78	100-YEAR	480.00	1943.00	1946.20		1946.66	0.013973	5.46	87.88	44.58	0.69
FL-ALIGN	2576.59	100-YEAR	480.00	1943.06	1945.95		1946.41	0.007211	5.43	88.36	47.17	0.70
FL-ALIGN	2551.36	100-YEAR	480.00	1943.20	1945.38	1945.38	1946.12	0.016168	6.91	69.49	47.67	1.01
FL-ALIGN	2526.44	100-YEAR	480.00	1941.83	1943.55	1944.15	1945.32	0.061139	10.66	45.05	43.82	1.85
FL-ALIGN	2501.48	100-YEAR	480.00	1936.39	1937.68	1938.84	1943.67	0.040256	19.65	24.43	30.50	3.87
FL-ALIGN	2485.61	100-YEAR	521.00	1929.15	1930.78	1933.03	1942.44	0.041980	27.40	19.01	12.44	3.91
FL-ALIGN	2484.00		Culvert									
FL-ALIGN	2399.9	100-YEAR	525.00	1927.92	1929.86	1931.85	1938.03	0.024797	22.94	22.72	11.79	2.91
FL-ALIGN	2376.49	100-YEAR	525.00	1927.72	1929.75	1931.66	1937.30	0.021870	22.05	23.81	11.96	2.75
FL-ALIGN	2351.49	100-YEAR	525.00	1927.42	1929.52	1931.38	1936.65	0.019601	21.44	24.49	11.86	2.63
FL-ALIGN	2301.49	100-YEAR	525.00	1926.80	1929.03	1930.80	1935.55	0.017007	20.48	25.63	11.82	2.45
FL-ALIGN	2276.48	100-YEAR	525.00	1926.54	1928.82	1930.54	1935.05	0.015932	20.02	26.22	11.81	2.37
FL-ALIGN	2226.48	100-YEAR	525.00	1925.91	1928.31	1929.96	1934.18	0.014459	19.44	27.01	11.63	2.25
FL-ALIGN	2201.48	100-YEAR	525.00	1925.62	1928.04	1929.67	1933.80	0.014089	19.26	27.26	11.59	2.21
FL-ALIGN	2176.48	100-YEAR	525.00	1925.37	1927.79	1929.39	1933.40	0.013610	19.00	27.63	11.57	2.17
FL-ALIGN	2151.48	100-YEAR	525.00	1925.08	1927.58	1929.15	1933.01	0.012864	18.69	28.09	11.47	2.10
FL-ALIGN	2126.48	100-YEAR	525.00	1924.77	1927.29	1928.84	1932.69	0.012823	18.66	28.14	11.52	2.10
FL-ALIGN	2101.47	100-YEAR	525.00	1924.52	1927.02	1928.56	1932.35	0.012593	18.53	28.34	11.54	2.08
FL-ALIGN	2076.46	100-YEAR	525.00	1924.29	1926.75	1928.27	1932.03	0.012754	18.45	28.46	11.92	2.10
FL-ALIGN	2051.45	100-YEAR	525.00	1924.15	1926.61	1928.08	1931.65	0.011910	18.03	29.12	11.88	2.03
FL-ALIGN	2026.52	100-YEAR	525.00	1923.84	1926.30	1927.77	1931.36	0.011975	18.05	29.09	11.99	2.04
FL-ALIGN	2001.52	100-YEAR	525.00	1923.47	1926.01	1927.47	1931.06	0.011895	18.04	29.11	11.88	2.03
FL-ALIGN	1976.52	100-YEAR	525.00	1923.20	1925.72	1927.19	1930.76	0.011863	18.02	29.14	11.92	2.03
FL-ALIGN	1951.52	100-YEAR	525.00	1922.92	1924.81	1926.33	1930.38	0.014136	18.93	27.74	23.68	2.46
FL-ALIGN	1876.56	100-YEAR	525.00	1922.08	1924.67	1925.99	1929.17	0.010114	17.03	30.83	12.02	1.87
FL-ALIGN	1851.56	100-YEAR	525.00	1921.78	1924.38	1925.72	1928.92	0.010212	17.09	30.72	11.98	1.88
FL-ALIGN	1826.56	100-YEAR	525.00	1921.52	1924.19	1925.48	1928.59	0.013238	16.83	31.19	11.92	1.83
FL-ALIGN	1801.56	100-YEAR	525.00	1921.23	1923.88	1925.18	1928.30	0.009748	16.88	31.11	11.85	1.84
FL-ALIGN	1776.56	100-YEAR	525.00	1920.94	1923.57	1924.88	1928.05	0.009955	16.98	30.91	11.75	1.85
FL-ALIGN	1751.58	100-YEAR	525.00	1920.70	1922.98	1924.36	1927.75	0.011683	17.54	29.94	13.15	2.05
FL-ALIGN	1726.57	100-YEAR	525.00	1920.44	1922.47	1923.87	1927.42	0.013208	17.85	29.40	14.50	2.21
FL-ALIGN	1701.57	100-YEAR	652.00	1920.14	1922.55	1923.85	1926.99	0.009624	16.91	38.56	16.00	1.92
FL-ALIGN	1667.4	100-YEAR	652.00	1919.72	1921.79	1924.21	1926.55	0.014744	17.51	37.23	18.00	2.15
FL-ALIGN	1530.0	100-YEAR	652.00	1918.74	1921.19	1921.72	1924.59	0.009070	14.80	44.06	18.00	1.67
FL-ALIGN	1529.8	100-YEAR	820.00	1918.75	1919.87	1921.00	1924.45	0.020714	17.18	47.74	42.50	2.86
FL-ALIGN	1515.66*	100-YEAR	820.00	1917.84	1919.59	1920.82	1923.95	0.011975	16.77	48.89	28.00	2.24
FL-ALIGN	1501.53	100-YEAR	820.00	1916.92	1919.65	1920.55	1923.57	0.007102	15.89	51.61	31.91	1.69
FL-ALIGN	1476.5	100-YEAR	820.00	1916.11	1918.67	1920.04	1923.29	0.009014	17.25	47.52	18.59	1.90
FL-ALIGN	1462.50	100-YEAR	820.00	1915.69	1918.26	1919.69	1923.15	0.009589	17.75	46.20	18.00	1.95
FL-ALIGN	1451.37	100-YEAR	820.00	1915.20	1917.69	1919.20	1922.89	0.010504	18.29	44.83	18.00	2.04
FL-ALIGN	1426.37	100-YEAR	820.00	1914.66	1917.08	1918.66	1922.58	0.011462	18.82	43.57	18.00	2.13
FL-ALIGN	1401.35	100-YEAR	820.00	1914.13	1916.50	1918.13	1922.26	0.012310	19.27	42.56	18.00	2.21
FL-ALIGN	1376.2	100-YEAR	820.00	1913.60	1915.92	1917.60	1921.91	0.013068	19.65	41.74	18.00	2.27
FL-ALIGN	1351.17	100-YEAR	820.00	1913.07	1915.35	1917.07	1921.55	0.013780	19.99	41.02	18.00	2.33

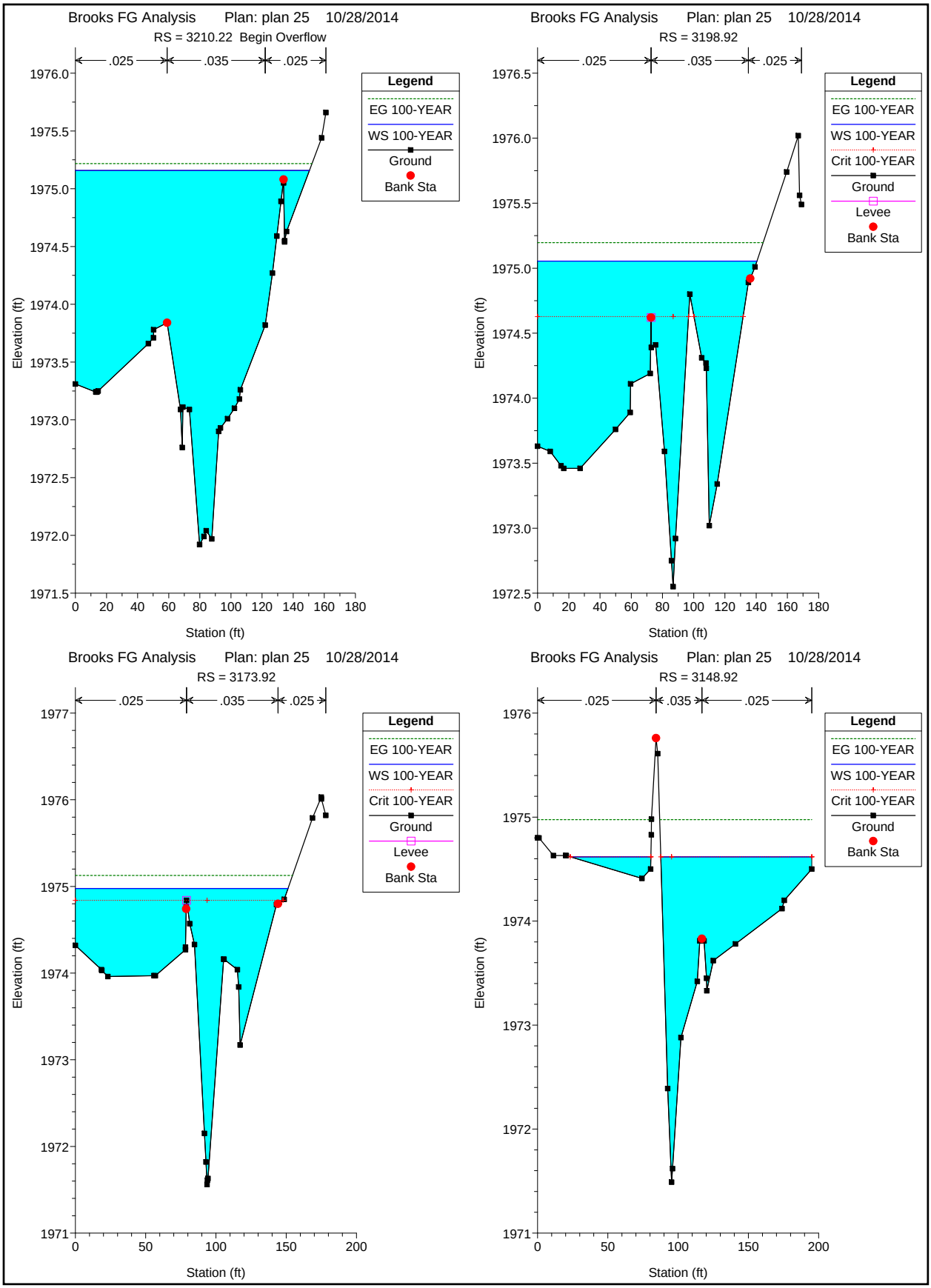
HEC-RAS Plan: 25 River: FL-ALIGN Reach: FL-ALIGN Profile: 100-YEAR (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
FL-ALIGN	1326.16	100-YEAR	820.00	1912.53	1914.77	1916.53	1921.18	0.014472	20.31	40.37	18.00	2.39
FL-ALIGN	1301.14	100-YEAR	820.00	1912.00	1914.21	1916.00	1920.79	0.015073	20.58	39.84	18.00	2.44
FL-ALIGN	1276.14	100-YEAR	820.00	1911.47	1913.66	1915.47	1920.39	0.015627	20.83	39.37	18.00	2.48
FL-ALIGN	1251.15	100-YEAR	820.00	1910.94	1913.11	1914.94	1919.97	0.016100	21.03	38.99	18.00	2.52
FL-ALIGN	1226.18	100-YEAR	820.00	1910.40	1912.55	1914.40	1919.54	0.016572	21.23	38.63	18.00	2.55
FL-ALIGN	1201.34	100-YEAR	820.00	1909.88	1912.01	1913.88	1919.11	0.016961	21.39	38.34	18.00	2.58
FL-ALIGN	1151.6	100-YEAR	869.00	1909.65	1911.94	1913.81	1918.82	0.015173	21.05	41.29	18.00	2.45
FL-ALIGN	1101.71	100-YEAR	869.00	1908.87	1915.56	1912.74	1916.21	0.000508	6.50	133.74	20.00	0.44
FL-ALIGN	1076.62	100-YEAR	869.00	1908.48	1915.68		1916.15	0.000325	5.49	158.20	21.98	0.36
FL-ALIGN	1051.67	100-YEAR	869.00	1908.09	1915.72		1916.12	0.000262	5.08	171.17	22.44	0.32
FL-ALIGN	1034.38	100-YEAR	869.00	1907.82	1915.80	1911.09	1916.08	0.000163	4.23	205.49	25.75	0.26


Brooks FG Analysis Plan: plan 25 10/28/2014
FL-ALIGN FL-ALIGN
Legend
EG 100-YEAR
WS 100-YEAR
Crit 100-YEAR
Ground
Left Levee
Elevation (ft)
1980
1970
1960
1950
1940
1930
1920
1910
1900
0
500
1000
1500
2000
2500
Main Channel Distance (ft)


Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3398.92 Mayflower
.013
.016
.013
Legend
EG 100-YEAR
Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3373.92 Mayflower
.013
.016
.013
Legend
EG 100-YEAR
Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3348.92 Mayflower
.013
.016
.013
Legend
EG 100-YEAR
Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3323.92 Mayflower
.013
.016
.013
Legend
EG 100-YEAR
Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3298.92 Mayflower
.016
.025
Legend
EG 100-YEAR
WS 100-YEAR
Crit 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3273.6 Mayflower
.025
.016
.025
Legend
EG 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3248.92 Mayflower
.025
.016
.025
Legend
EG 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3223.92 Mayflower
.025
.016
.025
Legend
EG 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3210.22 Begin Overflow
.025
.035
.025
Legend
EG 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3198.92
.025
.035
.025
Legend
EG 100-YEAR
WS 100-YEAR
Crit 100-YEAR
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3173.92
.025
.035
.025
Legend
EG 100-YEAR
WS 100-YEAR
Crit 100-YEAR
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3148.92
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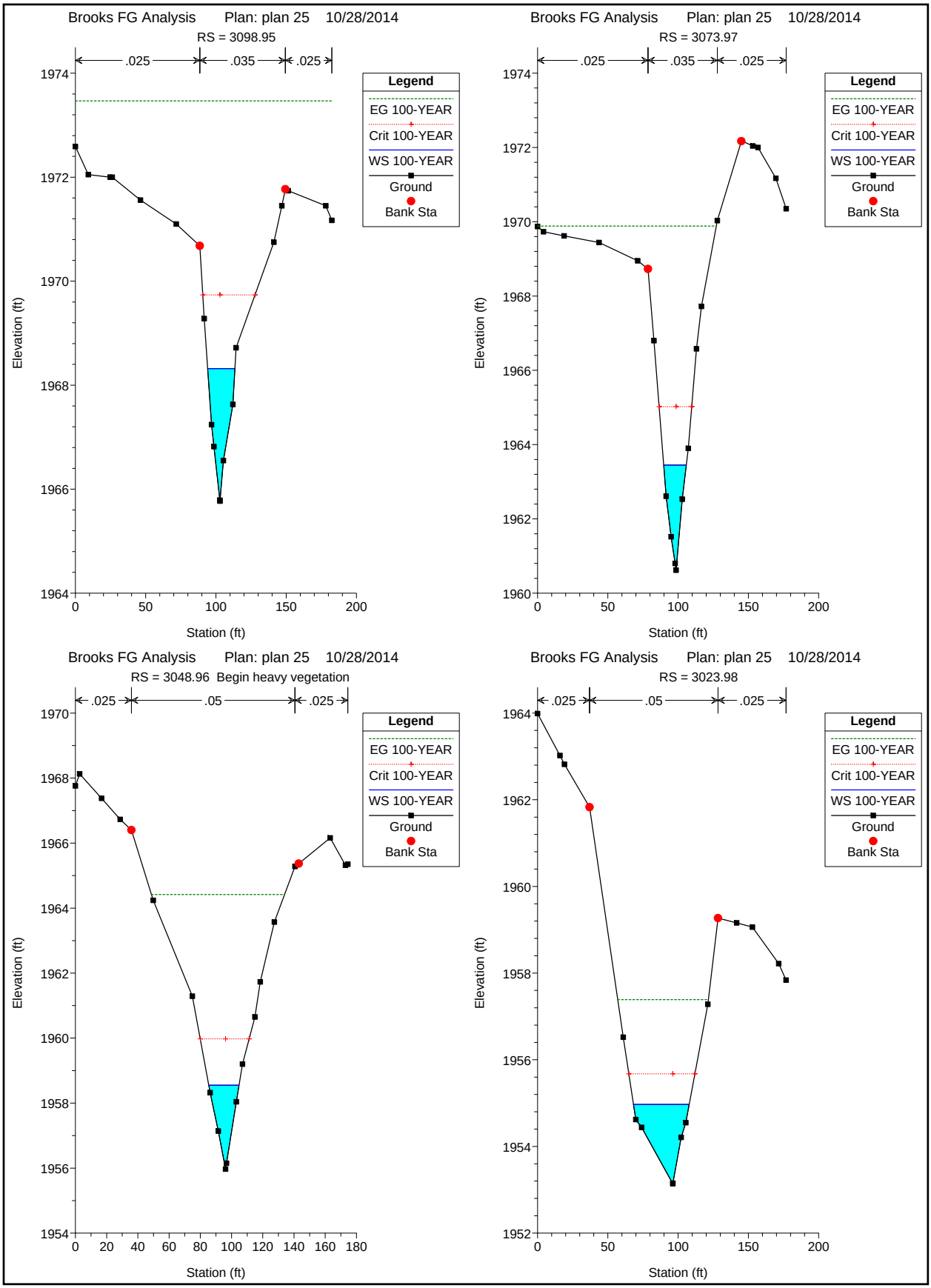
.035
.025
Legend
EG 100-YEAR
WS 100-YEAR
Crit 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3098.95
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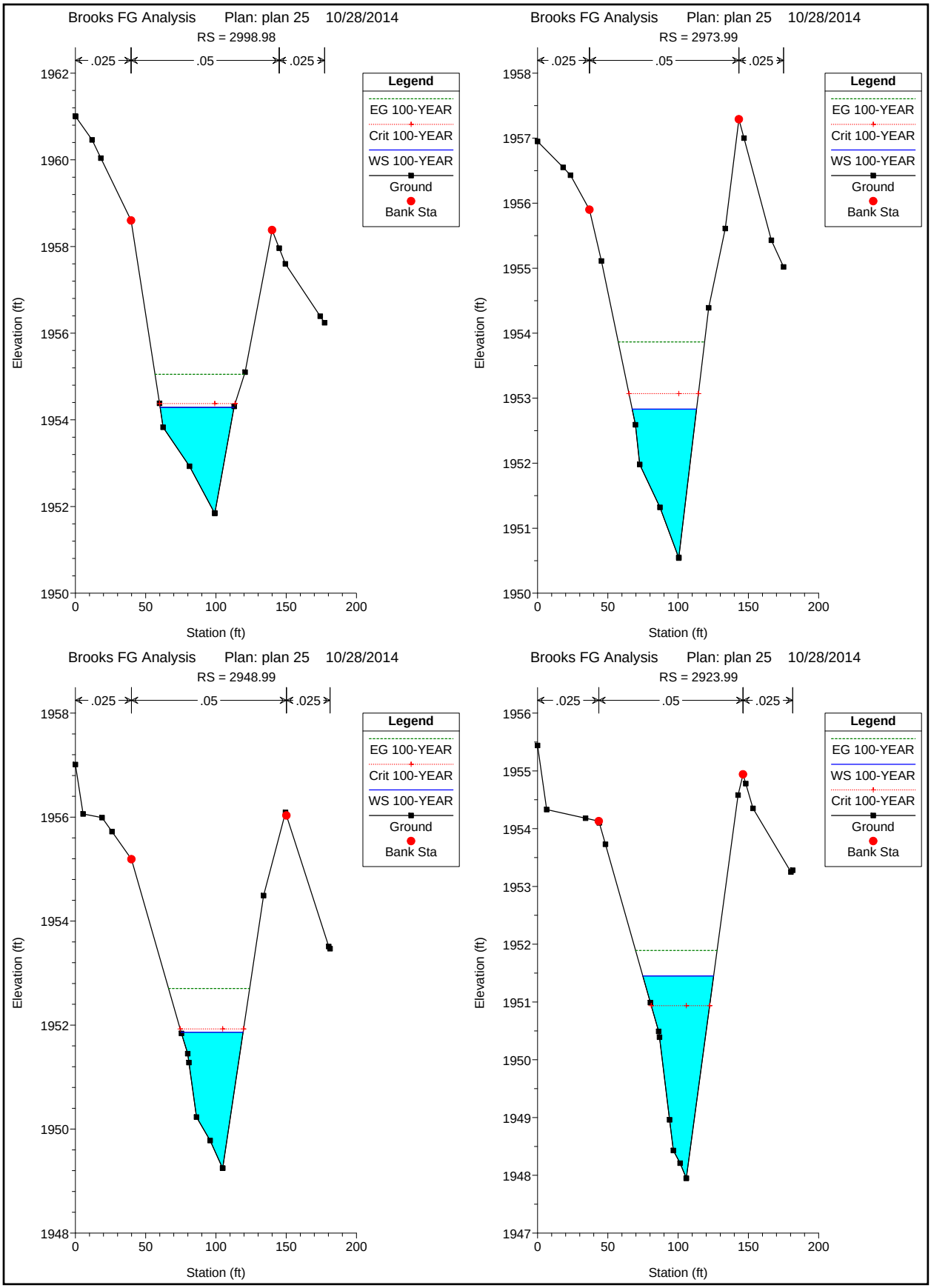
.035
.025
Legend
EG 100-YEAR
Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3073.97
.025
.035
.025
Legend
EG 100-YEAR
Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3048.96 Begin heavy vegetation
.025
.05
.025
Legend
EG 100-YEAR
Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 3023.98
.025
.05
.025
Legend
EG 100-YEAR
Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)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WS 100-YEAR
Ground
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Station (ft)
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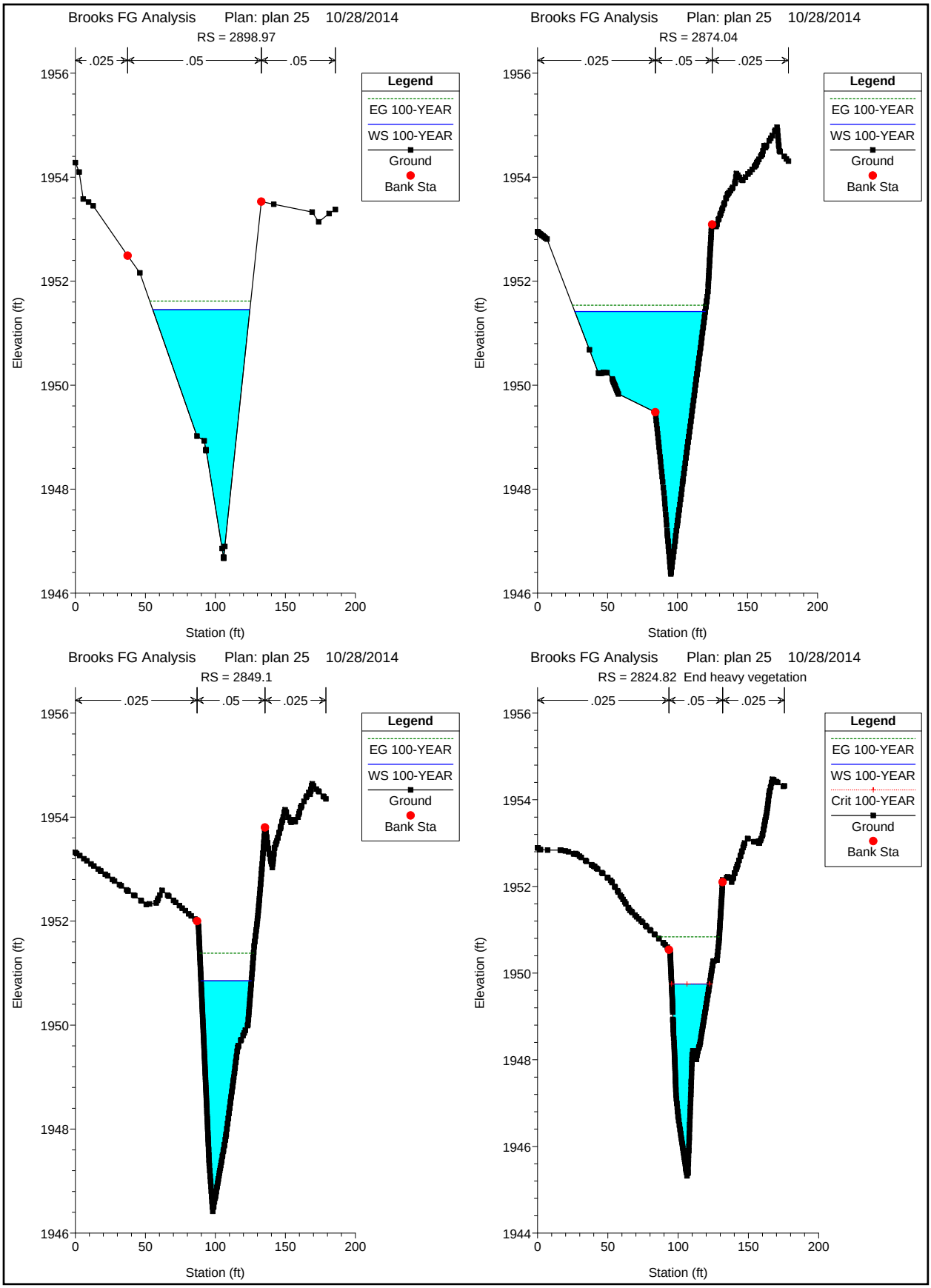
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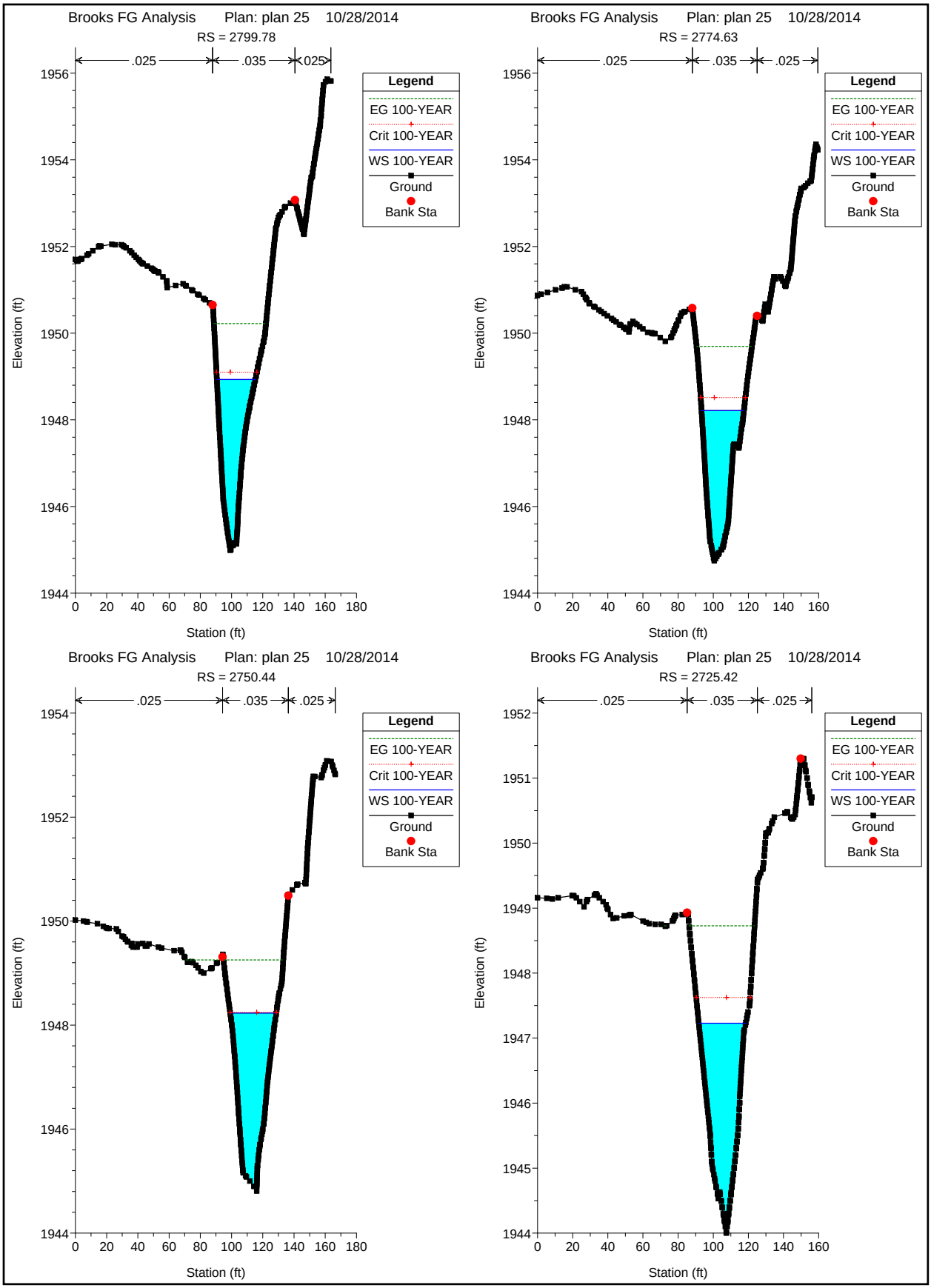
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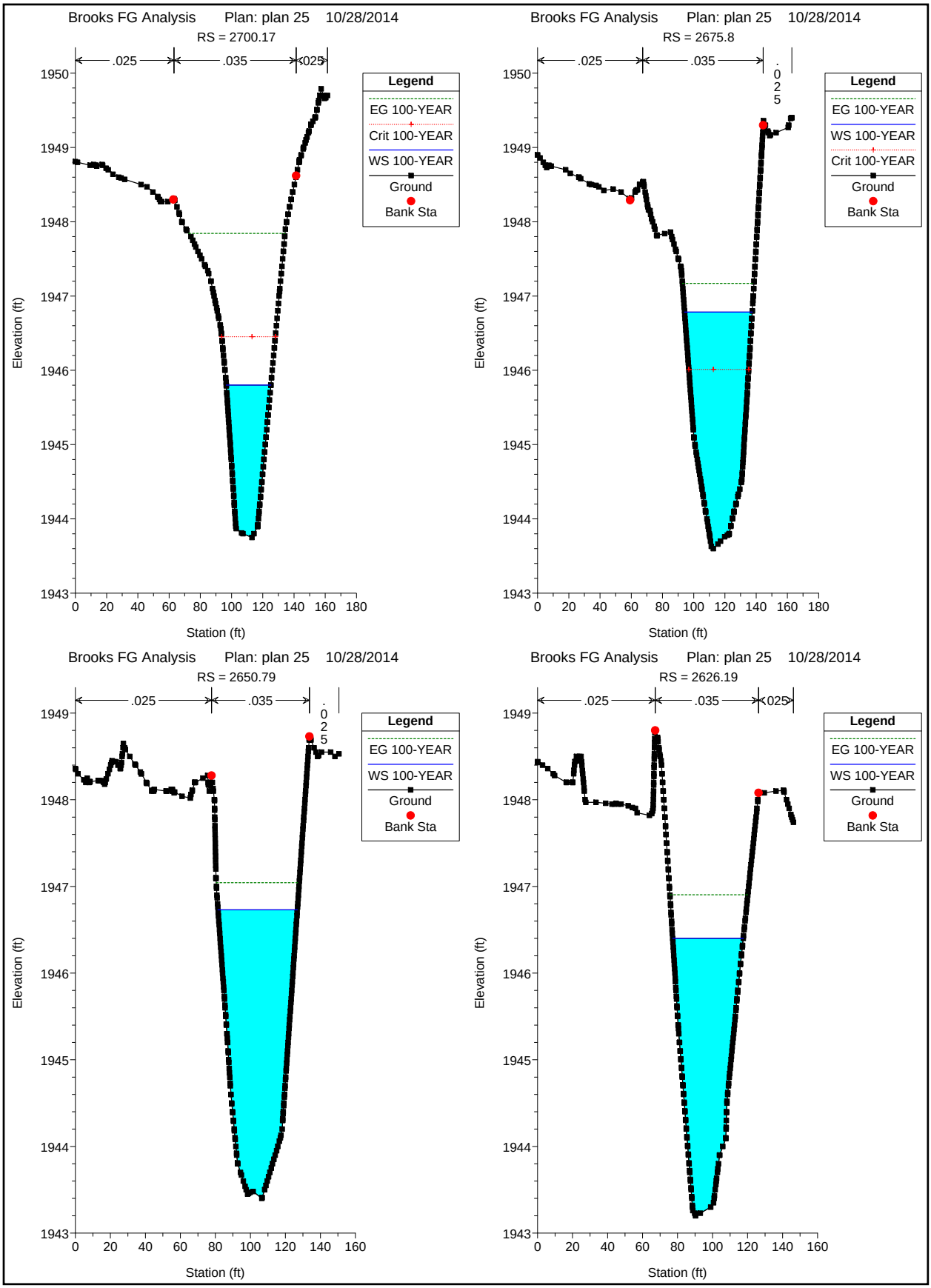
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WS 100-YEAR
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Crit 100-YEAR
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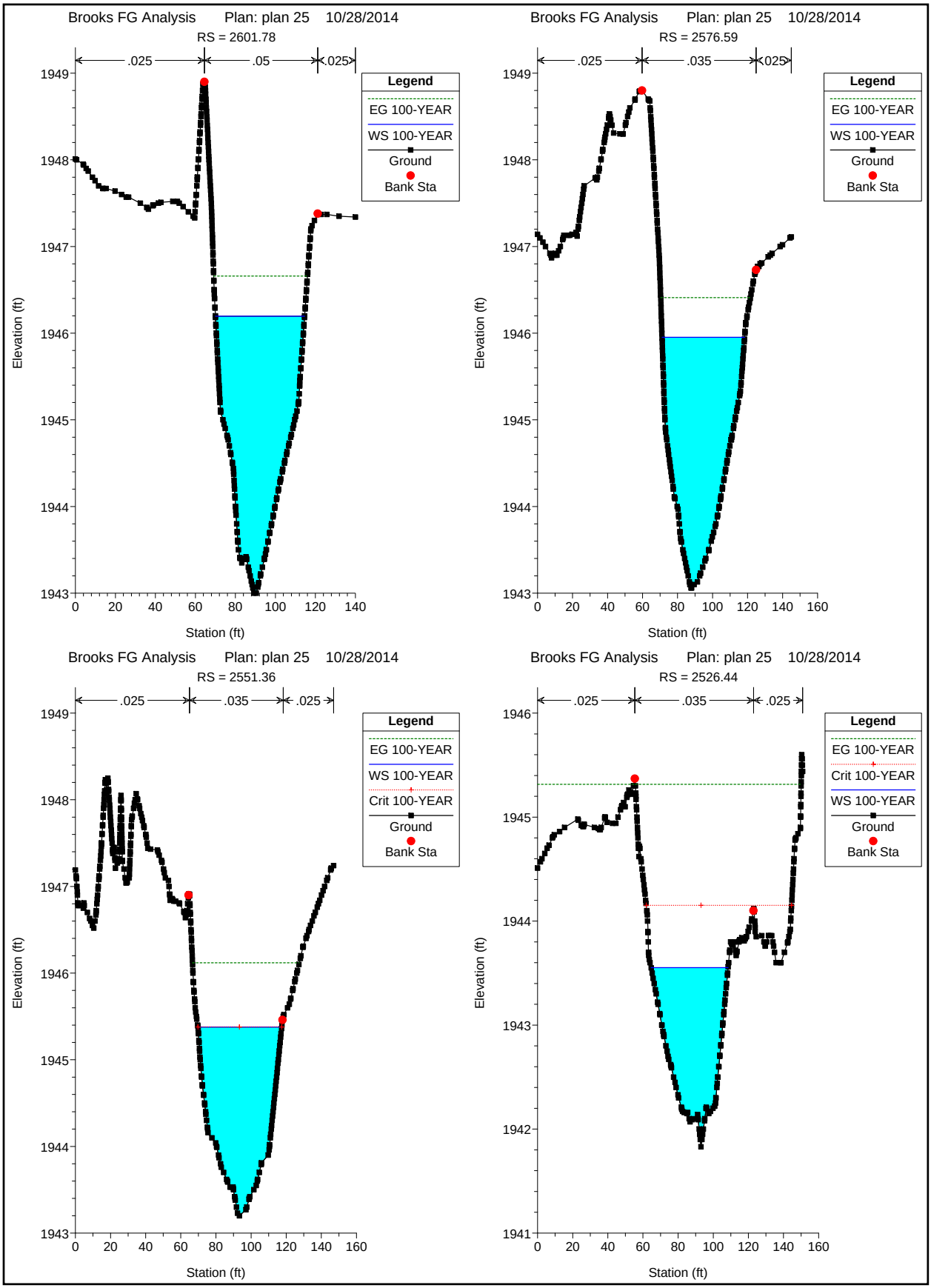
Station (ft)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WS 100-YEAR
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Crit 100-YEAR
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Crit 100-YEAR
WS 100-YEAR
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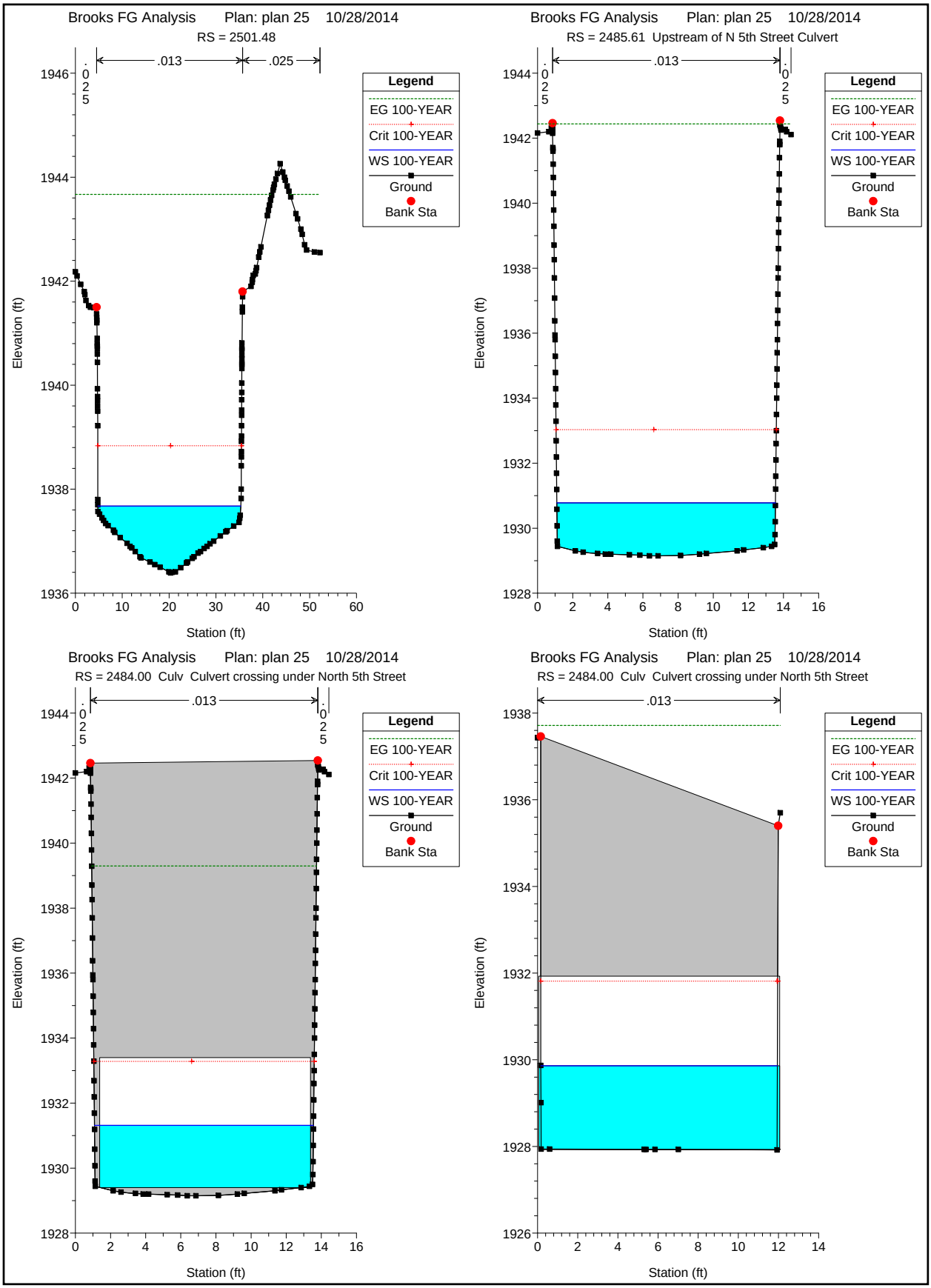
Bank Sta
Elevation (ft)
Station (ft)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WS 100-YEAR
Ground
Bank Sta
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Station (ft)
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RS = 2484.00 Culv Culvert crossing under North 5th Street
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Legend
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Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
RS = 2484.00 Culv Culvert crossing under North 5th Street
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Legend
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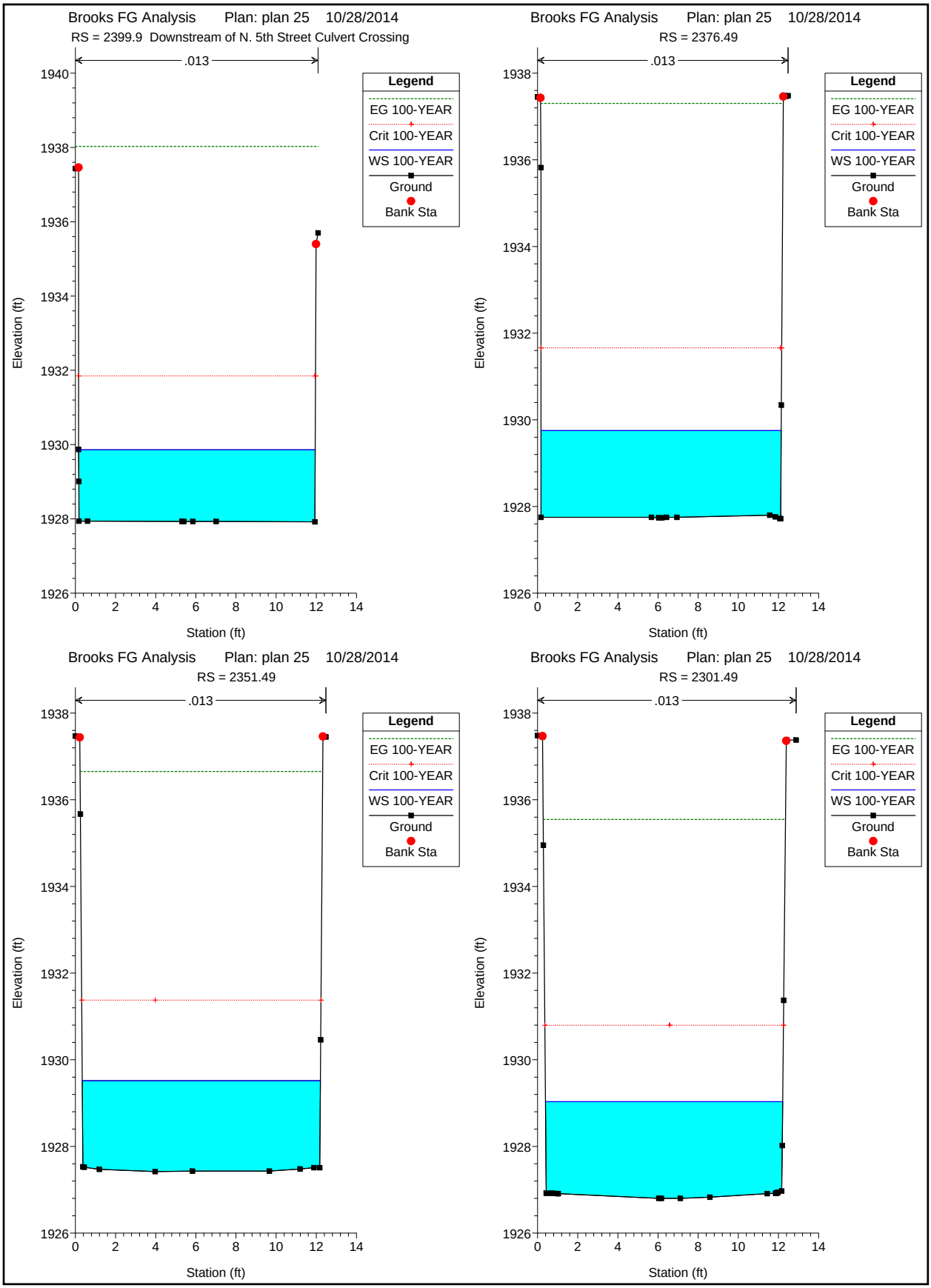
Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)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WS 100-YEAR
Ground
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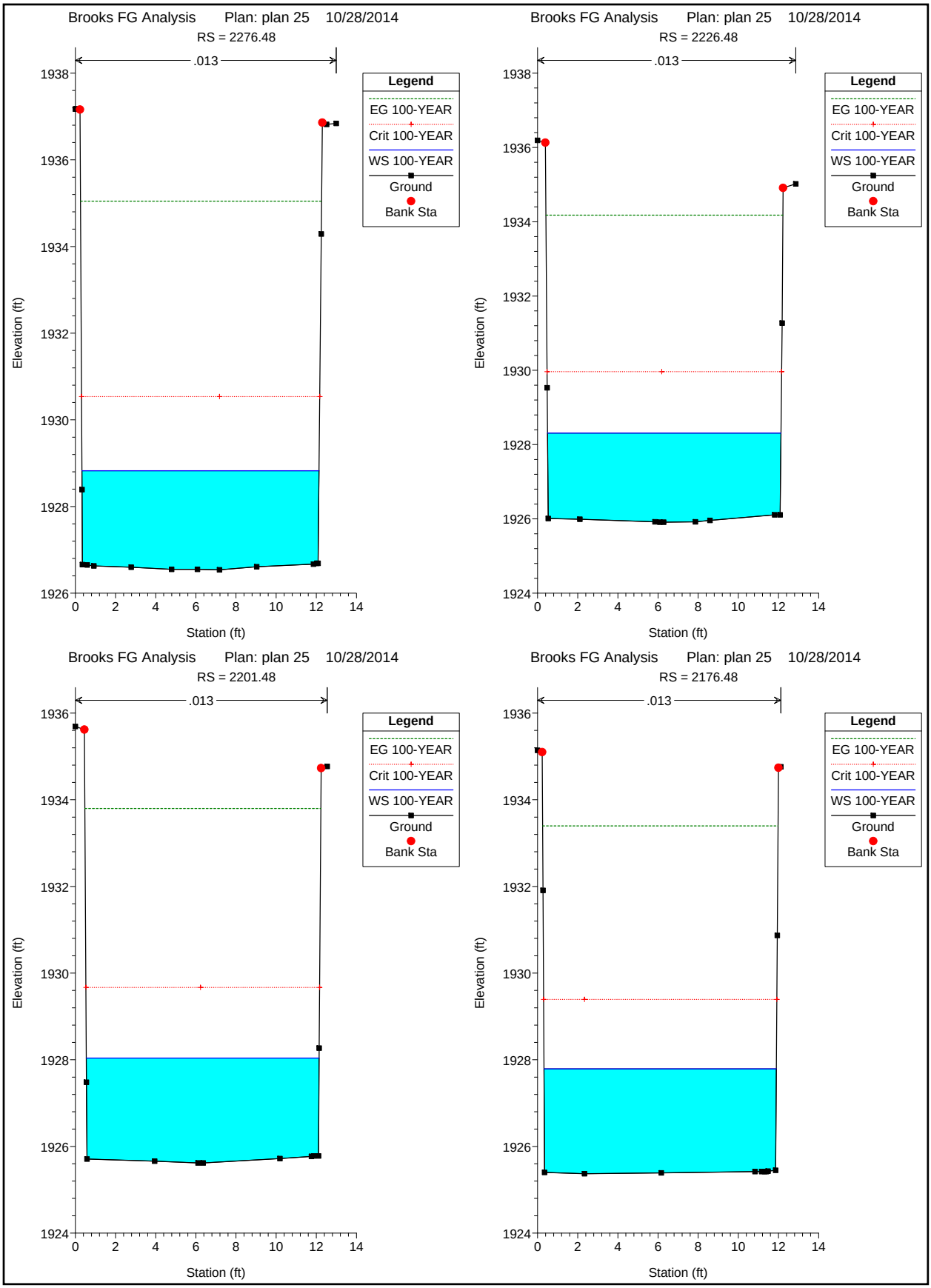
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)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WS 100-YEAR
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Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
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Bank Sta
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Station (ft)
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Bank Sta
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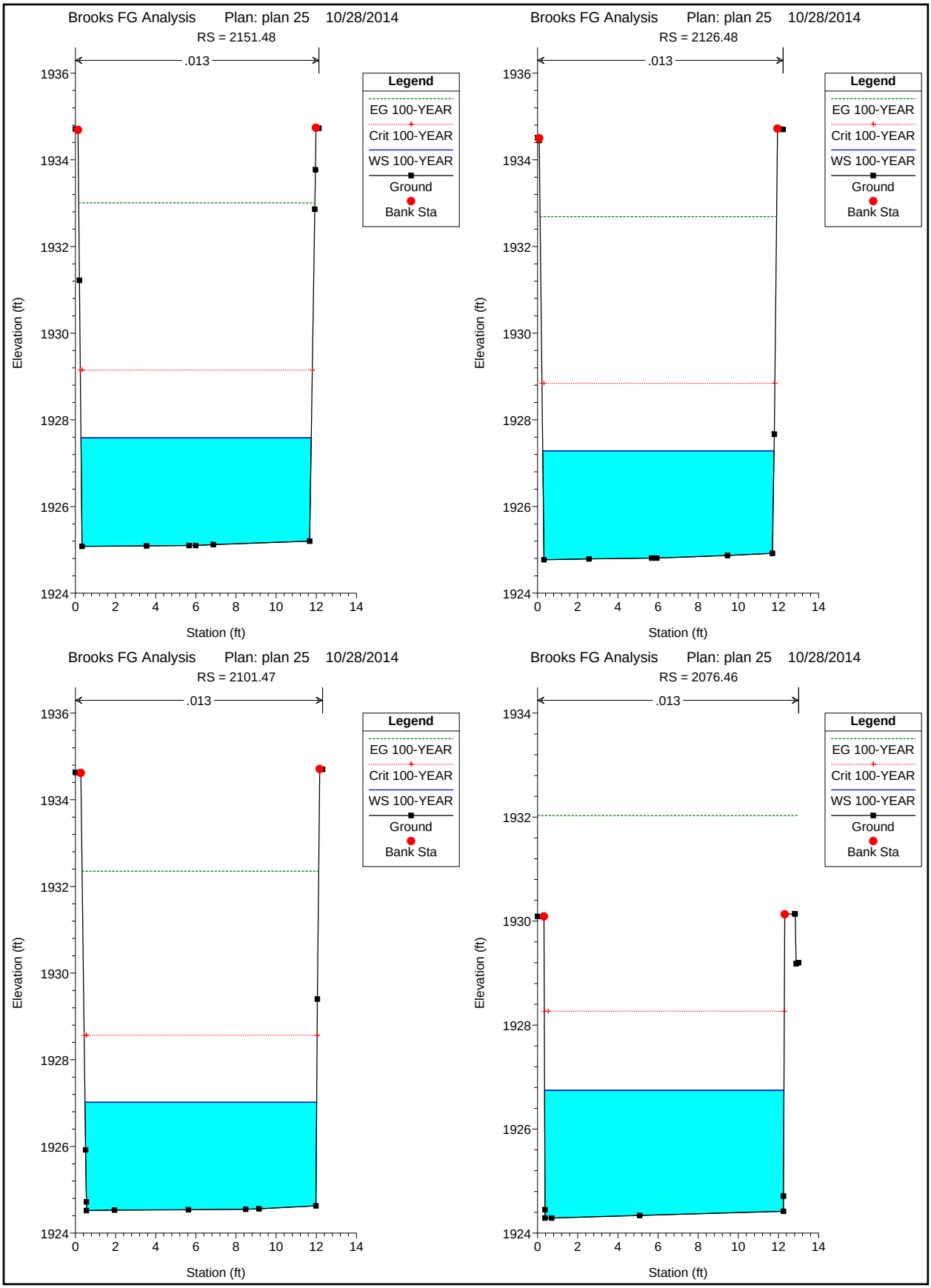
Station (ft)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Legend
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WS 100-YEAR
Ground
Bank Sta
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Station (ft)
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RS = 2101.47
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Legend
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WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
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Bank Sta
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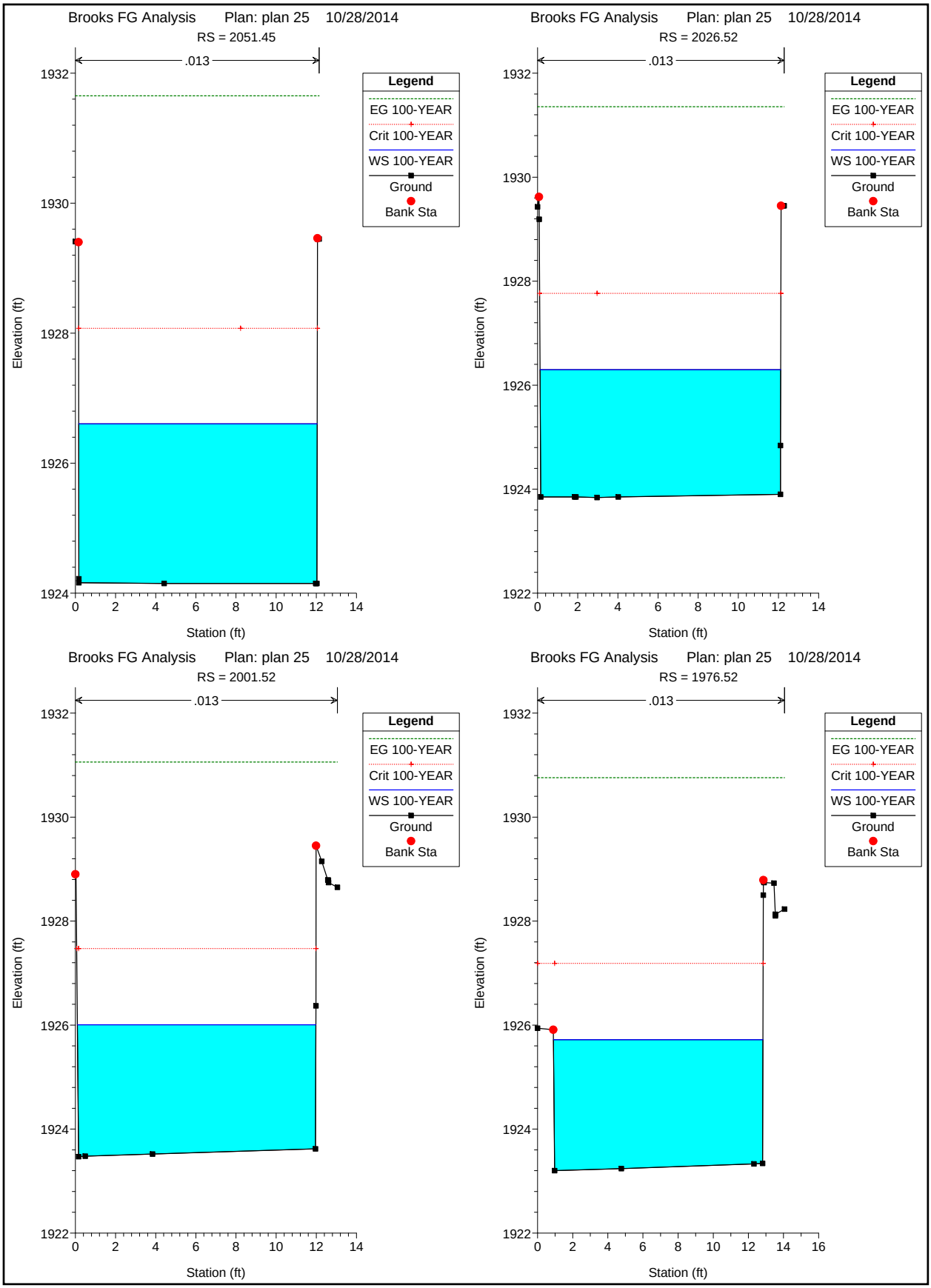
Station (ft)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Bank Sta
Elevation (ft)
Station (ft)
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Bank Sta
Elevation (ft)
Station (ft)
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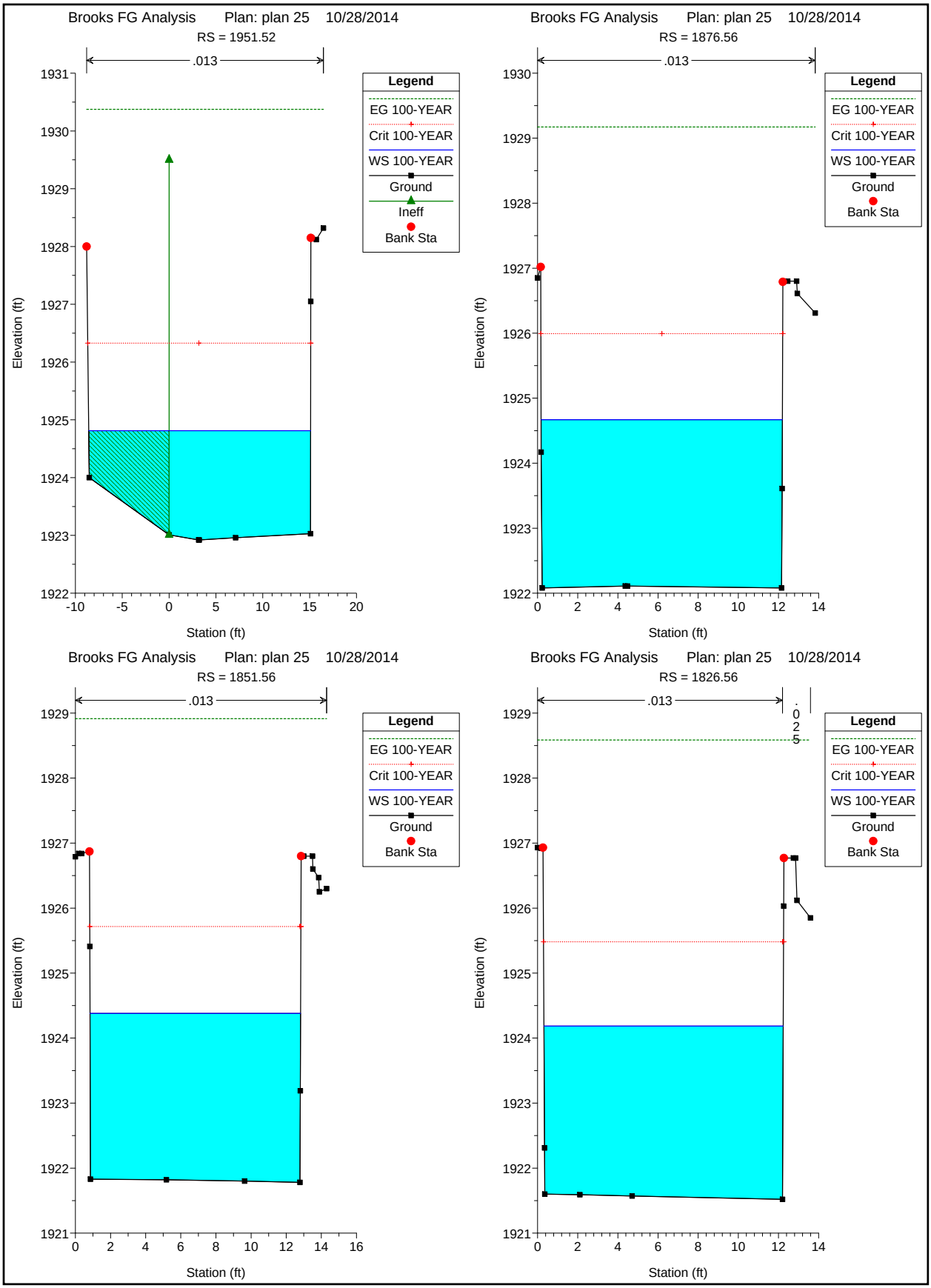
Station (ft)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Bank Sta
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Legend
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WS 100-YEAR
Ground
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Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
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WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: plan 25 10/28/2014
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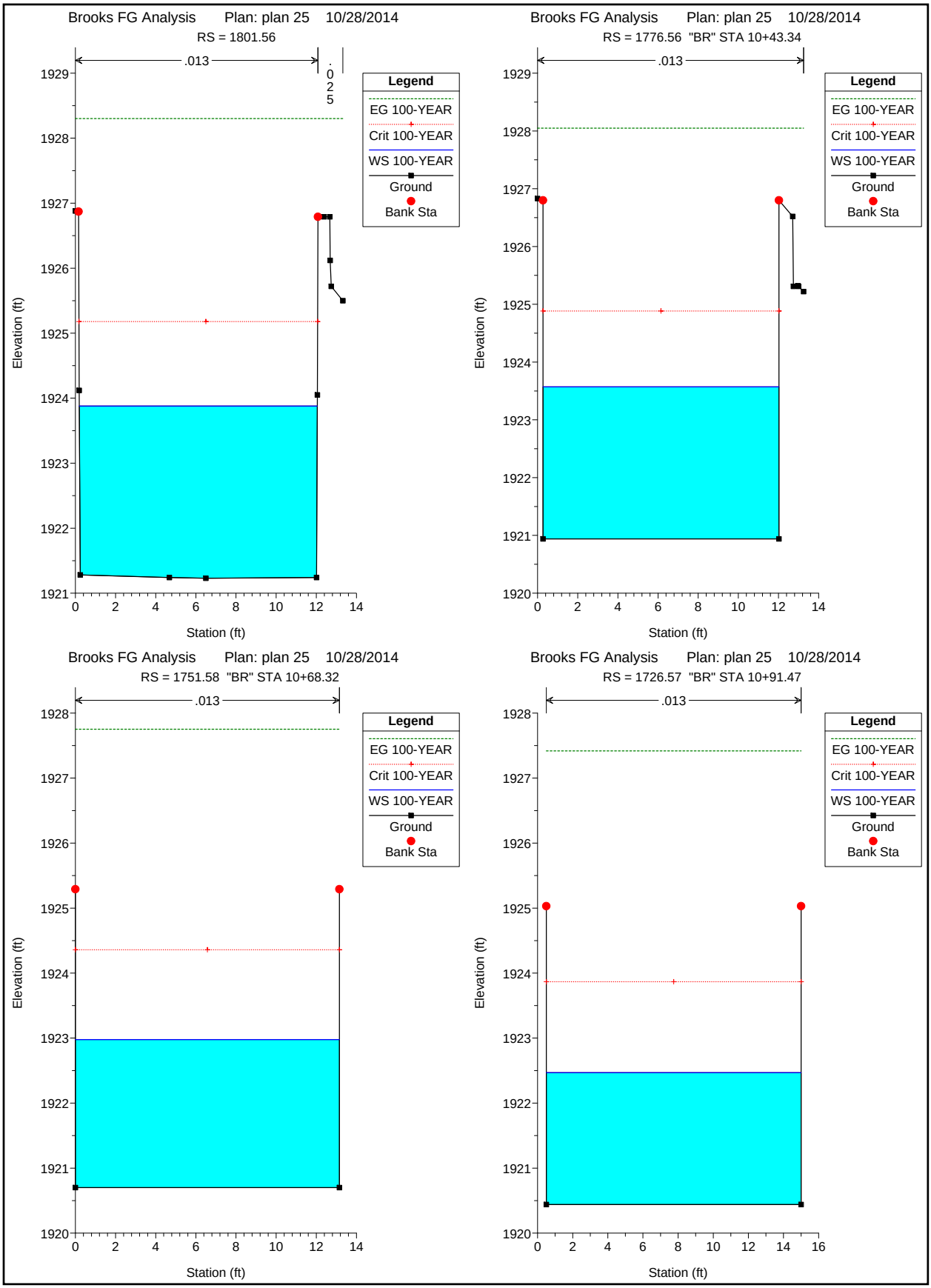
Station (ft)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WS 100-YEAR
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Bank Sta
Elevation (ft)
Station (ft)
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RS = 1776.56 "BR" STA 10+43.34
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Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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Crit 100-YEAR
WS 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 1726.57 "BR" STA 10+91.47
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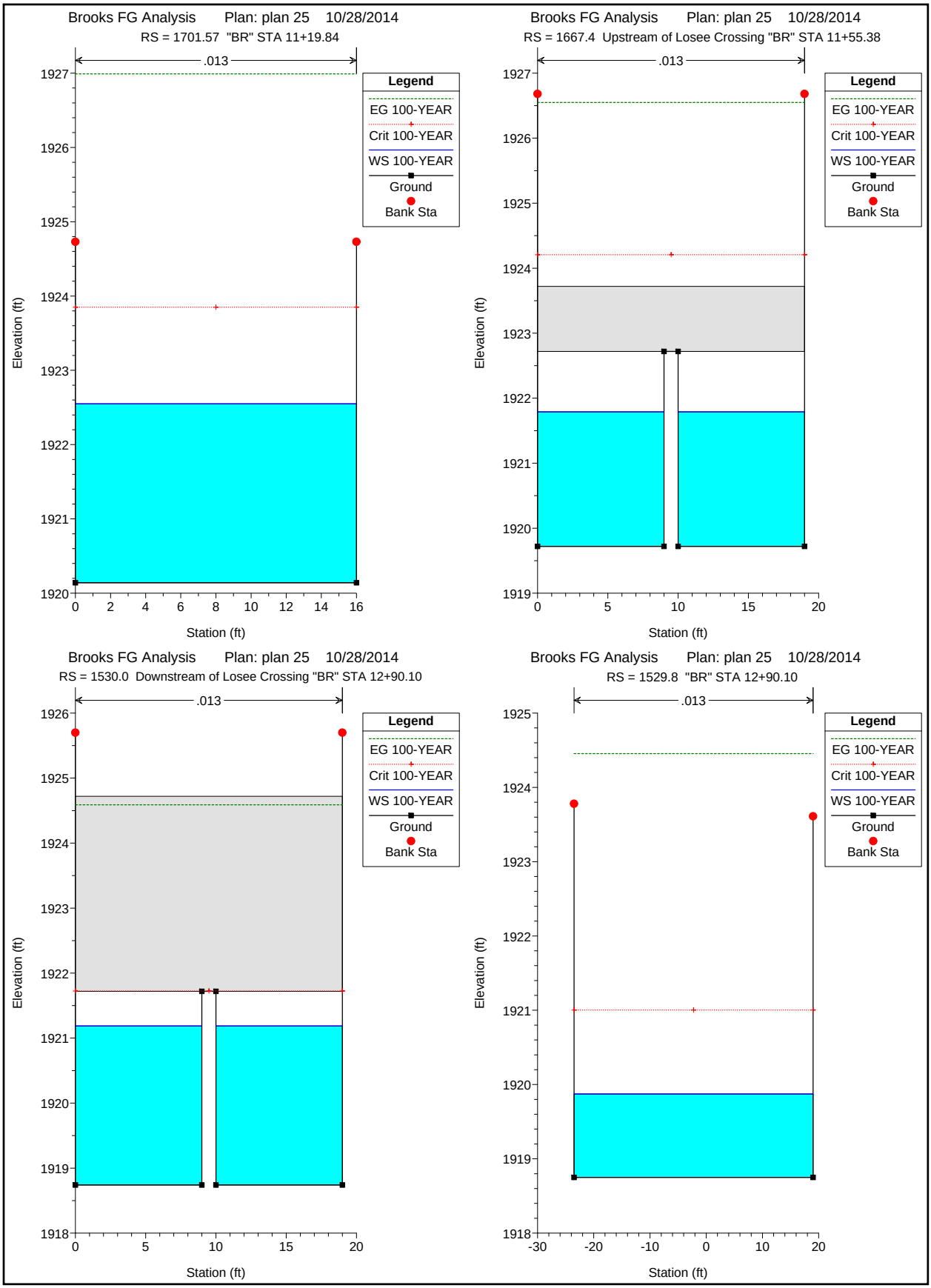
Bank Sta
Elevation (ft)
Station (ft)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Bank Sta
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RS = 1667.4 Upstream of Losee Crossing "BR" STA 11+55.38
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Station (ft)
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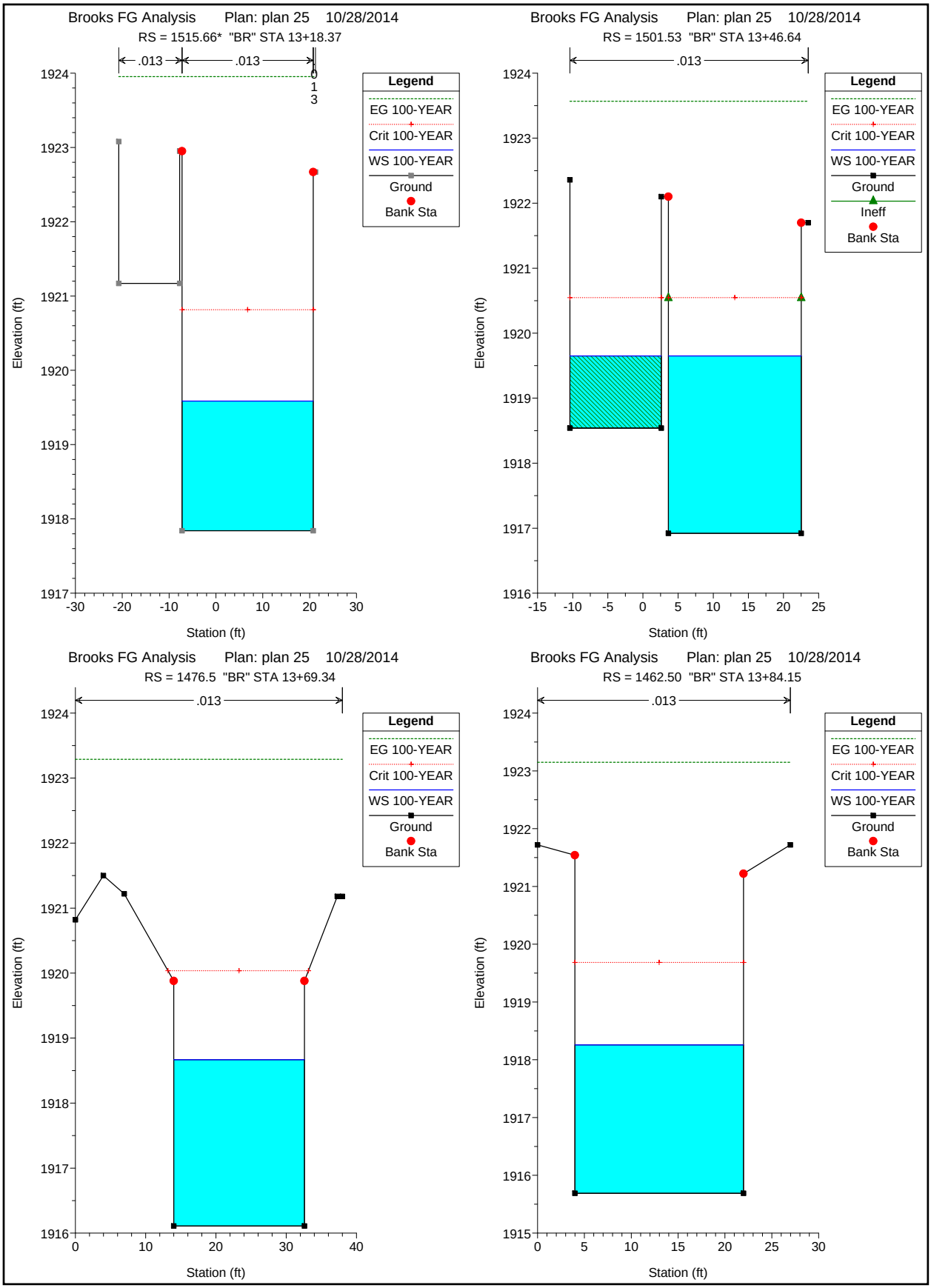
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Station (ft)
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Ineff
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Elevation (ft)
Station (ft)
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RS = 1476.5 "BR" STA 13+69.34
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Elevation (ft)
Station (ft)
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RS = 1462.50 "BR" STA 13+84.15
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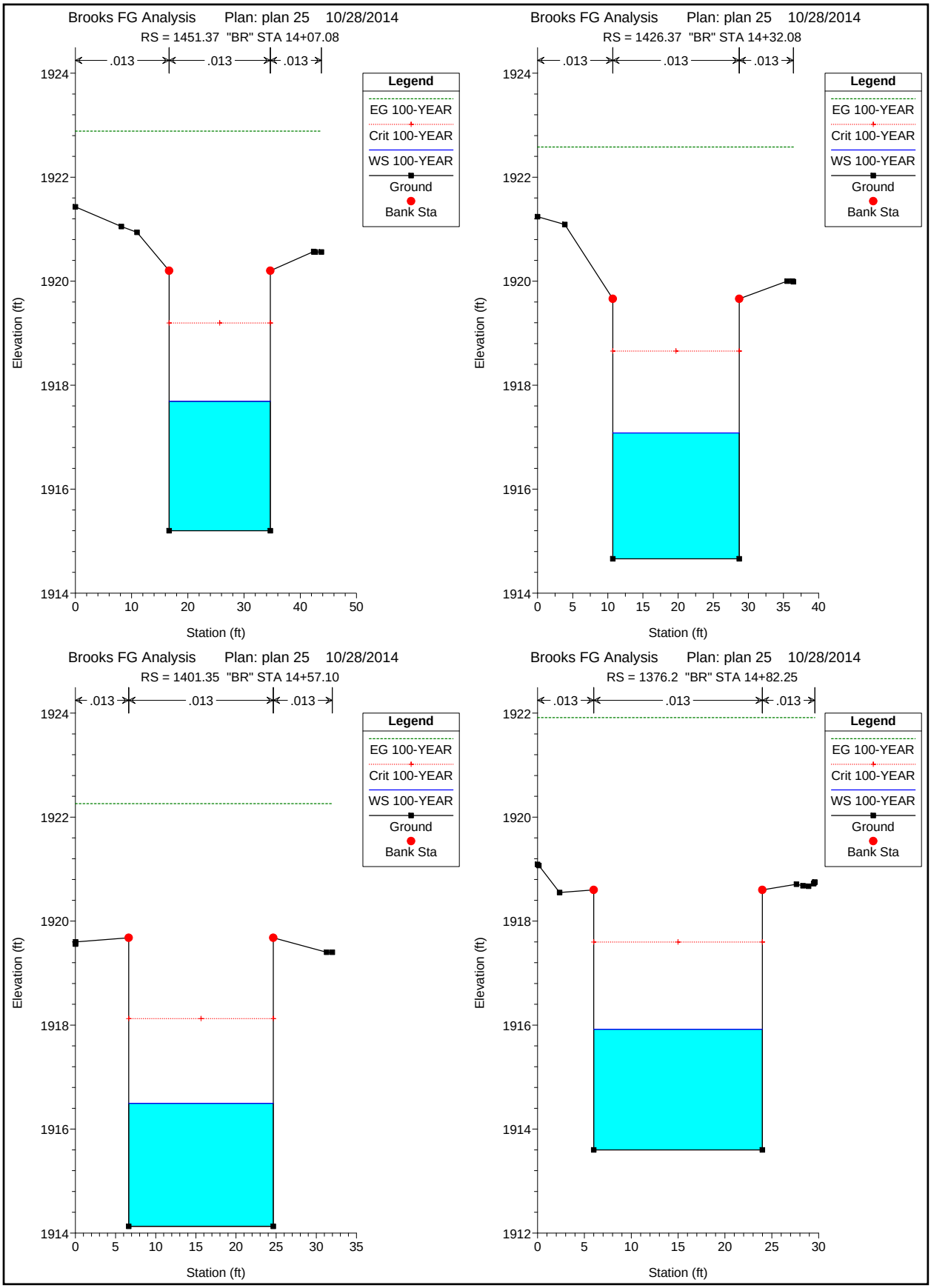
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Station (ft)
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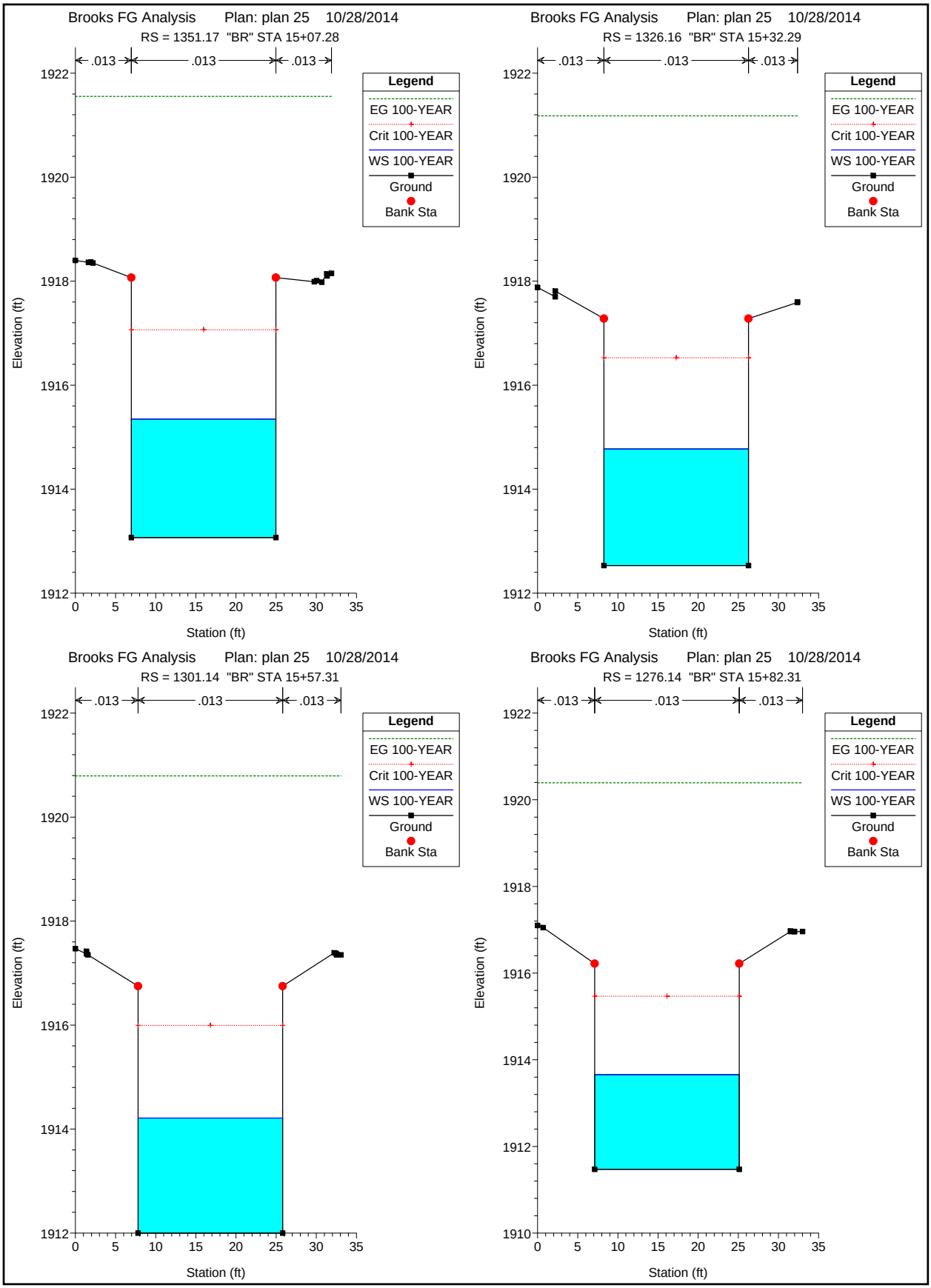
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Station (ft)
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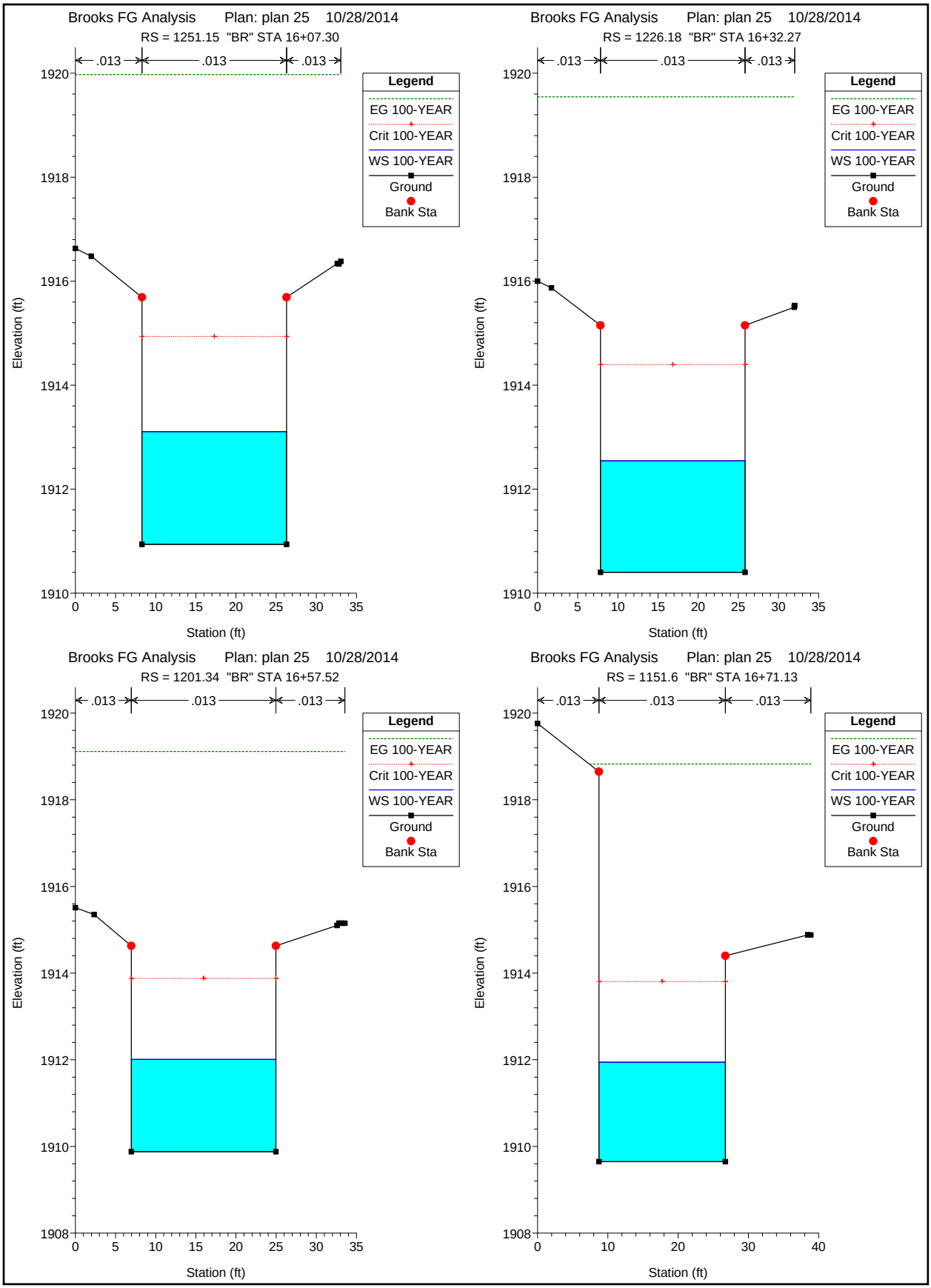
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Station (ft)
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Brooks FG Analysis Plan: plan 25 10/28/2014
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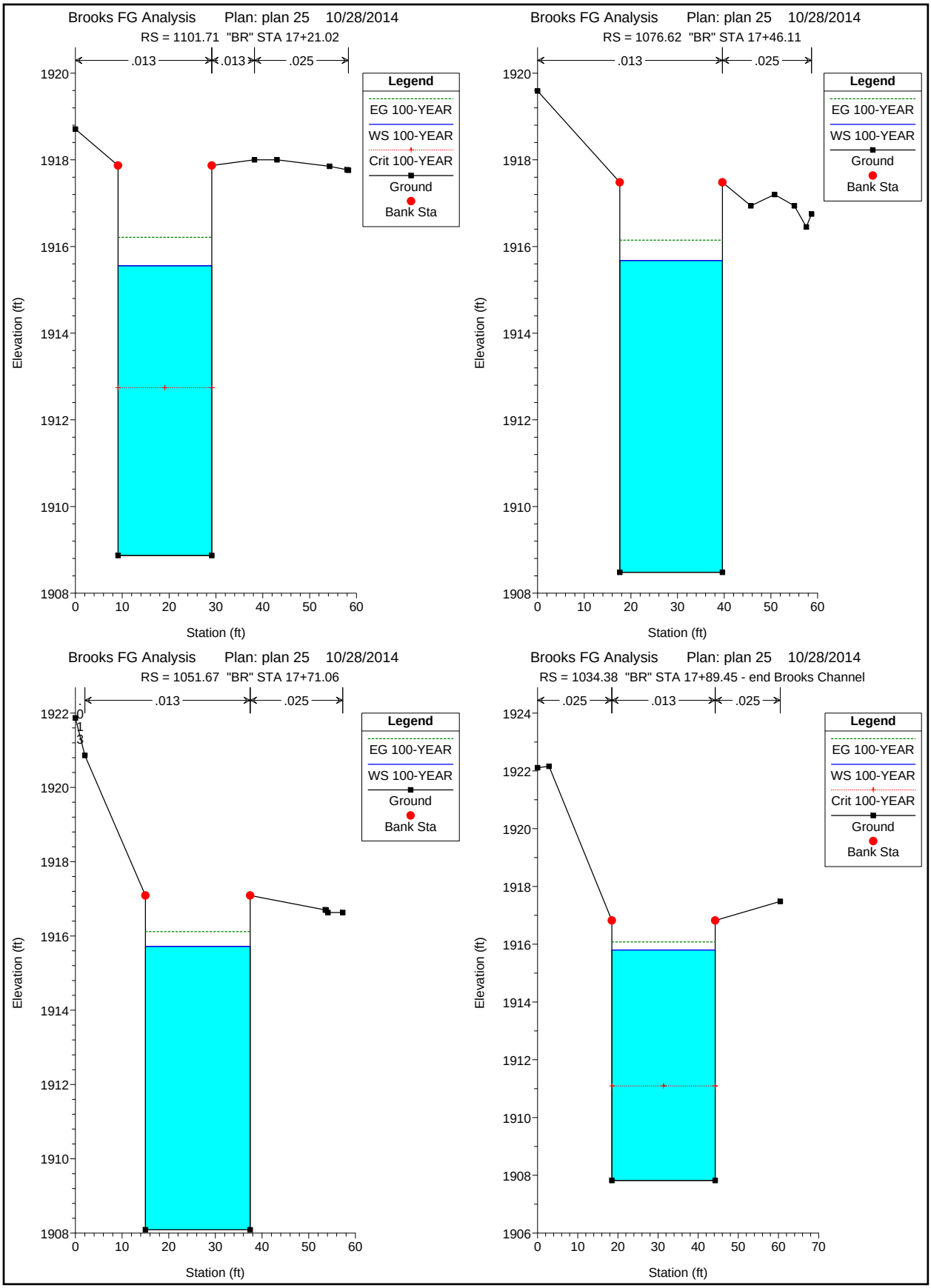
RS = 1151.6 "BR" STA 16+71.13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Station (ft)
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Bank Sta
Elevation (ft)
Station (ft)
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RS = 1034.38 "BR" STA 17+89.45 - end Brooks Channel
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Crit 100-YEAR
Ground
Bank Sta
Elevation (ft)
Station (ft)

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

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PROJECT DATA
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Project File : BrooksFGAnalysis.prj
Run Date and Time: 10/28/2014 3:17:41 PM

Project in English units

PLAN DATA

Plan Title: plan 25
Plan File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.p25

Geometry Title: FG TOPO W-19X3 AT LOSEE-RECT OPT 18ft-S1
Geometry File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.g18

Flow Title : Flow2-ultimate
Flow File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.f03

Plan Summary Information:
Number of: Cross Sections = 86 Multiple Openings = 0
Culverts = 1 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

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

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

FLOW DATA

Flow Title: Flow2-ultimate
Flow File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.f03

Flow Data (cfs)

River	Reach	RS	100-YEAR
FL-ALIGN	FL-ALIGN	3398.92	480
FL-ALIGN	FL-ALIGN	2998.98	480
FL-ALIGN	FL-ALIGN	2485.61	521
FL-ALIGN	FL-ALIGN	2399.9	525
FL-ALIGN	FL-ALIGN	1701.57	652
FL-ALIGN	FL-ALIGN	1529.8	820
FL-ALIGN	FL-ALIGN	1151.6	869

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
FL-ALIGN	FL-ALIGN	100-YEAR	Normal S = 0.0285714	Known WS = 1915.8

GEOMETRY DATA

Geometry Title: FG TOPO W-19X3 AT LOSEE-RECT OPT 18ft-S1
Geometry File : w:\North Las Vegas - City of\10500960 Brooks Flood Control Channel\06 Studies and Reports\6.5 Report Calculations\Hydraulics\Final Design Calcs\BRKS-HEC-RAS\BRKS-HEC-RAS\BrooksFGAnalysis.g18

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3398.92

INPUT
Description: Mayflower
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1976.04.6800003	1976.04	1.09	1976.042.230003		1975.863.100002		1975.72	
26.74	1975.69	27.83	1975.69	49.65	1975.7	51.53	1975.7	53.7	1975.88
56.57	1976.17	56.74	1976.18						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.0133.100002	.016	51.53	.013	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
.6800003 56.74 25.01 25 25.02 .1 .3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3373.92

INPUT
Description: Mayflower
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1975.32	1.27	1975.33	1.740002	1975.33	2.529999	1975.31	2.689999	1975.21
3.110001	1974.9	3.48	1974.93	4.509998	1975.01	10.74	1975.05	27.86	1975.04
47.98	1975.04	51	1975.01	51.71	1975.1	52.7	1975.07	53.18	1975.37
54.27	1975.38	57.5	1975.42						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.013	4.509998	.016	47.98	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1.27	53.18	25.03	25	25.05	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3348.92

INPUT
Description: Mayflower
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1974.62	1.98	1974.63	2.16	1974.62	5	1974.57	5.22	1974.43
5.53	1974.05	6.06	1974.09	6.97	1974.27	28.63	1974.41	29	1974.41
30	1974.41	30.27	1974.42	32.04	1974.41	53.28	1974.25	53.51	1974.25
54.94	1973.95	54.95	1973.95	55.58	1974.56	58.55	1974.56	58.61	1974.56
60	1974.61								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.013	6.97	.016	53.28	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2.16	55.58	25.18	25	26.53	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3323.92

INPUT
Description: Mayflower
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1973.77	.08	1973.77	.21	1973.77	1.68	1973.75	3.92	1973.77
4.23	1973.64	4.61	1973.66	4.65	1973.39	5.04	1973.34	6.05	1973.43
11.79	1973.48	30.82	1973.59	31.35	1973.59	36.15	1973.66	52.56	1973.52
57.03	1973.44	57.97	1973.34	58.71	1973.38	59.23	1973.34	59.52	1973.49
62.73	1973.86	69.49	1974.63	70.03	1974.71	71.96	1974.72	75.67	1974.77

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.013	6.05	.016	57.03	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.08	62.73	27.48	25	31.71	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3298.92

INPUT
Description: Mayflower
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1972.9	3.69	1972.9	4.23	1972.6	4.45	1972.47	4.86	1972.51
5.98	1972.6	7.81	1972.65	8.17	1972.65	29.58	1972.72	45.97	1972.83
48.21	1972.85	50	1972.86	50.77	1972.86	54.36	1972.92	56.32	1972.96
63.24	1973.11	73.93	1973	96.04	1972.6	96.17	1972.62	96.28	1972.93
97.84	1973.06	97.93	1972.71	98.41	1973	100.74	1973.25	101.35	1973.25
102.05	1973.24	104.25	1973.31	113.55	1974.52	114.95	1974.69	117.89	1974.94
118.33	1974.91	118.89	1974.91	121.38	1974.97	121.87	1975.03	121.96	1975.02

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	7.81	.016	96.04	.013	102.05	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
3.69	101.35	28.27	25.32	26.5	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3273.6

INPUT
Description: Mayflower
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1973.22	.6	1973.25	.63	1973.14	3.6	1972.89	6.93	1973.05
8.18	1972.71	8.92	1972.68	10.75	1972.66	13.09	1972.64	20.05	1972.31
20.45	1972.31	20.8	1972.27	24.44	1972.05	25.07	1972.05	25.17	1972.05
28.27	1972.1	78.62	1972.11	79.94	1972.11	80.69	1972.11	80.95	1972.11
81.04	1972.12	132.93	1972.02	133.93	1971.96	134.46	1971.94	138.17	1972.07
138.51	1972.08	139.43	1972.19	140.93	1972.16	145.61	1972.56	160.51	1973.8
162.19	1974	162.74	1973.96						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.025	20.8	.013	28.27	.016	132.93	.013	139.43	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
6.93	162.19	26	24.68	24.56	.1	.3

CROSS SECTION

```
RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3248.92

INPUT
Description: Mayflower
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1972.67    8.33 1972.46   11.62  1972.3   12.89 1972.23   19.64 1971.84
    20.2 1971.84   20.64 1971.79   24.08 1971.62   24.75 1971.63   28.19 1971.69
   30.58 1971.69   51.74 1971.63   60.02 1971.67   71.31 1971.62   75.05 1971.63
   86.38 1971.67    86.4 1971.73  108.46 1971.62  123.04 1971.65  123.63 1971.63
  124.58 1971.58  128.02 1971.68  129.24 1971.82  131.45 1971.79  134.32 1972.09
  146.48  1973.4  156.98  1974.6  157.29 1974.58

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    20.2    .013   28.19    .016  123.04    .013  131.45    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          8.33  156.98            25.13      25   30.09             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3223.92

INPUT
Description: Mayflower
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1972.89    2.64 1972.88    4.98 1972.95   10.16 1973.08   12.81 1973.15
   31.99 1973.41    36.1  1972.3    36.7 1972.67    36.9 1972.97   45.08 1971.63
   45.22  1971.6   45.45 1971.54    45.8 1971.61   47.03 1971.58    47.6 1971.57
   48.33 1971.08   48.58 1970.95   50.18 1971.11   50.69 1971.18   50.79 1971.19
   53.03 1971.18   55.74 1971.16   57.61 1971.15   66.19 1971.11   69.97 1971.12
   73.49 1971.11   74.86 1971.08   76.21 1971.05   79.38 1971.09   81.57 1971.08
   83.76  1971.1   86.76 1971.14   89.06 1971.15   97.88 1971.15   99.96 1971.15
   100.6 1971.12  102.25 1971.36  102.86 1971.37  103.33 1971.39  103.65 1971.52
   105.8 1971.58  107.13 1971.59  108.67 1971.67  111.91 1972.06  117.59 1972.71
  125.27 1973.58  125.78 1973.21   125.9 1973.11  127.02 1973.19  127.28 1973.21
  132.07 1973.38  153.91 1975.19

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    45.8    .013   50.69    .016   99.96    .013  103.65    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         31.99  125.27            14.07    13.7   14.32             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3210.22

INPUT
Description: Begin Overflow
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1973.31   13.09 1973.24   13.44 1973.24   13.87 1973.24   14.66 1973.25
   46.96 1973.66   50.19 1973.71   50.26 1973.78   58.98 1973.84   67.54 1973.09
   68.72 1972.76   69.12 1973.11   73.29 1973.09    79.8 1971.92   82.62 1971.99
   84.08 1972.04   87.65 1971.97   92.06  1972.9   93.25 1972.93   97.84 1973.01
  102.24  1973.1  105.43 1973.18  106.03 1973.26  122.03 1973.82  126.66 1974.27
  129.48 1974.59  132.16 1974.89  133.82 1975.08  133.86 1975.05  134.44 1974.54
  134.54 1974.55  135.74 1974.63   158.3 1975.44  161.05 1975.66

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   58.98    .035  122.03    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         58.98  133.82            11.65    11.3   11.82             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3198.92

INPUT
Description:
Station Elevation Data    num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1973.638.100006 1973.5915.04001 1973.48   16.77 1973.46   27.28 1973.46
   49.92 1973.76   59.33 1973.89   59.55 1974.11   72.15 1974.19    72.7 1974.62
   72.83 1974.39   75.57 1974.41   81.28 1973.59   85.77 1972.75   86.82 1972.55
   88.33 1972.92   97.51  1974.8  105.11 1974.31  107.86 1974.27  108.07 1974.23
  109.94 1973.02  115.03 1973.34  135.02 1974.89  136.19 1974.92  139.25 1975.01
  159.54 1975.74  166.95 1976.02  167.79 1975.56  168.97 1975.49

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    72.7    .035  135.02    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          72.7  136.19            25.32      25   25.98             .1       .3
Left Levee      Station=    72.7      Elevation= 1974.62

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3173.92

INPUT
Description:
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1974.32   18.53 1974.04   18.78 1974.03   23.09 1973.96   55.89 1973.97
    56.9 1973.97   78.31 1974.27   78.35  1974.3    78.81974.741   78.83 1974.77
   79.12 1974.84   81.36 1974.57   84.72 1974.33   91.84 1972.15   92.88 1971.82
   93.69 1971.56   93.93 1971.61   94.36 1971.63  105.51 1974.16  105.77 1974.16
  115.22 1974.04  116.21 1973.84  117.23 1973.17  143.08 1974.79  144.14  1974.8
   148.6 1974.85   168.7 1975.79     175 1976.03  175.03 1976.01  178.17 1975.82
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Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   79.12    .035  144.14    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          78.8  144.14             25.43      25   25.55             .1       .3
Left Levee      Station=   79.12      Elevation= 1974.84

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3148.92

INPUT
Description:
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1974.8       1  1974.8   11.31 1974.63   19.98 1974.63   20.37 1974.63
   74.31 1974.41   80.46  1974.5   80.91 1974.83   81.07 1974.98   84.32 1975.76
85.50999 1975.61   92.57 1972.39   95.39 1971.4996.03999 1971.62  102.06 1972.88
  113.67 1973.42   115.4 1973.81  116.97 1973.83  118.45 1973.81  120.21 1973.45
   120.4 1973.33  125.04 1973.62  140.82 1973.78  173.95 1974.12  175.59  1974.2
  195.09  1974.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   84.32    .035  116.97    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         84.32  116.97             55.38   49.97   47.04             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3098.95

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1972.599.200012 1972.0524.82001    197226.23001    197246.29001 1971.56
71.74001  1971.1   88.52 1970.6891.68001 1969.2896.85001 1967.2498.57001 1966.82
  102.82 1965.79   102.9 1965.77  105.28 1966.55  112.02 1967.63  114.36 1968.72
  141.22 1970.75   146.9 1971.45  149.45 1971.77   151.4 1971.74  178.18 1971.45
  182.49 1971.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   88.52    .035  149.45    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         88.52  149.45             20.29   24.98   28.02             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3073.97

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1969.874.190002 1969.73   18.92 1969.6243.78999 1969.44   71.29 1968.95
   78.58 1968.73    82.8  1966.8   91.51 1962.61   94.99 1961.52   97.89  1960.8
   98.59 1960.62  102.94 1962.53  107.22  1963.9   113.1 1966.58  116.65 1967.72
  127.92 1970.03  145.05 1972.17  145.14 1972.18  153.13 1972.04  156.84    1972
  169.54 1971.17  176.89 1970.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   78.58    .035  127.92    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.58  145.05               25   25.01   25.07             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3048.96

INPUT
Description: Begin heavy vegetation
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1967.762.729996 1968.13   16.75 1967.3828.71001 1966.73   35.86  1966.4
   49.83 1964.24   74.92 1961.29    86.3 1958.32   91.55 1957.14   96.16 1955.97
   96.77 1956.15  103.04 1958.04  106.99  1959.2     115 1960.65  118.41 1961.73
  127.38 1963.57  140.65 1965.28  143.06 1965.37  163.14 1966.16  172.93 1965.32
  174.47 1965.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   35.86     .05  140.65    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.86  143.06             28.34   24.98   23.09             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3023.98

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1963.99   15.92 1963.02   19.13 1962.82   37.04 1961.83   60.94 1956.52
   69.89 1954.62   73.99 1954.44   96.24 1953.14    96.3 1953.15  102.18 1954.21
  105.46 1954.55  121.15 1957.28  128.42 1959.27  141.65 1959.16  152.84 1959.06
  171.55 1958.22  176.84 1957.84

Manning's n Values        num=       3
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     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   37.04     .05  128.42    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         37.04  128.42             21.46      25   27.03             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2998.98

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1961.01     .14    1961   11.93 1960.46   18.09 1960.04   39.61  1958.6
   59.87 1954.38    62.4 1953.83   81.23 1952.93   99.17 1951.84    99.2 1951.85
  112.96 1954.31  120.74  1955.1  139.95 1958.38  145.06 1957.96  149.42  1957.6
  174.19 1956.39  177.33 1956.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   39.61     .05  145.06    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.61  139.95             28.33   24.99   23.13             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2973.99

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1956.9518.21001 1956.55   23.47 1956.43   36.89  1955.945.45001 1955.11
   69.63 1952.59    72.7 1951.9887.14001 1951.32  100.48 1950.54  100.48 1950.55
  121.76 1954.39  133.54 1955.61  143.25 1957.29  146.88    1957  166.34 1955.43
  175.07 1955.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   36.89     .05  143.25    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         36.89  143.25              23.9      25   25.86             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2948.99

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1957.015.490005 1956.0619.01001 1955.99   26.09 1955.72   39.85 1955.19
   75.44 1951.84   79.95 1951.4580.81001 1951.28   86.18 1950.23   95.88 1949.78
  104.76 1949.25  104.78 1949.25   133.9 1954.49  149.52 1956.09  150.21 1956.03
  180.31 1953.51  181.19 1953.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   39.85     .05  150.21    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.85  150.21             26.22      25   25.08             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2923.99

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1955.44    6.48 1954.33   34.13 1954.18   43.59 1954.1343.71999 1954.12
   43.95  1954.1   48.28 1953.7380.23999 1950.9986.14999 1950.4986.74999 1950.39
93.93999 1948.9696.59999 1948.43  101.42 1948.21  105.79 1947.95  105.84 1947.95
  142.63 1954.58   146.2 1954.94  148.14 1954.78  153.26 1954.35  180.31 1953.25
  181.54 1953.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   43.59     .05   146.2    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         43.59   146.2             15.83   25.02   30.98             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2898.97

INPUT
Description:
Station Elevation Data    num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1954.28     2.7  1954.1    5.61 1953.58    9.42 1953.52   12.66 1953.45
   37.32 1952.49   46.03 1952.16   86.81 1949.02   92.01 1948.93   93.25 1948.74
   93.29 1948.7593.32001 1948.75   93.36 1948.76  104.78 1946.86  105.88 1946.68
  105.89 1946.68   105.9 1946.68  105.91 1946.68  105.92 1946.69  105.93 1946.69
  105.94 1946.69  105.96 1946.67  106.77  1946.9  132.79 1953.53  141.66 1953.48
  169.11 1953.33  173.73 1953.14   181.2  1953.3  185.66 1953.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   37.32     .05  132.79     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         37.32  132.79             17.15   24.93   30.48             .1       .3
```

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2874.04

INPUT
Description:
Station Elevation Data num= 274

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1952.95.1199951	1952.95.6300049	1952.941.179993	1952.921.779999	1952.91				
2.429993	1952.93.139999	1952.883.910004	1952.874.759995	1952.855.699997	1952.83				
6.740005	1952.81	37.08	1950.6843.53999	1950.2344.24001	1950.2345.03999	1950.23			
45.94	1950.23	46.98	1950.24	48.17	1950.24	49.56	1950.24	53.31	1950.12
53.65	1950.1	54	1950.07	54.38	1950.05	54.78	1950.02	55.2	1950
55.64	1949.97	56.11	1949.93	56.61	1949.9	57.14	1949.87	57.71	1949.83
84.12	1949.48	84.43	1949.4	84.75	1949.32	85.07	1949.24	85.39	1949.16
85.73	1949.07	86.06	1948.99	86.41	1948.9	86.76	1948.81	87.11	1948.72
87.48	1948.62	87.84	1948.53	88.22	1948.43	88.6	1948.34	88.99	1948.24
89.39	1948.14	89.79	1948.03	90.2	1947.93	90.61	1947.82	90.92	1947.72
91.24	1947.62	91.56	1947.51	91.88	1947.41	92.2	1947.31	92.52	1947.2
92.71	1947.14	92.84	1947.1	92.85	1947.1	93.16	1947	93.17	1947
93.48	1946.9	93.49	1946.9	93.79	1946.81	93.81	1946.8	94.11	1946.71
94.13	1946.7	94.43	1946.61	94.46	1946.6	94.75	1946.51	94.78	1946.5
95.08	1946.41	95.1	1946.4	95.2	1946.37	95.36	1946.4	95.38	1946.4
95.84	1946.5	95.87	1946.51	96.32	1946.6	96.78	1946.69	96.81	1946.7
97.26	1946.8	97.29	1946.8	97.75	1946.9	97.77	1946.9	98.23	1947
98.25	1947	98.71	1947.1	98.73	1947.1	99.2	1947.2	99.21	1947.2
99.68	1947.3	99.7	1947.3	99.95	1947.35	100.16	1947.4	100.18	1947.4
100.65	1947.5	100.66	1947.5	101.13	1947.6	101.14	1947.6	101.62	1947.7
102.1	1947.8	102.11	1947.8	102.58	1947.9	102.59	1947.9	103.07	1948
103.55	1948.1	103.8	1948.15	104.04	1948.2	104.53	1948.3	104.54	1948.3
105.02	1948.4	105.03	1948.4	105.51	1948.5	105.53	1948.5	106	1948.6
106.03	1948.61	106.49	1948.7	106.52	1948.71	106.98	1948.8	107.01	1948.81
107.47	1948.9	107.51	1948.91	107.96	1949	108	1949.01	108.45	1949.1
108.49	1949.11	108.94	1949.2	108.99	1949.21	109.42	1949.3	109.48	1949.31
109.91	1949.4	109.97	1949.41	110.4	1949.5	110.47	1949.51	110.89	1949.6
110.96	1949.61	111.38	1949.7	111.45	1949.71	111.87	1949.8	111.94	1949.81
112.36	1949.9	112.43	1949.91	112.85	1950	112.93	1950.01	113.34	1950.1
113.42	1950.12	113.83	1950.2	113.91	1950.22	114.32	1950.3	114.4	1950.32
114.81	1950.4	114.89	1950.42	115.3	1950.5	115.38	1950.52	115.79	1950.6
115.87	1950.62	116.28	1950.7	116.36	1950.72	116.77	1950.8	116.86	1950.82
117.26	1950.9	117.35	1950.92	117.75	1951	117.84	1951.02	118.24	1951.1
118.33	1951.12	118.73	1951.2	118.82	1951.22	119.22	1951.3	119.31	1951.32
119.71	1951.4	119.8	1951.42	120.2	1951.5	120.29	1951.52	120.69	1951.6
120.78	1951.62	121.18	1951.7	121.65	1951.8	121.66	1951.8	121.87	1951.9
121.96	1951.94	122.08	1952	122.21	1952.06	122.3	1952.1	122.44	1952.17
122.51	1952.2	122.67	1952.27	122.72	1952.3	122.89	1952.38	122.93	1952.4
122.97	1952.42	123.14	1952.5	123.19	1952.52	123.35	1952.6	123.41	1952.63
123.57	1952.7	123.63	1952.73	123.78	1952.8	123.87	1952.84	123.99	1952.9
124.12	1952.96	124.2	1953	124.4	1953.09	124.79	1953.09	127.52	1953.05
128.06	1953.09	128.18	1953.1	129.19	1953.18	129.5	1953.2	130.37	1953.27
130.82	1953.3	131.61	1953.36	132.14	1953.4	133.07	1953.47	133.46	1953.5
134.59	1953.59	134.78	1953.6	135.55	1953.66	136.09	1953.68	136.72	1953.7
137.76	1953.74	138.93	1953.78	139.43	1953.8	140.96	1953.88	141.09	1953.9
141.14	1953.91	141.64	1954	142.03	1954.07	142.95	1954.04	144.07	1954
145.49	1953.95	146.39	1953.94	146.51	1953.94	148.45	1954	150.29	1954.06
151.72	1954.1	153.24	1954.15	154.99	1954.2	155.62	1954.22	155.94	1954.23
156.12	1954.24	156.57	1954.28	157.05	1954.3	158.1	1954.34	159.48	1954.4
160.12	1954.43	160.54	1954.44	160.99	1954.5	161.73	1954.59	161.8	1954.6
162.11	1954.6	162.61	1954.6	162.85	1954.57	163.31	1954.6	163.47	1954.61
165.5	1954.7	166.59	1954.75	167.68	1954.8	169.41	1954.88	169.87	1954.9
171.09	1954.96	171.29	1954.9	171.31	1954.89	171.63	1954.8	171.7	1954.78
171.98	1954.7	172.26	1954.62	172.33	1954.6	172.64	1954.51	173	1954.5
173.25	1954.49	176.24	1954.4	177.75	1954.35	179.14	1954.31		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	84.12	.05	124.79	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
84.12	124.79	39.68	24.94	17.95	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2849.1

INPUT
Description:
Station Elevation Data num= 370

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1953.32.9499969	1953.33.139999	1953.266.040009	1953.28.220001	1953.16				
11.13	1953.1	13.17	1953.06	16.23	1953	17.95	1952.9718.10001	1952.96	
21.32001	1952.923.01001	1952.87	26.41	1952.827.90001	1952.77	31.5	1952.7		
32.76001	1952.68	36.59	1952.637.40001	1952.58	37.59	1952.5841.68001	1952.5		
42.37	1952.49	46.77	1952.447.10001	1952.3950.65001	1952.3252.99001	1952.33			
57.73	1952.35	58.64	1952.4	59.13	1952.43	60.34	1952.5	61.94	1952.59
65.89	1952.5	66.72	1952.4870.10001	1952.4	71.58	1952.36	74.3	1952.3	
76.29	1952.25	78.51	1952.2	80.9	1952.14	82.71	1952.1	85.44	1952.04
86.92	1952	87.68	1951.93	87.97	1951.9	88.02	1951.87	88.14	1951.8
88.19	1951.7788.31001	1951.7	88.36	1951.67	88.47	1951.6	88.53	1951.57	
88.64	1951.5	88.69	1951.4788.81001	1951.4	88.86	1951.37	88.98	1951.3	
89.03	1951.27	89.14	1951.2	89.2	1951.1789.31001	1951.1	89.36	1951.07	
89.48	1951	89.53	1950.97	89.64	1950.9	89.7	1950.8789.81001	1950.8	
89.87	1950.77	89.98	1950.7	90.04	1950.67	90.15	1950.6	90.2	1950.57
90.31001	1950.5	90.37	1950.46	90.48	1950.4	90.54	1950.36	90.65	1950.3
90.71	1950.26	90.82	1950.2	90.88	1950.16	90.98	1950.1	91.04	1950.06
91.15	1950	91.21	1949.96	91.32	1949.9	91.38	1949.86	91.48	1949.8
91.55	1949.76	91.65	1949.7	91.72	1949.66	91.82	1949.6	91.89	1949.56
91.99001	1949.5	92.05	1949.46	92.15	1949.4	92.22	1949.36	92.32	1949.3
92.39	1949.2692.49001	1949.292.56001	1949.16	92.65	1949.1	92.73	1949.06		
92.82	1949	92.9	1948.9592.99001	1948.9	93.07	1948.85	93.16	1948.8	
93.24001	1948.75	93.32	1948.7	93.41	1948.6593.49001	1948.6	93.58	1948.55	
93.66	1948.5	93.75	1948.45	93.83	1948.493.92001	1948.3493.99001	1948.3		
94.09	1948.24	94.16	1948.2	94.26	1948.14	94.33	1948.1	94.43	1948.04
94.49001	1948	94.61	1947.93	94.66	1947.9	94.78	1947.83	94.83	1947.8
94.95	1947.73	95	1947.7	95.13	1947.62	95.16	1947.695.31001	1947.51	
95.33	1947.595.49001	1947.41	95.5	1947.4	95.59	1947.34	95.71	1947.3	
95.98	1947.295.99001	1947.2	96.26	1947.1	96.27	1947.09	96.53	1947	
96.55	1946.9996.81001	1946.9	97.05	1946.81	97.08	1946.8	97.32	1946.71	
97.35001	1946.7	97.58	1946.62	97.63	1946.6	97.88	1946.51	97.9	1946.5
98.12	1946.42	98.65	1946.5	98.75	1946.51	99.3	1946.6	99.78	1946.67
99.95	1946.7	100.1	1946.72	100.41	1946.77	100.6	1946.8	101.04	1946.87
101.26	1946.9	101.67	1946.96	101.91	1947	102.18	1947.04	102.56	1947.1
102.87	1947.15	103.21	1947.2	103.55	1947.25	103.86	1947.3	104.24	1947.36

104.51	1947.4	104.94	1947.47	105.16	1947.5	105.64	1947.57	105.82	1947.6
106.35	1947.68	106.47	1947.7	107.07	1947.79	107.12	1947.8	107.5	1947.86
107.7	1947.9	107.71	1947.9	108.2	1948	108.23	1948.01	108.69	1948.1
108.75	1948.11	109.19	1948.2	109.26	1948.21	109.68	1948.3	109.77	1948.32
110.17	1948.4	110.28	1948.42	110.67	1948.5	110.79	1948.53	111.16	1948.6
111.3	1948.63	111.65	1948.7	111.81	1948.73	112.15	1948.8	112.32	1948.83
112.64	1948.9	112.82	1948.94	113.14	1949	113.47	1949.07	113.63	1949.1
113.99	1949.17	114.12	1949.2	114.51	1949.28	114.62	1949.3	115.04	1949.38
115.11	1949.4	115.57	1949.49	115.61	1949.5	115.96	1949.57	116.36	1949.6
116.42	1949.6	116.5	1949.6	118.09	1949.7	118.47	1949.72	119.75	1949.8
120.59	1949.85	121.41	1949.9	122.98	1949.99	123.07	1950	123.23	1950.01
123.5	1950.1	123.58	1950.13	123.79	1950.2	123.93	1950.25	124.09	1950.3
124.26	1950.36	124.39	1950.4	124.59	1950.47	124.68	1950.5	124.89	1950.57
124.98	1950.6	125.19	1950.67	125.28	1950.7	125.5	1950.77	125.57	1950.8
125.8	1950.88	125.87	1950.9	126.1	1950.98	126.17	1951	126.41	1951.08
126.47	1951.1	126.71	1951.18	126.76	1951.2	127.02	1951.29	127.06	1951.3
127.33	1951.39	127.36	1951.4	127.65	1951.5	127.73	1951.53	128.08	1951.6
128.13	1951.61	128.55	1951.7	128.66	1951.72	129.03	1951.8	129.19	1951.83
129.5	1951.9	129.7	1951.94	129.96	1952	130.13	1952.05	130.35	1952.1
130.54	1952.16	130.71	1952.2	130.92	1952.27	131.03	1952.3	131.13	1952.33
131.34	1952.4	131.42	1952.43	131.64	1952.5	131.72	1952.53	131.94	1952.6
132.01	1952.62	132.25	1952.7	132.3	1952.72	132.55	1952.8	132.59	1952.81
132.85	1952.9	132.87	1952.91	133.12	1952.99	133.15	1953	133.16	1953
133.44	1953.1	133.45	1953.1	133.72	1953.2	133.74	1953.21	134.01	1953.3
134.04	1953.31	134.29	1953.4	134.34	1953.42	134.58	1953.5	134.64	1953.52
134.86	1953.6	134.94	1953.63	135.15	1953.7	135.31	1953.76	135.43	1953.8
135.96	1953.75	136.22	1953.7	136.63	1953.62	136.72	1953.6	137.16	1953.51
137.22	1953.5	137.71	1953.4	137.72	1953.4	137.79	1953.39	138.48	1953.3
138.59	1953.29	139.29	1953.2	139.66	1953.15	140.1	1953.1	140.7	1953.03
140.99	1953.1	141.2	1953.15	141.38	1953.2	141.71	1953.28	141.77	1953.3
142.16	1953.4	142.2	1953.41	143.01	1953.47	143.36	1953.5	143.86	1953.54
144.63	1953.6	144.64	1953.6	145.51	1953.69	145.6	1953.7	146.4	1953.78
146.55	1953.8	146.77	1953.82	147.51	1953.9	147.92	1953.94	148.46	1954
149.21	1954.08	149.42	1954.1	149.79	1954.14	150.48	1954.1	150.63	1954.09
152.26	1954	153.41	1953.94	154.05	1953.9	154.42	1953.91	155.72	1953.95
156.88	1953.91	157.03	1953.92	159.07	1954	159.72	1954.06	160.09	1954.1
160.9	1954.18	161.3	1954.2	161.66	1954.22	163.29	1954.3	164.79	1954.38
165.27	1954.4	166.73	1954.47	167.22	1954.45	167.63	1954.44	168.09	1954.5
168.27	1954.53	168.8	1954.6	169.15	1954.64	170.09	1954.6	172.08	1954.54
173.57	1954.5	173.98	1954.49	177.05	1954.4	177.49	1954.39	178.94	1954.35

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	86.92	.05	135.43	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.92	135.43	38.99	24.28	10.13	.1 .3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2824.82

INPUT
Description: End heavy vegetation
Station Elevation Data num= 374

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1952.89	.3500061	1952.89	1.580002	1952.85	2.110001	1952.85	7.130005	1952.84
16.21001	1952.84	16.39999	1952.84	16.48	1952.84	19.71001	1952.82	22	1952.8
25.60001	1952.75	26.16	1952.75	27.23	1952.76	28.13	1952.74	29.87	1952.7
31.13	1952.67	34.12	1952.6	34.77	1952.58	38.38	1952.53	8.78999	1952.49
39.92999	1952.47	40.37	1952.46	40.67999	1952.46	41.97	1952.42	42.78	1952.4
45.73	1952.32	46.36	1952.3	49.71	1952.21	49.94	1952.2	49.95	1952.2
52.02	1952.14	52.92	1952.1	53.03	1952.09	54.9	1952	55.23	1951.98
56.88	1951.9	57.44	1951.87	58.85	1951.8	59.74	1951.76	60.83	1951.7
62.09	1951.64	62.8	1951.6	64.53	1951.51	64.78	1951.5	65.72	1951.45
66.89	1951.42	67.37	1951.4	69.34	1951.34	70.52	1951.3	71.99	1951.25
73.67	1951.2	74.76	1951.17	76.82	1951.1	77.61	1951.07	79.97	1951
80.52	1950.98	83.12	1950.9	83.48	1950.89	86.27	1950.8	86.46	1950.79
89.42	1950.7	89.47	1950.7	90.85	1950.65	92.32	1950.6	93.5	1950.54
94.3	1950.5	94.4	1950.44	94.42	1950.42	94.45	1950.4	94.54	1950.34
94.59	1950.3	94.67	1950.24	94.73	1950.2	94.81	1950.14	94.87	1950.1
94.95	1950.04	95.01	1950	95.09	1949.95	95.15	1949.9	95.22	1949.85
95.29	1949.8	95.36	1949.75	95.43	1949.7	95.5	1949.65	95.57	1949.6
95.64	1949.55	95.71	1949.5	95.78	1949.45	95.85	1949.4	95.92	1949.35
95.99	1949.3	96.06	1949.25	96.13	1949.2	96.15	1949.14	96.17	1949.1
96.31	1948.92	96.32	1948.93	96.33	1948.91	96.34	1948.9	96.4	1948.9
96.45	1948.81	96.46	1948.81	96.47	1948.8	96.59	1948.71	96.6	1948.7
96.61	1948.69	96.73	1948.6	96.74	1948.59	96.85	1948.5	96.86	1948.49
97.14	1948.4	97.19	1948.35	97.25	1948.3	97.31	1948.25	97.37	1948.2
97.42	1948.15	97.48	1948.1	97.54	1948.05	97.6	1948	97.66	1947.95
97.71	1947.9	97.78	1947.85	97.83	1947.8	97.89	1947.74	97.94	1947.7
98.01	1947.64	98.06	1947.6	98.13	1947.54	98.18	1947.5	98.26	1947.43
98.29	1947.4	98.38	1947.32	98.41	1947.3	98.52	1947.2	98.54	1947.18
98.79	1947.1	98.81	1947.09	99.1	1947	99.14	1946.99	99.41	1946.9
99.69	1946.81	99.71	1946.8	100.01	1946.7	100.02	1946.7	100.09	1946.68
100.44	1946.6	100.5	1946.59	100.9	1946.5	101.01	1946.48	101.36	1946.4
101.5	1946.37	101.82	1946.3	101.98	1946.26	102.28	1946.2	102.46	1946.16
102.74	1946.1	102.93	1946.06	103.2	1946	103.4	1945.96	103.66	1945.9
103.87	1945.85	104.12	1945.8	104.34	1945.75	104.58	1945.7	104.8	1945.65
105.04	1945.6	105.27	1945.55	105.49	1945.5	105.59	1945.48	105.75	1945.44
105.95	1945.4	106.31	1945.32	106.92	1945.38	107	1945.39	107.01	1945.4
107.12	1945.5	107.23	1945.6	107.24	1945.6	107.35	1945.7	107.46	1945.8
107.57	1945.9	107.58	1945.9	107.69	1946	107.8	1946.1	107.91	1946.2
107.92	1946.2	108.03	1946.3	108.14	1946.4	108.25	1946.5	108.26	1946.5
108.37	1946.6	108.48	1946.7	108.59	1946.8	108.71	1946.9	108.82	1947
108.93	1947.1	109.04	1947.2	109.05	1947.2	109.16	1947.3	109.27	1947.4
109.36	1947.48	109.38	1947.5	109.5	1947.6	109.61	1947.7	109.72	1947.8
109.83	1947.9	109.84	1947.91	109.94	1948	109.95	1948.01	110.05	1948.1
110.07	1948.12	110.31	1948.11	110.45	1948.2	111.17	1948.2	111.37	1948.15
111.67	1948.2	111.9	1948.17	112.43	1948.1	113.1	1948.01	113.48	1948.1
113.73	1948.16	114.04	1948.2	114.7	1948.27	114.99	1948.3	115.52	1948.35
115.74	1948.4	115.82	1948.42	116.23	1948.5	116.42	1948.54	116.73	1948.6
116.97	1948.65	117.22	1948.7	117.51	1948.76	117.72	1948.8	118.03	1948.86
118.21	1948.9	118.55	1948.97	118.71	1949	119.06	1949.07	119.2	1949.1
119.56	1949.17	119.69	1949.2	120.07	1949.28	120.19	1949.3	120.57	1949.38
120.68	1949.4	121.07	1949.48	121.18	1949.5	121.57	1949.58	121.67	1949.6
121.79	1949.62	122.16	1949.7	122.3	1949.73	122.66	1949.8	122.82	1949.83
123.15	1949.9	123.35	1949.94	123.65	1950	123.91	1950.05	124.14	1950.1
124.5	1950.17	124.63	1950.2	124.98	1950.27	125.53	1950.28	127.54	1950.3
127.58	1950.3	127.6	1950.3	127.93	1950.4	127.98	1950.41	128.27	1950.5
128.56	1950.59	128.6	1950.6	128.92	1950.69	128.94	1950.7	129.1	1950.75
129.2	1950.8	129.23	1950.82	129.39	1950.9	129.46	1950.94	129.58	1951
129.67	1951.05	129.77	1951.1	129.88	1951.16	129.96	1951.2	130.08	1951.26
130.15	1951.3	130.28	1951.37	130.34	1951.4	130.4	1951.43	130.53	1951.5
130.6	1951.54	130.72	1951.6	130.8	1951.64	130.91	1951.7	131	1951.75
131.1	1951.8	131.2	1951.85	131.29	1951.9	131.42	1951.97	131.48	1952

131.64	1952.09	131.67	1952.1	131.76	1952.15	134.55	1952.2	135.38	1952.22
135.64	1952.2	135.66	1952.2	135.74	1952.2	138.12	1952.1	138.96	1952.18
139.19	1952.2	139.31	1952.21	140.25	1952.3	140.34	1952.31	141.31	1952.4
141.35	1952.4	141.88	1952.45	142.33	1952.5	142.34	1952.5	143.29	1952.6
143.33	1952.6	144.26	1952.69	144.32	1952.7	144.38	1952.71	145.3	1952.8
145.45	1952.81	146.29	1952.9	146.77	1952.95	147.28	1953	149.5	1953.1
149.54	1953.1	149.68	1953.1	153.8	1953.03	154.74	1953.03	157.27	1953.04
157.42	1953	157.51	1953.02	157.51	1953	157.86	1953	158.6	1953.06
159.08	1953.1	159.92	1953.17	160.11	1953.2	160.15	1953.21	160.69	1953.3
160.83	1953.32	161.27	1953.4	161.47	1953.43	161.86	1953.5	162.09	1953.54
162.44	1953.6	162.7	1953.64	163.03	1953.7	163.26	1953.75	163.47	1953.8
163.72	1953.86	163.86	1953.9	164.15	1953.97	164.25	1954	164.6	1954.09
164.64	1954.1	164.85	1954.15	165.14	1954.19	165.19	1954.2	165.8	1954.28
165.91	1954.3	166.48	1954.38	166.64	1954.4	167.11	1954.47	168.01	1954.46
169.93	1954.42	170.8	1954.4	174.86	1954.31	175.64	1954.32		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	93.5	.05	131.67	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
93.5	131.67	22.37	25.04	27.85	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2799.78

INPUT
Description:
Station Elevation Data num= 429

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1951.7	7299957	1951.681	399994	1951.661	779999	1951.673	259995	1951.7
3.710007	1951.714	130005	1951.727	399994	1951.8	8.5	1951.83	11.13	1951.9
14.89	1951.99	15.16	195215	46001	1952.011	5.50999	1952.01	16.33	1952.01
23.37	1952.05	25.5	1952.042	9.49001	1952.04	30.52	1952.02	31.14	1952
32.47	1951.973	4.85001	1951.9	36.02	1951.86	37.61	1951.8	38.91	1951.75
40.37	1951.7	41.11	1951.67	42.21	1951.63	42.85	1951.61	43.08	1951.61
43.38	1951.6	46.07	1951.55	48.72	1951.5	49.55	1951.48	50.3	1951.45
50.73	1951.44	50.92	1951.43	52.78	1951.42	53.22	1951.4	53.27	1951.4
53.39	1951.39	56.06	1951.3	58.48	1951.21	58.51	1951.2	58.57	1951.17
58.69	1951.1	58.78	1951.05	64.23	1951.1	68.97	1951.14	70.68	1951.1
70.93	1951.09	74.49	1951	75.13	1950.98	78.3	1950.9	79.19	1950.88
82.11	1950.8	83.18	1950.77	85.92	1950.7	87.88	1950.65	88.14	1950.6
88.22	1950.54	88.29	1950.5	88.41	1950.42	88.44	1950.4	88.56	1950.32
88.59	1950.3	88.72	1950.21	88.74	1950.2	88.88	1950.11	88.89	1950.1
89.04	1950	89.07	1949.98	89.19	1949.9	89.21	1949.89	89.35	1949.8
89.37	1949.77	89.47	1949.7	89.53	1949.66	89.62	1949.6	89.69	1949.55
89.76	1949.5	89.84	1949.45	89.91	1949.4	89.99	1949.34	90.05	1949.3
90.14	1949.23	90.19	1949.2	90.29	1949.13	90.34	1949.1	90.44	1949.03
90.48	1949	90.59	1948.92	90.62	1948.9	90.66	1948.88	90.77	1948.8
90.8	1948.78	90.91	1948.7	90.94	1948.68	91.06	1948.6	91.08	1948.58
91.2	1948.5	91.23	1948.48	91.34	1948.4	91.37	1948.38	91.49	1948.3
91.51	1948.28	91.63	1948.2	91.65	1948.19	91.77	1948.1	91.79	1948.09
91.92	1948	91.93	1947.99	92.06	1947.9	92.07	1947.89	92.21	1947.8
92.21	1947.79	92.35	1947.7	92.49	1947.6	92.5	1947.59	92.65	1947.5
92.8	1947.4	92.81	1947.4	92.96	1947.3	92.97	1947.29	93.11	1947.2
93.12	1947.19	93.26	1947.1	93.28	1947.09	93.41	1947	93.44	1946.98
93.57	1946.9	93.59	1946.88	93.72	1946.8	93.75	1946.78	93.87	1946.7
93.91	1946.68	94.03	1946.6	94.06	1946.58	94.18	1946.5	94.22	1946.47
94.33	1946.4	94.37	1946.37	94.49	1946.3	94.6	1946.22	94.64	1946.17
94.7	1946.16	94.91	1946.1	95.14	1946.03	95.26	1946	95.55	1945.92
95.61	1945.9	95.92	1945.81	95.96	1945.8	96.29	1945.71	96.31	1945.7
96.58	1945.62	96.66	1945.6	96.67	1945.6	97.04	1945.51	97.09	1945.5
97.42	1945.42	97.51	1945.4	97.59	1945.38	97.93	1945.3	98.07	1945.26
98.34	1945.2	98.59	1945.14	98.76	1945.1	99.16	1945	99.18	1945
99.21	1944.99	99.32	1945	99.55	1945.01	100.99	1945.1	101.58	1945.14
102.03	1945.16	102.65	1945.15	103.13	1945.14	103.23	1945.2	103.26	1945.22
103.39	1945.3	103.46	1945.35	103.54	1945.4	103.7	1945.45	103.74	1945.5
103.79	1945.57	103.85	1945.6	103.92	1945.66	103.95	1945.66	103.98	1945.7
104.13	1945.79	104.15	1945.8	104.31	1945.9	104.48	1946	104.49	1946
104.54	1946.03	104.67	1946.1	104.68	1946.11	104.85	1946.2	104.88	1946.21
105.04	1946.3	105.07	1946.32	105.22	1946.4	105.36	1946.47	105.42	1946.5
105.46	1946.52	105.62	1946.6	105.75	1946.68	105.79	1946.7	105.84	1946.73
106	1946.8	106.03	1946.81	106.24	1946.9	106.3	1946.92	106.49	1947
106.7	1947.08	106.76	1947.1	106.99	1947.18	107.04	1947.2	107.29	1947.29
107.31	1947.3	107.46	1947.36	107.62	1947.4	107.65	1947.41	107.99	1947.5
108.05	1947.52	108.36	1947.6	108.45	1947.62	108.73	1947.7	108.84	1947.73
109.1	1947.8	109.22	1947.83	109.48	1947.9	109.85	1947.96	109.98	1948
110.37	1948.07	110.49	1948.1	110.9	1948.17	111.01	1948.2	111.44	1948.27
111.56	1948.3	111.72	1948.33	112.14	1948.4	112.3	1948.43	112.72	1948.5
112.88	1948.53	113.3	1948.6	113.45	1948.63	113.88	1948.7	114.03	1948.72
114.46	1948.8	114.6	1948.82	115.04	1948.9	115.17	1948.92	115.62	1949
115.75	1949.02	116.2	1949.1	116.32	1949.12	116.78	1949.2	116.88	1949.22
117.36	1949.3	117.45	1949.31	117.94	1949.4	118	1949.41	118.52	1949.5
118.55	1949.51	118.94	1949.57	119.13	1949.6	119.21	1949.61	119.81	1949.7
120.39	1949.79	120.49	1949.8	120.56	1949.81	121.03	1949.9	121.41	1949.97
121.47	1950	121.49	1950.01	121.72	1950.1	121.78	1950.13	121.99	1950.2
122.05	1950.23	122.25	1950.3	122.31	1950.33	122.51	1950.4	122.73	1950.48
122.79	1950.5	123.01	1950.58	123.06	1950.6	123.29	1950.68	123.33	1950.7
123.57	1950.79	123.61	1950.8	123.86	1950.89	123.88	1950.9	124.14	1951
124.15	1951	124.4	1951.09	124.43	1951.1	124.73	1951.2	124.74	1951.2
125.03	1951.3	125.05	1951.31	125.33	1951.4	125.36	1951.41	125.63	1951.5
125.67	1951.51	125.94	1951.6	125.98	1951.62	126.24	1951.7	126.3	1951.72
126.54	1951.8	126.62	1951.83	126.84	1951.9	126.94	1951.93	127.14	1952
127.27	1952.04	127.44	1952.1	127.61	1952.16	127.74	1952.2	127.96	1952.27
128.04	1952.3	128.33	1952.39	128.34	1952.4	128.4	1952.42	128.94	1952.5
129.18	1952.54	129.59	1952.6	130.03	1952.67	130.61	1952.7	131.1	1952.73
132.35	1952.8	133.91	1952.89	134.08	1952.9	134.17	1952.91	134.45	1952.92
137.75	1953	140.61	1953.07	141.11	1953	141.23	1952.98	141.84	1952.9
142.09	1952.87	142.58	1952.8	142.92	1952.75	143.31	1952.7	143.72	1952.64
144.04	1952.6	144.37	1952.55	144.77	1952.5	145.2	1952.44	145.5	1952.4
146.16	1952.31	146.23	1952.3	146.35	1952.28	146.41	1952.3	146.46	1952.31
146.77	1952.4	146.95	1952.45	147.13	1952.5	147.36	1952.57	147.48	1952.6
147.58	1952.63	147.84	1952.7	147.95	1952.73	148.19	1952.8	148.31	1952.83
148.55	1952.9	148.67	1952.93	148.91	1953	149.04	1953.04	149.26	1953.1
149.41	1953.14	149.62	1953.2	149.79	1953.25	149.98	1953.3	150.03	1953.32
150.18	1953.36	150.33	1953.4	150.59	1953.47	150.69	1953.5	150.98	1953.58
151.12	1953.59	151.28	1953.6	151.67	1953.62	151.71	1953.63	151.93	1953.7
151.97	1953.71	152.3	1953.8	152.63	1953.89	152.69	1953.9	152.72	1953.91
153.14	1954	153.3	1954.04	153.59	1954.1	153.81	1954.15	154.03	1954.2
154.3	1954.26	154.48	1954.3	154.77	1954.36	154.93	1954.4	155.24	1954.47
155.38	1954.5	155.7	1954.57	155.83	1954.6	156.16	1954.67	156.28	1954.7
156.61	1954.77	156.73	1954.8	156.83	1954.82	156.85	1954.9	156.92	1954.92
157.32	1955	157.38	1955.03	157.42	1955.1	157.58	1955.17	157.66	1955.2
157.83	1955.27	157.89	1955.3	158.08	1955.38	158.13	1955.4	158.33	1955.48
158.37	1955.5	158.58	1955.59	158.61	1955.6	158.84	1955.7	158.91	1955.73

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  160.22  1955.8  161.35 1955.86  163.48 1955.82  163.61 1955.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   87.88    .035  140.61    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         87.88  140.61            23.04   25.15   28.16             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2774.63

INPUT
Description:
Station Elevation Data    num=     416
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1950.872.080002  1950.95.649994 1950.9410.25999    195113.98999 1951.04
15.31999 1951.07   16.81 1951.07   21.52    195125.03999 1950.96   26.02  1950.9
27.20999 1950.83   27.66  1950.8   28.08 1950.77   29.31  1950.7   29.38  1950.7
29.56999 1950.68   32.03 1950.6232.64999  1950.6   34.96 1950.54   36.23  1950.5
   37.89 1950.45   39.74  1950.442.07999 1950.34   43.28  1950.3   44.74 1950.26
    46.6  1950.2   46.98 1950.19   47.41 1950.18   49.03 1950.13   49.31 1950.13
50.25999  1950.1   50.39  1950.1   50.42  1950.1   50.43  1950.1   50.49 1950.09
   52.03 1950.03   52.31  1950.1   52.71  1950.2   52.72  1950.252.75999 1950.21
   52.91 1950.21   54.27 1950.27   55.37 1950.23   56.54  1950.2   58.12 1950.15
   59.99  1950.162.64999 1950.02   64.92 1950.01   65.24    1950   65.63 1949.99
   66.63 1949.99   66.87 1949.9969.82999  1949.972.68999 1949.81   75.87  1949.9
   76.29 1949.92    77.1    1950   77.78 1950.06   78.16  1950.178.89999 1950.17
   79.22  1950.2   80.05 1950.28   80.28  1950.3   81.23 1950.39   81.34  1950.4
82.00999 1950.46   83.32 1950.49   83.92  1950.586.39999 1950.55   88.11 1950.58
88.32999  1950.5   88.43 1950.46    88.6  1950.488.75999 1950.34   88.87  1950.3
   89.06 1950.23   89.14  1950.289.32999 1950.13   89.41  1950.1   89.61 1950.03
   89.68    1950   89.89 1949.92   89.95  1949.9   90.17 1949.82   90.22  1949.8
   90.45 1949.71   90.49  1949.7   90.74 1949.6190.75999  1949.6   90.89 1949.55
   90.99  1949.5      91 1949.591.18999  1949.4   91.21 1949.39   91.38  1949.3
   91.42 1949.2891.57999  1949.2   91.62 1949.18   91.78  1949.191.93999 1949.02
   91.98    194992.14999 1948.91   92.17  1948.9   92.36 1948.81   92.37  1948.8
   92.56 1948.71   92.57  1948.7   92.73  1948.6   92.88  1948.5   92.89 1948.49
   93.04  1948.4   93.06 1948.39    93.2  1948.3   93.22 1948.29   93.35  1948.2
   93.38 1948.1893.50999  1948.1   93.53 1948.08   93.66    194893.68999 1947.98
   93.82  1947.9   93.85 1947.88   93.97  1947.894.00999 1947.77   94.12  1947.7
   94.16 1947.67   94.27  1947.6   94.32 1947.57   94.43  1947.5   94.47 1947.47
94.57999  1947.4   94.62 1947.37   94.73  1947.3   94.78 1947.26   94.88  1947.2
   94.93 1947.16   95.03  1947.195.07999 1947.06   95.17    194795.25999 1946.94
   95.32  1946.9   95.41 1946.83   95.46  1946.8   95.56 1946.73    95.6  1946.7
   95.71 1946.62   95.74  1946.6   95.86 1946.52   95.88  1946.596.00999 1946.41
   96.03  1946.4   96.17  1946.396.17999 1946.29   96.35  1946.2   96.37 1946.19
96.53999  1946.196.56999 1946.08   96.72    194696.75999 1945.9896.89999  1945.9
   96.96 1945.87   97.09  1945.897.14999 1945.77   97.27  1945.7   97.34 1945.66
   97.46  1945.6   97.53 1945.56   97.64  1945.597.75999 1945.4497.81999  1945.4
   97.97 1945.3298.00999  1945.3   98.14 1945.2398.28999  1945.2   98.35 1945.19
    98.8  1945.199.06999 1945.05    99.3    194599.53999 1944.95    99.8  1944.9
  100.18 1944.82   100.3  1944.8  100.55 1944.75  101.33  1944.8  102.07 1944.85
  102.93  1944.9  103.33 1944.93  104.53    1945   104.7 1945.01   105.5 1945.06
  105.71  1945.1  105.73  1945.1  105.88 1945.13  106.24  1945.2  106.31 1945.21
  106.77  1945.3  106.88 1945.32   107.3  1945.4  107.43 1945.42  107.83  1945.5
  108.04 1945.54  108.37  1945.6  108.57 1945.66  108.64  1945.7  108.75 1945.77
  108.81  1945.8  108.92 1945.87  108.98  1945.9  109.09 1945.97  109.14    1946
  109.25 1946.07  109.31  1946.1  109.42 1946.17  109.48  1946.2  109.59 1946.27
  109.64  1946.3  109.75 1946.37  109.81  1946.4  109.92 1946.47  109.98  1946.5
  110.08 1946.57  110.14  1946.6  110.25 1946.67  110.31  1946.7  110.42 1946.77
  110.47  1946.8  110.54 1946.84  110.64  1946.9  110.71 1946.94  110.81    1947
  110.88 1947.05  110.97  1947.1  111.06 1947.15  111.14  1947.2  111.24 1947.26
  111.31  1947.3  111.45 1947.39  111.55  1947.4  111.72 1947.42  111.94 1947.44
  113.09  1947.4  114.61 1947.35  114.78  1947.4   115.1  1947.5  115.12 1947.51
  115.42  1947.6  115.44 1947.61  115.74  1947.7  116.08 1947.79  116.11  1947.8
  116.53  1947.9  116.54  1947.9  116.55  1947.9  116.73 1947.94  116.89    1948
  116.97 1948.03  117.17  1948.1  117.33 1948.16  117.44  1948.2  117.64 1948.27
  117.72  1948.3  117.94 1948.38  117.99  1948.4  118.23 1948.49  118.27  1948.5
  118.52 1948.59  118.55  1948.6  118.81  1948.7  118.82  1948.7  119.09  1948.8
   119.1  1948.8  119.37  1948.9   119.7    1949  119.71    1949  120.02 1949.09
  120.05  1949.1  120.35 1949.19  120.39  1949.2  120.68 1949.29  120.73  1949.3
  121.01 1949.38  121.07  1949.4  121.35 1949.48  121.41  1949.5  121.68 1949.58
  121.75  1949.6  122.01 1949.68  122.09  1949.7  122.35 1949.78  122.43  1949.8
  122.68 1949.88  122.77  1949.9  123.02 1949.97   123.1    1950  123.35 1950.07
  123.44  1950.1  123.56 1950.13  123.78  1950.2  123.95 1950.25  124.12  1950.3
  124.42 1950.39  124.99  1950.4  125.93 1950.36  127.68  1950.3  128.16 1950.28
  128.22  1950.3  128.25 1950.31  128.59  1950.4  128.86 1950.48  128.95  1950.5
  129.28 1950.59  129.32  1950.6  129.58 1950.67  130.26  1950.6  131.11 1950.51
  131.21  1950.5  131.23  1950.5  131.25  1950.5  131.26  1950.5  131.66  1950.6
  131.86 1950.65  132.07  1950.7  132.34 1950.77  132.48  1950.8  132.79 1950.88
  132.89  1950.9  133.21 1950.98   133.3    1951  133.44 1951.03  133.71  1951.1
  133.89 1951.14  134.12  1951.2  134.41 1951.27  134.54  1951.3  135.06  1951.3
  135.36 1951.25  138.34  1951.3  138.82 1951.26   139.6  1951.2  140.69 1951.11
  140.85  1951.1  141.15 1951.08  141.33  1951.1  141.46 1951.12  142.06  1951.2
  142.53 1951.26   142.8  1951.3   143.4 1951.38  143.53  1951.4  144.04 1951.47
  144.05 1951.47  144.14  1951.5  144.16 1951.51  144.37 1951.57  144.43  1951.6
  144.47 1951.62  144.56 1951.66  144.64  1951.7  144.73 1951.74  144.84  1951.8
  144.95 1951.85  145.05  1951.9  145.17 1951.96  145.25    1952  145.38 1952.06
  145.46  1952.1  145.59 1952.16  145.66  1952.2  145.74 1952.24  145.87  1952.3
  145.96 1952.35  146.07  1952.4  146.19 1952.46  146.27  1952.5  146.43 1952.58
  146.48  1952.6  146.68  1952.7  146.69  1952.7   146.7  1952.7  147.22  1952.8
  147.39 1952.83  147.75  1952.9  148.04 1952.95  148.28    1953  148.65 1953.07
   148.8  1953.1  149.24 1953.18  149.33  1953.2  149.84 1953.27  149.87 1953.27
  149.92  1953.3  149.99 1953.34  151.62 1953.36  152.49  1953.4  153.82 1953.46
  155.13  1953.5  155.78 1953.52    156  1953.6  156.13 1953.65  156.28  1953.7
  156.48 1953.77  156.55  1953.8  156.79 1953.89  156.83  1953.9  157.09    1954
   157.1    1954  157.27 1954.06  157.43  1954.1  157.48 1954.11  157.84  1954.2
  158.08 1954.26  158.26  1954.3  158.51 1954.36  158.99  1954.3  159.31 1954.26
  159.56 1954.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   88.11    .035  124.99    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         88.11  124.99            36.1   24.19   18.16             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2750.44

INPUT
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Description:
Station Elevation Data num= 325

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1950.025.209991		19507.179993	1949.997.559998	1949.98	14.09	1949.95		
17.92999	1949.919.70999	1949.8720.67999	1949.8621.64999	1949.8626.25999	1949.85				
27.48999	1949.8	29.92	1949.71	30.73	1949.7	30.84	1949.731.98999	1949.65	
33.31	1949.6133.56999	1949.6	35.8	1949.53	36.17	1949.57	36.98	1949.5	
39.5	1949.539.96999	1949.56	43.16	1949.57	44.77	1949.52	45.32	1949.53	
45.84	1949.52	47.09	1949.5653.18999	1949.555.25999	1949.4863.21999	1949.43			
67.17	1949.44	67.46	1949.44	68.23	1949.4	69.7	1949.32	70.12	1949.3
71.75	1949.21	72.05	1949.21	74.53	1949.22	75.34	1949.2	77.18	1949.15
78.50999	1949.1	80.34	1949.0382.18999	194986.75999	1949.0987.07999	1949.09			
87.50999	1949.1	90.41	1949.19	90.87	1949.2	94.17	1949.3	94.18	1949.3
94.24	1949.31	94.49	1949.3694.68999	1949.395.00999	1949.2195.03999	1949.2			
95.37	1949.1	95.38	1949.195.71999	1949	95.73	1949	95.8	1948.98	
96.12	1948.9196.14999	1948.9	96.55	1948.81	96.6	1948.8	96.64	1948.79	
97.03999	1948.7	97.12	1948.68	97.49	1948.6	97.6	1948.58	97.93	1948.5
98.07999	1948.47	98.38	1948.498.57999	1948.36	98.82	1948.399.07999	1948.24		
99.27	1948.2	99.6	1948.1399.71999	1948.1	100.13	1948.01	100.16	1948	
100.31	1947.97	100.52	1947.9	100.54	1947.89	100.82	1947.8	100.89	1947.78
101.13	1947.7	101.27	1947.65	101.44	1947.6	101.69	1947.52	101.74	1947.5
101.78	1947.49	101.89	1947.42	101.98	1947.4	102.01	1947.39	102.26	1947.3
102.3	1947.28	102.54	1947.2	102.58	1947.18	102.82	1947.1	103	1947.02
103.05	1947	103.23	1946.92	103.27	1946.9	103.45	1946.82	103.48	1946.8
103.67	1946.71	103.7	1946.7	103.9	1946.61	103.92	1946.6	104.12	1946.51
104.14	1946.5	104.34	1946.41	104.36	1946.4	104.57	1946.31	104.58	1946.3
104.59	1946.29	104.79	1946.2	105	1946.1	105.01	1946.1	105.23	1946
105.24	1946	105.36	1945.94	105.47	1945.9	105.71	1945.8	105.72	1945.8
105.94	1945.71	105.96	1945.7	105.98	1945.69	106.22	1945.6	106.26	1945.58
106.48	1945.5	106.56	1945.47	106.73	1945.4	106.87	1945.35	106.99	1945.3
107.2	1945.22	107.25	1945.2	107.36	1945.16	108.95	1945.1	109.52	1945.08
111.71	1945	114.34	1944.9	114.43	1944.9	116.1	1944.81	116.18	1944.9
116.22	1944.94	116.28	1945	116.32	1945.04	116.37	1945.1	116.42	1945.14
116.47	1945.2	116.51	1945.24	116.56	1945.29	116.59	1945.3	116.6	1945.3
116.99	1945.4	117.12	1945.43	117.36	1945.49	117.38	1945.5	117.77	1945.6
117.78	1945.6	118.08	1945.67	118.23	1945.7	118.26	1945.7	118.84	1945.8
119.01	1945.83	119.45	1945.9	119.8	1945.96	120.06	1946	120.65	1946.1
120.68	1946.1	120.72	1946.11	120.99	1946.2	121.01	1946.21	121.28	1946.3
121.32	1946.31	121.57	1946.4	121.62	1946.42	121.85	1946.5	121.93	1946.52
122.14	1946.6	122.23	1946.63	122.43	1946.7	122.53	1946.73	122.72	1946.8
122.82	1946.84	123.02	1946.9	123.14	1946.94	123.39	1947	123.51	1947.04
123.76	1947.1	123.88	1947.14	124.13	1947.2	124.31	1947.24	124.54	1947.3
124.75	1947.35	124.96	1947.4	125.19	1947.46	125.37	1947.5	125.64	1947.56
125.79	1947.6	126.09	1947.67	126.21	1947.7	126.55	1947.78	126.63	1947.8
127.02	1947.89	127.04	1947.9	127.21	1947.94	127.49	1948	127.52	1948.01
127.97	1948.1	128.04	1948.11	128.45	1948.2	128.55	1948.22	128.92	1948.3
129.1	1948.34	129.4	1948.4	129.73	1948.47	129.88	1948.5	130.12	1948.55
130.5	1948.6	130.67	1948.62	131.26	1948.7	131.76	1948.76	132.03	1948.8
132.29	1948.84	132.41	1948.9	132.55	1948.97	132.62	1949	132.77	1949.07
132.82	1949.1	132.99	1949.18	133.03	1949.2	133.21	1949.29	133.24	1949.3
133.44	1949.39	133.45	1949.4	133.55	1949.45	133.68	1949.5	133.71	1949.51
133.95	1949.6	134.01	1949.62	134.22	1949.7	134.31	1949.73	134.49	1949.8
134.6	1949.84	134.76	1949.9	134.89	1949.95	135.03	1950	135.17	1950.05
135.3	1950.1	135.45	1950.16	135.57	1950.2	135.73	1950.26	135.84	1950.3
135.97	1950.35	136.11	1950.4	136.35	1950.49	136.38	1950.5	136.42	1950.51
138.93	1950.6	141.82	1950.69	141.97	1950.7	142.38	1950.71	147.02	1950.74
147.26	1950.72	147.58	1950.72	147.71	1950.8	147.82	1950.86	147.88	1950.9
148.01	1950.98	148.05	1951	148.19	1951.08	148.22	1951.1	148.37	1951.18
148.39	1951.2	148.55	1951.29	148.57	1951.3	148.73	1951.4	148.74	1951.4
148.81	1951.44	148.95	1951.5	148.97	1951.51	149.21	1951.6	149.24	1951.61
149.46	1951.7	149.52	1951.72	149.71	1951.8	149.79	1951.83	149.97	1951.9
150.07	1951.94	150.14	1951.97	150.22	1952	150.35	1952.05	150.48	1952.1
150.63	1952.16	150.74	1952.2	150.86	1952.25	151	1952.3	151.12	1952.35
151.27	1952.4	151.38	1952.44	151.53	1952.5	151.64	1952.54	151.79	1952.6
151.9	1952.64	152.05	1952.7	152.12	1952.72	152.12	1952.73	152.34	1952.78
153.39	1952.78	157.36	1952.76	157.84	1952.8	157.97	1952.81	158.94	1952.9
159.49	1952.95	160.04	1953	160.93	1953.08	161.64	1953.08	163.76	1953.07
164.52	1953	164.85	1952.97	165.57	1952.9	166.2	1952.84	166.45	1952.82

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	94.24	.035	136.35	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.24	136.35	30.61	25.02	22.4	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2725.42

INPUT
Description:
Station Elevation Data num= 331

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1949.165.279999	1949.158.429993	1949.1411.81999	1949.1619.70999	1949.19				
20.25999	1949.1920.65999	1949.19	22.06	1949.16	23.98	1949.126.40999	1949.02		
27.84	1949.128.42999	1949.13	32.37	1949.233.32999	1949.22	33.88	1949.2		
35.13999	1949.1637.28999	1949.138.96999	1949.05	39.6	1949	40.05	1948.98		
41.53	1948.9	43.03	1948.8445.03999	1948.8549.32999	1948.8852.17999	1948.89			
52.62	1948.8952.89999	1948.9	52.98	1948.9	53.13	1948.9	60.06	1948.8	
61.87	1948.7863.53999	1948.7666.99999	1948.75	70.42	1948.7572.68999	1948.72			
73.52	1948.73	76.73	1948.877.18999	1948.8177.63999	1948.84	78.09	1948.87		
78.28	1948.89	78.53	1948.89	82.34	1948.9	85.12	1948.9385.46999	1948.92	
85.66	1948.91	85.67	1948.985.67999	1948.985.96999	1948.81	85.99	1948.8		
86.31999	1948.71	86.35	1948.7	86.67	1948.61	86.7	1948.6	86.74	1948.59
87.06999	1948.587.10999	1948.4987.42999	1948.4	87.49	1948.39	87.8	1948.3		
87.85999	1948.28	88.17	1948.2	88.23	1948.18	88.53	1948.188.60999	1948.08	
88.89999	1948	88.99	1947.98	89.27	1947.989.35999	1947.8889.63999	1947.8		
89.74	1947.7790.00999	1947.7	90.12	1947.67	90.38	1947.6	90.49	1947.57	
90.74999	1947.5	90.87	1947.47	91.12	1947.491.24999	1947.37	91.49	1947.3	
91.63	1947.26	91.87	1947.2	92.02	1947.1692.23999	1947.192.39999	1947.06		
92.62	1947	92.78	1946.9692.98999	1946.9	93.16	1946.85	93.37	1946.8	
93.55	1946.7593.73999	1946.793.92999	1946.65	94.12	1946.694.31999	1946.55			
94.5	1946.5	94.7	1946.45	94.87	1946.4	95.09	1946.34	95.25	1946.3
95.48	1946.2495.62999	1946.2	95.87	1946.1496.00999	1946.196.25999	1946.04			
96.39999	194696.53999	1945.96	96.78	1945.9	96.95	1945.86	97.17	1945.8	
97.37	1945.75	97.56	1945.797.82999	1945.6397.93999	1945.698.21999	1945.53			
98.28	1945.5	98.3	1945.49	98.5	1945.498.67999	1945.3298.71999	1945.3		
98.92	1945.2198.93999	1945.2	99.16	1945.1	99.17	1945.199.25999	1945.06		
99.64999	1945	99.84	1944.97	100.34	1944.9	100.76	1944.84	101.04	1944.8
101.59	1944.72	101.73	1944.7	102.38	1944.61	102.43	1944.6	102.9	1944.53
103.48	1944.6	103.75	1944.63	103.93	1944.6	103.94	1944.6	104.53	1944.5
104.56	1944.49	105.12	1944.4	105.18	1944.39	105.71	1944.3	105.79	1944.28
106.29	1944.2	106.4	1944.18	106.87	1944.1	107.4	1944.01	107.46	1944
107.51	1944.01	107.92	1944.1	108.24	1944.17	108.25	1944.18	108.36	1944.2
108.71	1944.28	108.8	1944.3	109.16	1944.38	109.24	1944.4	109.62	1944.49

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  109.68  1944.5  110.07 1944.59  110.12  1944.6  110.24 1944.62  110.58  1944.7
  110.67 1944.72  111.02  1944.8   111.1 1944.82  111.46  1944.9  111.52 1944.91
   111.9    1945  111.94 1945.01  112.34  1945.1  112.39 1945.11  112.74  1945.2
  112.75  1945.2  113.13  1945.3  113.15 1945.31  113.52  1945.4  113.55 1945.41
  113.91  1945.5  113.94 1945.51  114.21  1945.6  114.24 1945.61  114.42  1945.7
   114.6 1945.78  114.64  1945.8  114.83  1945.9  114.85 1945.91  115.03    1946
  115.05 1946.01   115.1  1946.1  115.19 1946.14  115.32  1946.2  115.42 1946.24
  115.55  1946.3  115.65 1946.34  115.77  1946.4  115.88 1946.45     116  1946.5
  116.12 1946.55  116.23  1946.6  116.36 1946.65  116.46  1946.7   116.6 1946.76
  116.69  1946.8   116.8 1946.85  116.92  1946.9  117.08 1946.96  117.16    1947
  117.35 1947.08  117.52  1947.1  117.66 1947.12  118.29  1947.2  118.58 1947.24
  119.05  1947.3  119.41 1947.35  119.81  1947.4  120.54  1947.5  120.58  1947.5
  120.64 1947.52   120.9 1947.56  120.96  1947.6  121.15  1947.7  121.17 1947.71
  121.35 1947.79  121.37  1947.8  121.58 1947.89  121.61  1947.9  121.81 1947.99
  121.84    1948  122.04 1948.08  122.07  1948.1  122.27 1948.18  122.31  1948.2
   122.5 1948.28  122.54  1948.3  122.58 1948.32  122.78  1948.4  122.82 1948.42
  123.01  1948.5  123.07 1948.53  123.24  1948.6  123.31 1948.63  123.48  1948.7
  123.56 1948.74  123.71  1948.8  123.81 1948.84  123.94  1948.9  124.06 1948.95
  124.18    1949  124.31 1949.06  124.41  1949.1  124.57 1949.17  124.64  1949.2
  124.83 1949.28  124.88  1949.3   125.1 1949.39  125.11  1949.4   125.2 1949.44
  125.89 1949.47  126.35  1949.5  127.03 1949.54  128.14  1949.6  128.24 1949.61
  128.46 1949.62   128.7  1949.7  128.71  1949.7     129  1949.8  129.02 1949.81
   129.3  1949.9  129.33 1949.91  129.59    1950  129.63 1950.01  129.88  1950.1
  130.03 1950.15  130.04 1950.15  131.19 1950.16  131.25 1950.16  131.27 1950.16
  131.73  1950.2  131.98 1950.22  133.26  1950.3  133.81 1950.34  134.78  1950.4
  140.82 1950.46  141.99 1950.47  142.08 1950.48  142.09 1950.48   142.1 1950.48
  142.18 1950.47  144.09  1950.4  144.58 1950.38   145.1 1950.37  145.82  1950.4
  146.63 1950.44  146.86  1950.5  146.99 1950.53  147.23  1950.6  147.46 1950.66
  147.61  1950.7  147.73 1950.73  147.98  1950.8   148.1 1950.83  148.35  1950.9
  148.47 1950.93  148.72    1951  148.83 1951.03  149.09  1951.1   149.2 1951.13
  149.46  1951.2  149.57 1951.23  149.83  1951.3  150.21 1951.26  150.28  1951.3
  151.45  1951.3   151.5 1951.29  152.11  1951.2  152.12  1951.2  152.64 1951.12
  152.76  1951.1  153.39    1951   153.4    1951  154.02  1950.9  154.06 1950.89
  154.66  1950.8  154.78 1950.78  155.29  1950.7  155.79 1950.62  156.07  1950.7
  156.12 1950.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   85.12    .035  125.11    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         85.12  149.83             21.47   25.25    27.5             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2700.17

INPUT
Description:
Station Elevation Data    num=     234
     Sta    Elev     Sta     Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.811.389999  1948.89.380005 1948.76   11.75 1948.7712.85001 1948.76
   13.25 1948.7613.68001 1948.75   17.17 1948.7717.43001 1948.7619.65001 1948.72
20.99001  1948.724.09001 1948.6427.76001  1948.6   29.28 1948.5931.60001 1948.57
   42.02  1948.545.86001 1948.4749.61001  1948.4   52.77 1948.3452.92001 1948.33
53.86001  1948.3   54.59 1948.2755.24001 1948.27   59.16 1948.27   62.73  1948.3
63.10001 1948.31   63.45  1948.3   63.65 1948.2965.04001  1948.266.35001 1948.12
   66.62  1948.168.17001    1948    68.2    194868.31001 1947.99   70.91  1947.9
   71.44 1947.88   74.01  1947.8   75.13 1947.75   76.23  1947.777.10001 1947.66
78.50001  1947.6   79.76 1947.5580.82001  1947.582.71001 1947.42   83.27  1947.4
84.79001 1947.3485.35001  1947.386.81001  1947.286.82001  1947.287.82001  1947.1
88.31001 1947.0588.81001    1947   89.38 1946.9489.81001  1946.9   90.45 1946.84
    90.8  1946.8   91.55 1946.73    91.8  1946.7    92.7 1946.6192.79001  1946.6
   93.22 1946.56   93.48  1946.5   93.51 1946.49   93.94  1946.493.99001 1946.39
94.39001  1946.3   94.48 1946.28   94.84  1946.2   95.22 1946.12    95.3  1946.1
    95.7 1946.0195.75001    1946   96.19  1945.996.21001  1945.996.49001 1945.84
96.61001  1945.896.64001 1945.7996.93001  1945.7   97.02 1945.6797.25001  1945.6
   97.38 1945.5697.57001  1945.5   97.73 1945.45   97.89  1945.498.07001 1945.34
98.21001  1945.3   98.41 1945.2498.53001  1945.298.74001 1945.1398.85001  1945.1
99.07001 1945.0399.17001    194599.40001 1944.9399.49001  1944.9   99.73 1944.83
99.81001  1944.8  100.06 1944.72  100.13  1944.7  100.38 1944.62  100.45  1944.6
  100.71 1944.52  100.77  1944.5  101.03 1944.42  101.09  1944.4  101.36 1944.32
  101.42  1944.3  101.68 1944.22  101.74  1944.2   101.8 1944.18  102.06  1944.1
  102.16 1944.07  102.38    1944  102.58 1943.94   102.7  1943.9  102.96 1943.87
   106.4 1943.81  107.28  1943.8  113.07 1943.75  114.35  1943.8  116.62  1943.9
  116.64  1943.9  116.67  1943.9  116.73  1943.9  116.76 1943.91  116.87 1943.92
  117.22    1944  117.51 1944.07  117.66  1944.1  118.03 1944.18  118.11  1944.2
   118.5 1944.29  118.55  1944.3  118.95 1944.39  118.99  1944.4   119.4 1944.49
  119.43  1944.5  119.85  1944.6  119.87  1944.6   120.3  1944.7  120.32  1944.7
  120.74  1944.8  120.76  1944.8  121.19  1944.9   121.2  1944.9  121.63    1945
  121.64    1945  122.07  1945.1  122.08  1945.1  122.52  1945.2  122.96  1945.3
  122.97  1945.3   123.4  1945.4  123.41  1945.4  123.84  1945.5  123.85  1945.5
  124.29  1945.6  124.73  1945.7  125.17  1945.8  125.18  1945.8  125.61  1945.9
  125.62  1945.9  126.06    1946   126.5  1946.1  126.94  1946.2  127.38  1946.3
  127.39  1946.3  127.82  1946.4  127.83  1946.4  128.27  1946.5  128.71  1946.6
  129.15  1946.7  129.59  1946.8  130.04  1946.9  130.48    1947  130.75 1947.06
  130.92  1947.1  131.37  1947.2  131.81  1947.3  131.82  1947.3  132.26  1947.4
  132.71  1947.5  133.15  1947.6  133.16  1947.6   133.6  1947.7  133.61  1947.7
  134.04  1947.8  134.09 1947.81  134.49  1947.9  135.13 1947.99   135.2    1948
  136.16  1948.1   136.2  1948.1  137.19  1948.2   137.2  1948.2  138.19  1948.3
   138.2  1948.3  139.19  1948.4   139.2  1948.4   140.2  1948.5   141.2  1948.6
  141.37 1948.62   142.2  1948.7   143.2  1948.8  143.22  1948.8  143.34 1948.81
  143.39 1948.82  143.49 1948.83   144.5 1948.89  144.65  1948.9  145.83 1948.98
  146.18    1949  147.12 1949.06  147.71  1949.1  148.39 1949.14  149.24  1949.2
  149.61 1949.22  150.77  1949.3  150.79  1949.3  150.85 1949.31  152.05 1949.35
  153.42  1949.4  153.55  1949.4  153.74 1949.41   154.6  1949.5  154.71 1949.51
  155.57  1949.6  155.83 1949.63  156.55  1949.7  157.39 1949.79   158.8  1949.7
  159.01 1949.69  159.53 1949.66  160.35 1949.67  161.38  1949.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02563.10001    .035  141.37    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         62.73  141.37             16.35   24.37   29.93             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2675.8

INPUT
Description:
Station Elevation Data    num=     272
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
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      0  1948.9     .03  1948.91.570007 1948.863.650009  1948.84.930008 1948.76
5.860001 1948.737.290009 1948.768.740005 1948.7517.96001  1948.720.96001 1948.65
   26.41  1948.626.54001  1948.627.64001 1948.5833.18001 1948.51   34.38  1948.5
37.50001 1948.49    39.2 1948.4742.39001 1948.4248.43001 1948.4453.51001  1948.4
   58.63 1948.3158.80001  1948.359.12001 1948.29   59.27 1948.2959.50001  1948.3
60.17001 1948.3262.46001  1948.463.14001 1948.4264.08001 1948.4365.31001  1948.5
65.40001  1948.565.53001  1948.567.33001 1948.5367.73001 1948.5468.06001  1948.5
68.24001 1948.48   68.91  1948.469.35001 1948.35   69.77  1948.3   70.34 1948.23
70.62001  1948.271.01001 1948.1672.03001 1948.1572.42001  1948.173.01001 1948.04
73.71001    194874.68001 1947.9475.23001  1947.976.24001 1947.8276.30001 1947.82
   76.52 1947.8176.61001 1947.82   81.41 1947.8485.12001 1947.8685.92001  1947.8
86.46001 1947.76   87.34  1947.788.35001 1947.6388.76001  1947.690.00001 1947.51
90.18001  1947.590.35001 1947.4991.60001  1947.4   91.66  1947.491.89001 1947.38
92.15001 1947.3492.30001  1947.392.36001 1947.2892.65001  1947.292.78001 1947.16
93.01001  1947.193.17001 1947.0593.36001    194793.53001 1946.9593.72001  1946.9
93.90001 1946.8594.07001  1946.894.26001 1946.7594.42001  1946.794.62001 1946.65
94.78001  1946.694.97001 1946.54   95.13  1946.595.33001 1946.4495.49001  1946.4
95.69001 1946.34   95.84  1946.396.05001 1946.24   96.2  1946.296.40001 1946.14
96.55001  1946.196.76001 1946.04   96.91    194697.11001 1945.9497.26001  1945.9
97.47001 1945.8497.62001  1945.897.82001 1945.7497.97001  1945.798.18001 1945.64
98.33001  1945.698.53001 1945.5498.68001  1945.598.84001 1945.4599.03001  1945.4
99.23001 1945.3499.39001  1945.399.64001 1945.2399.74001  1945.2  100.09  1945.1
   100.1  1945.1  100.14 1945.09  100.81    1945  100.96 1944.98  101.56  1944.9
  101.83 1944.86  102.31  1944.8  102.67 1944.75  103.08  1944.7  103.46 1944.65
  103.81  1944.6  104.24 1944.54  104.56  1944.5  105.03 1944.44  105.31  1944.4
  105.83 1944.33  106.07  1944.3  106.65 1944.22  106.82  1944.2  107.49 1944.11
  107.57  1944.1  107.65 1944.09  108.45    1944  108.81 1943.96  109.22  1943.9
  109.57 1943.86  109.99  1943.8  110.16 1943.78  110.33 1943.76  110.75  1943.7
  111.27 1943.63  112.52  1943.6   115.5 1943.66  117.17  1943.7  119.85 1943.76
  121.55 1943.78  122.55 1943.79  122.67  1943.8   122.7  1943.8  123.75  1943.9
  123.88 1943.91  124.84    1944  124.91 1944.01  125.77 1944.09   125.9  1944.1
  125.93  1944.1  126.93 1944.19  127.08  1944.2  127.22 1944.21  128.23  1944.3
  128.59 1944.33   129.5  1944.4  130.45 1944.49  130.55  1944.5  130.83 1944.53
  131.06  1944.6  131.11 1944.62  131.34  1944.7  131.53 1944.76  131.64  1944.8
  131.83 1944.86  131.93  1944.9  132.12 1944.97  132.22    1945  132.42 1945.07
  132.52  1945.1  132.72 1945.17  132.81  1945.2  133.02 1945.27  133.11  1945.3
  133.32 1945.37   133.4  1945.4  133.61 1945.47   133.7  1945.5  133.91 1945.57
  133.99  1945.6  134.21 1945.67  134.29  1945.7  134.51 1945.78  134.58  1945.8
  134.81 1945.88  134.88  1945.9  135.11 1945.98  135.17    1946  135.41 1946.08
  135.47  1946.1  135.71 1946.18  135.76  1946.2  136.01 1946.28  136.05  1946.3
  136.31 1946.39  136.35  1946.4  136.61 1946.49  136.64  1946.5  136.91 1946.59
  136.94  1946.6  137.21 1946.69  137.23  1946.7  137.52  1946.8  137.53  1946.8
  137.82  1946.9  137.93 1946.94   138.1    1947  138.11    1947  138.38  1947.1
  138.39  1947.1  138.65 1947.19  138.67  1947.2  138.93 1947.29  138.95  1947.3
   139.2 1947.39  139.23  1947.4  139.48 1947.49   139.5  1947.5  139.75 1947.59
  139.78  1947.6  140.03 1947.69  140.06  1947.7   140.3 1947.79  140.34  1947.8
  140.58 1947.88  140.62  1947.9  140.86 1947.98   140.9    1948  141.13 1948.08
  141.18  1948.1  141.41 1948.18  141.46  1948.2  141.69 1948.28  141.74  1948.3
  141.96 1948.38  142.02  1948.4  142.24 1948.48   142.3  1948.5  142.52 1948.58
  142.58  1948.6   142.8 1948.68  142.86  1948.7  143.07 1948.78  143.14  1948.8
  143.35 1948.88  143.42  1948.9  143.49 1948.93   143.7    1949  143.79 1949.03
  143.98  1949.1  144.11 1949.15  144.26  1949.2  144.45 1949.27  144.52  1949.3
  144.71 1949.36  145.92  1949.3  147.48 1949.22  147.91  1949.2  148.67 1949.16
  149.14 1949.17  152.75  1949.2  160.47 1949.27  160.85  1949.3  162.11 1949.39
  162.79  1949.4  162.82  1949.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02567.33001    .035  144.52    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         59.27  144.52             25.2   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2650.79

INPUT
Description:
Station Elevation Data    num=     294
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.36     .21 1948.35    1.49  1948.3     4.8 1948.23    5.96  1948.2
     6.8 1948.25    7.74  1948.2    8.05 1948.21    8.09  1948.2     8.4 1948.21
   12.98 1948.22   13.66 1948.22    15.4 1948.22   15.93 1948.21   16.15  1948.2
    16.7 1948.18   17.06  1948.2   17.64 1948.24   18.63  1948.3   19.44 1948.35
    20.2  1948.4   20.62 1948.43   20.96 1948.45   22.08 1948.44   23.15 1948.44
   24.32  1948.4   25.61 1948.36   25.77 1948.36   26.15  1948.4   26.32 1948.43
   26.67  1948.5   26.85 1948.53    27.2  1948.6   27.44 1948.65   28.18  1948.6
   28.54 1948.58   31.08  1948.5   33.97 1948.41   34.39  1948.4   37.08 1948.32
   37.62  1948.3   37.65  1948.3   40.49  1948.2   40.74 1948.19   40.75 1948.19
    40.9 1948.19   43.62  1948.1   44.54 1948.11   44.78  1948.1   45.12 1948.12
   51.81  1948.1   52.12  1948.1   54.79 1948.12   55.23  1948.1   55.48 1948.12
   55.52  1948.1   56.42 1948.08   56.76 1948.09   60.91 1948.04   65.66 1948.02
   66.05 1948.06    66.7  1948.1   66.84 1948.11    68.2  1948.2   68.27  1948.2
   68.28  1948.2   68.42  1948.2   68.61  1948.2   72.88 1948.25   75.56 1948.28
   75.85  1948.2   75.93 1948.18   76.14 1948.17   76.48  1948.1      77 1948.17
   77.19  1948.2   77.78 1948.28   78.26  1948.2   78.65 1948.13   78.84  1948.1
   79.42    1948   79.43    1948   79.47 1947.99   79.56  1947.9   79.57 1947.88
   79.65  1947.8   79.68 1947.77   79.75  1947.7   79.79 1947.66   79.84  1947.6
   79.89 1947.55   79.94  1947.5   79.99 1947.45   80.03  1947.4   80.08 1947.35
   80.13  1947.3   80.19 1947.24   80.22  1947.2   80.31  1947.1   80.32  1947.1
   80.32 1947.09   80.58    1947   80.64 1946.98   80.87  1946.9      81 1946.87
   81.23  1946.8   81.36 1946.76   81.59  1946.7   81.73 1946.66   81.95  1946.6
    82.1 1946.56   82.31  1946.5   82.47 1946.46   82.67  1946.4   82.84 1946.35
   83.03  1946.3   83.21 1946.25   83.39  1946.2   83.58 1946.15   83.75  1946.1
   83.95 1946.04   84.11    1946   84.32 1945.94   84.47  1945.9    84.7 1945.84
   84.83  1945.8   85.08 1945.73   85.19  1945.7   85.46 1945.63   85.55  1945.6
   85.84 1945.52   85.91  1945.5   86.22 1945.41   86.27  1945.4   86.61  1945.3
   86.63  1945.3    86.8 1945.25   86.96  1945.2   86.98  1945.2   87.27  1945.1
   87.32 1945.08   87.58    1945   87.68 1944.97    87.9  1944.9   88.04 1944.85
   88.21  1944.8   88.42 1944.73   88.52  1944.7   88.82  1944.6   88.83  1944.6
   89.32  1944.5   89.33 1944.49   89.78  1944.4   89.83 1944.39   90.26  1944.3
   90.33 1944.29   90.74  1944.2   90.82 1944.18   91.21  1944.1   91.31 1944.08
   91.69    1944   92.09 1943.92   92.17  1943.9   92.61 1943.81   92.72  1943.8
   92.77  1943.8   94.34  1943.7   94.89 1943.67   95.96  1943.6   96.93 1943.54
   97.57  1943.5   98.35 1943.45      99 1943.46    99.9 1943.47  101.57 1943.48
  106.54  1943.4  106.68 1943.41   108.1  1943.5  108.87 1943.55  109.61  1943.6
  110.39 1943.65  111.12  1943.7   111.9 1943.75  112.63  1943.8  113.42 1943.85
  114.15  1943.9  114.95 1943.95  115.66    1944   116.5 1944.06  117.17  1944.1
  117.49 1944.13  118.14  1944.2  118.44  1944.3  118.45  1944.3  118.51 1944.32
  118.73 1944.38  118.79  1944.4  119.05 1944.47  119.13  1944.5  119.38 1944.57
  119.48  1944.6  119.71 1944.67  119.82  1944.7  120.05 1944.77  120.17  1944.8
  120.39 1944.87  120.51  1944.9  120.74 1944.96  120.86    1945  121.08 1945.06
   121.2  1945.1  121.42 1945.16  121.55  1945.2  121.77 1945.26  121.89  1945.3
  122.11 1945.36  122.24  1945.4  122.45 1945.46  122.58  1945.5   122.8 1945.56
  122.93  1945.6  123.14 1945.66  123.27  1945.7  123.49 1945.76  123.62  1945.8
```

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  123.83 1945.86  123.96  1945.9  124.18 1945.96  124.31    1946  124.52 1946.06
  124.65  1946.1  124.86 1946.16     125  1946.2  125.21 1946.26  125.34  1946.3
  125.55 1946.36  125.69  1946.4   125.9 1946.46  126.03  1946.5  126.24 1946.56
  126.38  1946.6  126.59 1946.66  126.72  1946.7  126.93 1946.76  127.07  1946.8
  127.28 1946.86  127.41  1946.9  127.62 1946.96  127.76    1947  127.97 1947.06
   128.1  1947.1  128.31 1947.16  128.45  1947.2  128.65 1947.26  128.79  1947.3
     129 1947.36  129.14  1947.4  129.34 1947.46  129.48  1947.5  129.69 1947.56
  129.83  1947.6  130.03 1947.66  130.17  1947.7  130.38 1947.76  130.51  1947.8
  130.72 1947.86  130.86  1947.9  131.07 1947.96   131.2    1948  131.41 1948.06
  131.55  1948.1  131.76 1948.16  131.89  1948.2   132.1 1948.26  132.24  1948.3
  132.45 1948.36  132.58  1948.4  132.75 1948.45  132.93  1948.5  133.14 1948.56
  133.27  1948.6  133.57 1948.69  133.62  1948.7  133.73 1948.73  134.38  1948.7
   134.6 1948.69  136.37  1948.6  137.45 1948.55  138.37  1948.5     139 1948.51
  140.66 1948.55  145.87 1948.55  148.27  1948.5   150.6 1948.53

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   77.78    .035  133.73    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         77.78  133.73            21.98    24.6   26.83             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2626.19

INPUT
Description:
Station Elevation Data    num=     286
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0 1948.43.1599884 1948.442.809998  1948.45.799988 1948.368.909988  1948.3
9.769989 1948.28   16.39  1948.216.48999  1948.2   16.62  1948.220.01999  1948.2
   20.09  1948.220.10999  1948.220.12999  1948.2   20.62  1948.320.80999 1948.34
21.13999  1948.421.32999 1948.4422.21999 1948.4522.23999  1948.522.64999 1948.45
23.69999 1948.4623.88999  1948.524.87999  1948.5   25.16 1948.44   25.34  1948.4
   25.62 1948.34    25.8  1948.3   26.09 1948.2426.25999  1948.2   26.55 1948.14
26.70999  1948.127.16999    194827.53999 1947.9733.39999 1947.9738.95999 1947.96
42.53999 1947.9543.78999 1947.9544.87999 1947.9646.14999 1947.9547.70999 1947.95
    51.8 1947.9354.18999 1947.91   55.91  1947.956.84999 1947.8563.92999 1947.82
65.28999 1947.8465.75999 1947.8766.03999  1947.9   66.09 1947.94   66.16    1948
   66.23 1948.0666.26999  1948.166.34999 1948.1766.38999  1948.266.46999 1948.27
66.50999  1948.3   66.59 1948.3766.62999  1948.466.70999 1948.4766.73999  1948.5
66.77999 1948.5366.85999  1948.666.92999 1948.66   66.98  1948.767.05999 1948.77
   67.24  1948.868.57999 1948.7268.70999  1948.7   68.87 1948.67   69.34  1948.6
   69.48 1948.58   69.87 1948.5270.06999  1948.570.59999 1948.45    70.8  1948.4
   71.12  1948.371.12999  1948.371.44999  1948.271.45999  1948.271.77999  1948.1
71.78999  1948.172.10999    1948   72.12    194872.43999  1947.972.44999  1947.9
72.76999  1947.872.77999  1947.873.10999  1947.773.14999 1947.6973.41999  1947.6
73.42999  1947.673.73999  1947.573.74999  1947.5   74.05  1947.474.06999 1947.39
   74.37  1947.374.39999 1947.2974.67999  1947.274.71999 1947.1974.99999  1947.1
75.03999 1947.0975.30999    1947   75.37 1946.9875.62999  1946.975.68999 1946.88
75.93999  1946.876.01999 1946.7876.24999  1946.7   76.34 1946.6776.56999  1946.6
76.66999 1946.5776.87999  1946.576.99999 1946.4677.19999  1946.477.31999 1946.36
77.50999  1946.377.64999 1946.2677.82999  1946.2   77.98 1946.1578.13999  1946.1
78.30999 1946.0578.45999    194678.64999 1945.9478.76999  1945.9   78.98 1945.83
   79.09  1945.879.31999 1945.7379.39999  1945.779.64999 1945.6279.71999  1945.6
79.98999 1945.5180.02999  1945.580.32999  1945.480.34999  1945.480.48999 1945.36
80.69999  1945.381.07999  1945.2   81.09  1945.281.46999  1945.181.48999  1945.1
81.85999 1945.0181.87999    194582.23999 1944.9182.26999  1944.982.62999 1944.81
82.65999  1944.883.01999 1944.7183.04999  1944.783.39999 1944.6183.43999  1944.6
83.78999 1944.5183.82999  1944.584.17999 1944.4184.21999  1944.484.56999 1944.31
84.60999  1944.384.95999 1944.2185.00999  1944.2   85.34 1944.1185.39999  1944.1
   85.73 1944.0185.78999    1944   86.12 1943.9186.17999  1943.986.50999 1943.81
86.56999  1943.886.89999 1943.7286.95999  1943.787.28999 1943.6287.34999  1943.6
87.67999 1943.5287.73999  1943.588.06999 1943.4288.12999  1943.488.45999 1943.32
88.52999  1943.388.67999 1943.26   89.81 1943.2390.15999 1943.2290.24999  1943.2
   92.95 1943.23   98.92  1943.3  100.58 1943.35  100.89  1943.4  101.09 1943.43
  101.51  1943.5  101.91 1943.56  102.13  1943.6  102.31 1943.63  102.76  1943.7
     103 1943.74  103.38  1943.8  103.99  1943.9     104  1943.9  104.03  1943.9
  105.84    1944  107.58 1944.09  107.59  1944.1  107.74  1944.2  107.77 1944.22
  107.88  1944.3  108.01 1944.39  108.03  1944.4  108.17  1944.5   108.2 1944.52
  108.61  1944.6  108.68 1944.62  109.09  1944.7  109.23 1944.73  109.58  1944.8
  109.75 1944.84  110.07  1944.9  110.27 1944.94  110.55    1945  110.77 1945.04
  111.04  1945.1  111.28 1945.15  111.53  1945.2  111.78 1945.25  112.04  1945.3
  112.29 1945.35  112.54  1945.4   112.8 1945.46  112.99  1945.5  113.32 1945.57
  113.48  1945.6  113.84 1945.68  113.96  1945.7  114.37 1945.78  114.45  1945.8
  114.89 1945.89  114.94  1945.9  115.38 1945.99  115.43    1946  115.95  1946.1
     116 1946.11  116.47  1946.2  116.56 1946.22     117  1946.3  117.11 1946.32
  117.52  1946.4  117.66 1946.43  118.04  1946.5   118.2 1946.53  118.56  1946.6
  118.74 1946.63  119.09  1946.7  119.28 1946.74  119.61  1946.8  119.82 1946.84
  120.13  1946.9  120.35 1946.94  120.66    1947  120.89 1947.04  121.18  1947.1
  121.42 1947.15   121.7  1947.2  121.95 1947.25  122.22  1947.3  122.48 1947.35
  122.75  1947.4  123.01 1947.45  123.27  1947.5  123.54 1947.55  123.79  1947.6
  124.07 1947.65  124.32  1947.7  124.59 1947.75  124.84  1947.8  125.17 1947.86
  125.36  1947.9  125.78 1947.98  125.88    1948  126.29 1948.08  129.52 1948.08
   136.2  1948.1  140.57 1948.11  140.72  1948.1  140.84 1948.09  142.23    1948
     143 1947.95  143.74  1947.9  144.77 1947.83  145.25  1947.8   145.7 1947.77
  146.18 1947.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   67.24    .035  126.29    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         67.24  126.29            19.32   24.41   28.81             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2601.78

INPUT
Description:
Station Elevation Data    num=     280
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0 1948.01.6100006    19483.910004 1947.954.110001 1947.945.410004  1947.9
6.419998 1947.87 8.51001  1947.89.840012 1947.7611.60001  1947.7    13.7 1947.67
13.96001 1947.6715.32001 1947.67   19.87 1947.64   23.09  1947.625.42001 1947.57
   26.58 1947.5732.47001  1947.5    35.7 1947.45   35.76 1947.4536.47001 1947.43
   38.77 1947.4738.79001 1947.48   39.02 1947.4841.56001  1947.5   42.76 1947.51
   48.69 1947.5251.03001 1947.5251.92001  1947.553.85001 1947.4656.46001  1947.4
   58.83 1947.3559.64001 1947.33   59.84  1947.460.06001 1947.48   60.13  1947.5
60.39001 1947.5960.42001  1947.6    60.7  1947.760.90001 1947.77   60.98  1947.8
60.99001  1947.861.24001  1947.9   61.26 1947.9161.50001    194861.54001 1948.01
   61.76  1948.161.81001 1948.12   62.02  1948.262.07001 1948.2262.28001  1948.3
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   62.34 1948.3262.54001  1948.462.60001 1948.43    62.8  1948.5   62.87 1948.53
63.06001  1948.6   63.13 1948.6363.32001  1948.763.40001 1948.73   63.58  1948.8
   63.77 1948.8764.31001 1948.83   64.53  1948.9   64.95 1948.84   65.05  1948.8
65.14001 1948.76   65.27  1948.7   65.37 1948.6665.49001  1948.6   65.59 1948.56
65.71001  1948.565.81001 1948.4665.93001  1948.466.04001 1948.3566.15001  1948.3
   66.26 1948.25   66.38  1948.266.49001 1948.1566.60001  1948.1    66.7 1948.04
66.78001    1948   66.87 1947.96   67.02  1947.9   67.12 1947.86   67.27  1947.8
67.39001 1947.7567.50001  1947.7   67.62 1947.6567.72001  1947.667.82001 1947.55
   67.94  1947.5   68.01 1947.45   68.12  1947.4   68.19 1947.35   68.26  1947.3
   68.33 1947.2468.40001  1947.2   68.48 1947.1468.53001  1947.1   68.62 1947.04
68.67001    1947   68.77 1946.9368.81001  1946.9   68.91 1946.83   68.95  1946.8
69.06001 1946.72   69.09  1946.769.21001 1946.6169.22001  1946.669.35001  1946.5
69.36001  1946.569.43001 1946.4569.54001  1946.4   69.55  1946.4   69.77  1946.3
    69.8 1946.2970.00001  1946.270.04001 1946.18   70.23  1946.170.28001 1946.08
70.46001    1946   70.52 1945.97   70.69  1945.9   70.76 1945.8770.92001  1945.8
71.00001 1945.7771.15001  1945.7   71.23 1945.66   71.38  1945.671.47001 1945.56
71.61001  1945.5    71.7 1945.46   71.84  1945.4   71.94 1945.3672.07001  1945.3
72.21001 1945.24    72.3  1945.2   72.51 1945.11   72.58  1945.172.64001 1945.09
73.74001    194574.32001 1944.9574.89001  1944.9    75.8 1944.82   76.05  1944.8
76.37001 1944.77   76.94  1944.7   77.55 1944.62   77.72  1944.6   78.44 1944.51
78.51001  1944.5   78.97 1944.4479.07001  1944.4   79.13 1944.3779.31001  1944.3
   79.47 1944.2479.56001  1944.279.76001 1944.12    79.8  1944.180.04001    1944
   80.05    194480.17001 1943.9580.32001  1943.9   80.61  1943.8   80.88 1943.71
   80.91  1943.781.17001 1943.6181.21001  1943.681.24001 1943.5981.51001  1943.5
82.21001 1943.41    82.3  1943.483.18001 1943.3584.32001 1943.3984.64001  1943.4
   85.33 1943.4285.53001  1943.4   85.61 1943.3986.46001  1943.3    86.8 1943.26
87.39001  1943.287.90001 1943.1488.31001  1943.1    88.7 1943.0689.24001    1943
90.40001    1943   91.16 1943.0791.43001  1943.191.67001 1943.1292.46001  1943.2
   92.69 1943.2293.48001  1943.3   94.45 1943.3994.51001  1943.4   95.02 1943.45
95.43001  1943.595.46001  1943.596.26001 1943.59   96.33  1943.697.10001 1943.69
97.21001  1943.7   97.95 1943.78   98.09  1943.898.81001 1943.8898.96001  1943.9
99.67001 1943.98   99.84    1944  100.53 1944.08  100.72  1944.1   101.4 1944.18
   101.6  1944.2  102.27 1944.28  102.47  1944.3   102.7 1944.32  103.44  1944.4
  103.71 1944.43  104.49  1944.5  104.77 1944.53  105.55  1944.6  105.84 1944.63
   106.6  1944.7  106.91 1944.73  107.66  1944.8     108 1944.83  108.72  1944.9
  109.11 1944.94  109.64    1945  110.12 1945.04  110.79  1945.1  111.41 1945.18
   111.6 1945.19  111.64  1945.2   111.7 1945.21  111.91  1945.3  112.12 1945.39
  112.14  1945.4  112.24 1945.45  112.39 1945.49  112.41  1945.5  112.69 1945.59
  112.72  1945.6  112.99 1945.69  113.04  1945.7   113.3 1945.78  113.35  1945.8
   113.6 1945.88  113.66  1945.9  113.91 1945.98  113.98    1946  114.22 1946.08
  114.29  1946.1  114.54 1946.18   114.6  1946.2  114.85 1946.28  114.91  1946.3
  115.16 1946.38  115.23  1946.4  115.47 1946.48  115.54  1946.5  115.78 1946.58
  115.85  1946.6  116.09 1946.68  116.17  1946.7  116.41 1946.78  116.48  1946.8
  116.72 1946.88  116.79  1946.9  117.03 1946.98  117.11    1947  117.34 1947.08
  117.42  1947.1  117.66 1947.18  117.73  1947.2  118.32 1947.24  119.53  1947.3
  121.17 1947.38  122.81 1947.37  125.71 1947.37   131.8 1947.35  139.99 1947.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   64.53     .05  121.17    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         64.53  121.17             24.17   25.19   26.43             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2576.59

INPUT
Description:
Station Elevation Data    num=     277
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1947.141.360001  1947.13.070007 1947.05 4.51001    19477.070007 1946.92
7.650009  1946.97.979996 1946.8710.04001  1946.9   10.11 1946.92   11.03  1946.9
12.04001 1946.9513.01001    1947   14.38 1947.08   14.72  1947.115.01001 1947.13
17.60001 1947.13   18.39 1947.13    19.7 1947.14   22.05 1947.1622.06001 1947.16
   22.59 1947.12   23.13  1947.2   23.34 1947.23   23.84  1947.324.10001 1947.34
   24.54  1947.424.85001 1947.4525.24001  1947.5   25.61 1947.55   25.93  1947.6
   26.36 1947.66   26.62  1947.7   32.94 1947.79   33.19 1947.79    33.3 1947.79
   33.88 1947.77   34.18  1947.8      35 1947.87   35.28  1947.9    35.3  1947.9
    36.2    1948   36.28 1948.01   37.12  1948.1   37.28 1948.12   38.04  1948.2
38.31001 1948.23   38.55 1948.26   38.96  1948.3   39.41 1948.35   39.87  1948.4
   40.63 1948.48   40.79  1948.541.10001 1948.53   41.46  1948.5   41.87 1948.46
   42.51  1948.4   43.48 1948.31   47.05  1948.3   48.79  1948.3   48.84  1948.3
   48.86  1948.3   50.15  1948.4   50.53 1948.43   51.45  1948.5   52.12 1948.55
   52.75  1948.6   55.68 1948.69   55.73  1948.7   58.22 1948.79   58.26 1948.79
   58.27 1948.79   59.71  1948.8   63.26  1948.7   63.51 1948.69   64.11 1948.68
64.35001  1948.6   64.43 1948.57   64.65  1948.5   64.78 1948.46   64.96  1948.4
   65.12 1948.35   65.26  1948.3   65.44 1948.24   65.57  1948.2   65.76 1948.14
   65.87  1948.1   66.08 1948.03   66.18    1948   66.39 1947.93   66.48  1947.9
    66.7 1947.83   66.79  1947.8   67.01 1947.73   67.09  1947.767.17001 1947.67
    67.4  1947.6   67.48 1947.57    67.7  1947.5   67.79 1947.47      68  1947.4
68.10001 1947.3768.31001  1947.3   68.41 1947.27   68.61  1947.2   68.72 1947.16
   68.91  1947.1   69.03 1947.06   69.21    1947   69.34 1946.96   69.47  1946.9
69.60001 1946.86   69.69  1946.8   69.79 1946.76   69.88  1946.7   69.97 1946.64
   70.05  1946.6   70.14 1946.54   70.22  1946.570.31001 1946.44   70.39  1946.4
   70.48 1946.34   70.55  1946.3   70.65 1946.24   70.72  1946.2   70.82 1946.14
   70.89  1946.170.99001 1946.0471.06001    1946   71.16 1945.94   71.22  1945.9
   71.32 1945.84   71.39  1945.871.49001 1945.74   71.55  1945.7   71.66 1945.63
   71.72  1945.6   71.82 1945.53   71.88  1945.571.99001 1945.43   72.05  1945.4
   72.16 1945.33   72.21  1945.3   72.32 1945.23    72.4  1945.2   72.51 1945.13
72.60001  1945.1   72.71 1945.03    72.8    1945   73.03 1944.91   73.07  1944.9
   73.18 1944.86   73.59  1944.8    73.8 1944.77   74.25  1944.7   74.61 1944.65
   74.91  1944.6   75.34 1944.54   75.57  1944.5   75.84 1944.46   76.23  1944.4
   76.58 1944.35    76.9  1944.3   77.37 1944.2377.56001  1944.2   78.14 1944.11
   78.32  1944.1   78.54 1944.09   79.79    1944   80.27 1943.9780.56001  1943.9
   80.64 1943.88   80.98  1943.8   81.36 1943.71   81.41  1943.7    81.7 1943.63
   82.03  1943.6   82.17 1943.59   83.03  1943.583.43001 1943.46   84.03  1943.4
   84.58 1943.35   85.04  1943.3   85.42 1943.26   86.04  1943.2   86.76 1943.13
   87.04  1943.187.68001 1943.06   88.03 1943.06   89.47  1943.191.32001 1943.13
   92.64  1943.2    93.2 1943.23   94.41  1943.3   95.64 1943.3796.18001  1943.4
   97.84 1943.49   97.92  1943.5   97.98  1943.5   99.25  1943.6   99.88 1943.65
  100.59  1943.7  101.49 1943.77  101.89  1943.8  102.72 1943.88  102.92  1943.9
   103.6 1943.98  103.79    1944  104.48 1944.08  104.66  1944.1  104.82 1944.12
  105.53  1944.2  105.72 1944.22  106.41  1944.3  106.61 1944.32  107.28  1944.4
  107.51 1944.43  108.16  1944.5  108.41 1944.53  109.03  1944.6  109.31 1944.63
  109.91  1944.7  110.48 1944.77  110.75 1944.77  110.98  1944.8  111.19 1944.82
  111.91  1944.9  112.14 1944.93  112.84    1945  113.08 1945.03  113.77  1945.1
  114.17 1945.14  114.71  1945.2  115.45 1945.28  115.65  1945.3  115.93 1945.33
   116.2  1945.4  116.31 1945.43  116.58  1945.5  116.82 1945.56  116.97  1945.6
  117.12 1945.64  117.35  1945.7  117.49 1945.74  117.73  1945.8  117.86 1945.83
  118.12  1945.9  118.22 1945.93   118.5    1946  118.57 1946.02  118.88  1946.1
   118.9  1946.1  118.95 1946.12  119.55 1946.18   119.7  1946.2   120.3 1946.27
   120.6  1946.3  121.09 1946.35  121.51  1946.4  121.96 1946.45  122.41  1946.5
  123.01 1946.57  123.32  1946.6  124.08 1946.68  124.31  1946.7  124.35  1946.7
  124.83 1946.73  125.73 1946.77  126.51 1946.77  127.18  1946.8  128.08 1946.81
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  131.75 1946.88     133  1946.9  133.98 1946.92   138.6    1947  139.97 1947.02
   144.2  1947.1  144.94 1947.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   59.71    .035  124.83    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         59.71  124.83             36.89   25.23   18.12             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2551.36

INPUT
Description:
Station Elevation Data    num=     361
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0 1947.19      .41 1947.12      .54  1947.1      .58 1947.09      .86    1947
   1.049 1946.94     1.16  1946.9     1.45 1946.81    1.471  1946.81.529999 1946.78
 2.23999 1946.78 4.48999 1946.754.830002  1946.84.839996 1946.81 4.87999  1946.8
5.080002 1946.786.789993  1946.78.119995 1946.638.799988  1946.69.729996 1946.55
   10.47 1946.5211.14999  1946.611.68999 1946.6711.81999  1946.7   11.89 1946.72
   12.22  1946.812.40999 1946.85   12.61  1946.912.87999 1946.9713.00999    1947
   13.33 1947.0813.40999  1947.1   13.48 1947.1213.79999  1947.213.92999 1947.23
    14.2  1947.3   14.45 1947.35   14.59  1947.4   14.75 1947.4614.81999 1947.49
   14.86 1947.49   14.87  1947.514.87999  1947.5   15.17  1947.615.18999 1947.61
15.45999  1947.715.50999 1947.7115.75999  1947.8   15.83 1947.82   16.06  1947.9
   16.17 1947.9416.34999    194816.51999 1948.0616.64999  1948.116.89999 1948.19
16.93999  1948.217.04999 1948.2317.23999  1948.2   17.75 1948.11   17.81  1948.1
17.84999 1948.0917.87999  1948.1   17.92 1948.1118.28999  1948.2   18.47 1948.25
   18.59 1948.21   18.62  1948.2   18.87 1948.12   18.95  1948.1   19.17 1948.03
19.27999    194819.46999 1947.9419.60999  1947.919.78999 1947.8519.92999  1947.8
20.09999 1947.7520.25999  1947.7   20.42 1947.65   20.59  1947.6   20.74 1947.55
   20.92  1947.521.17999 1947.4221.24999  1947.421.31999 1947.38   21.48  1947.4
21.60999 1947.4522.03999 1947.45    22.2  1947.422.42999 1947.3322.52999  1947.3
22.81999 1947.2123.82999 1947.2724.24999 1947.29   24.42  1947.324.95999 1947.32
25.06999  1947.425.10999 1947.43    25.2  1947.525.27999 1947.55   25.34  1947.6
25.42999 1947.67   25.48  1947.725.56999 1947.7725.60999  1947.825.71999 1947.88
25.74999  1947.9   25.87 1947.99   25.88    1948   25.95 1948.0526.00999    1948
   26.02 1947.99   26.12  1947.926.14999 1947.88   26.23  1947.8   26.27 1947.77
26.34999  1947.726.38999 1947.6626.45999  1947.626.50999 1947.5526.56999  1947.5
26.63999 1947.4426.67999  1947.426.78999  1947.3    26.8 1947.2927.63999  1947.2
   28.34  1947.128.77999 1947.04   29.16 1947.04   29.55 1947.0530.64999  1947.1
   30.73 1947.1430.84999  1947.230.96999 1947.26   31.05  1947.331.17999 1947.37
   31.24  1947.431.38999 1947.4731.43999  1947.531.59999 1947.5831.63999  1947.6
31.81999 1947.69   31.84  1947.731.96999 1947.7732.24999  1947.832.34999 1947.81
   33.12  1947.9   33.62 1947.9633.99999    194834.57999 1948.0735.25999 1948.01
35.38999    194836.25999 1947.9336.57999  1947.9   37.24 1947.8437.74999  1947.8
    38.2 1947.7638.89999  1947.739.14999 1947.68   40.02  1947.640.07999  1947.6
40.31999 1947.57   40.81  1947.5   41.23 1947.44   42.77 1947.43   46.67 1947.42
   46.99  1947.447.70999 1947.36   48.95  1947.349.28999 1947.28   50.17  1947.2
50.56999 1947.1651.21999  1947.1   52.92 1947.07   53.31    1947   53.67 1946.91
53.71999  1946.9   53.95 1946.84   54.34 1946.85   55.06 1946.86   55.38 1946.85
56.07999 1946.83   57.05 1946.8359.06999 1946.8159.27999  1946.8   61.73 1946.71
   61.84  1946.762.57999 1946.6463.06999 1946.6763.17999 1946.6863.28999  1946.7
63.38999 1946.72   63.87  1946.864.25999 1946.87   64.45  1946.964.49999 1946.91
64.92999 1946.91   64.95  1946.9   64.98 1946.89   65.17  1946.865.20999 1946.78
65.38999  1946.765.42999 1946.6865.60999  1946.6   65.66 1946.5865.82999  1946.5
65.88999 1946.47   66.05  1946.4   66.12 1946.37   66.27  1946.366.35999 1946.26
   66.49  1946.266.59999 1946.1566.70999  1946.166.85999 1946.0366.92999    1946
   67.13  1945.967.13999  1945.9   67.17 1945.89   67.48  1945.867.53999 1945.78
   67.84  1945.767.95999 1945.6768.18999  1945.6   68.48 1945.55   68.84  1945.5
69.09999 1945.4769.57999  1945.4   69.67 1945.3969.89999 1945.3670.03999 1945.31
70.07999  1945.370.31999 1945.2270.38999  1945.2   70.62 1945.13    70.7  1945.1
   70.92 1945.03   71.02    1945    71.3 1944.93   71.42  1944.9    71.8 1944.81
71.85999  1944.8   72.24 1944.7172.31999  1944.772.32999  1944.7   72.92  1944.6
   72.99 1944.5973.50999  1944.5   73.63 1944.4874.09999  1944.474.24999 1944.37
74.67999  1944.375.14999 1944.2275.24999  1944.2   75.48 1944.1677.71999  1944.1
   79.84 1944.04   80.34    194480.45999 1943.99   81.48  1943.9   81.77 1943.87
   82.62  1943.8   83.05 1943.7684.37999  1943.786.03999 1943.6286.50999  1943.6
    86.7 1943.59   88.03 1943.53   88.64 1943.53   89.41 1943.53   89.75 1943.53
   89.95 1943.51      90  1943.590.67999 1943.4290.84999  1943.490.98999 1943.38
    91.7  1943.3   92.28 1943.2393.32999  1943.297.03999 1943.2797.51999  1943.3
    98.8 1943.3998.92999  1943.4   99.28 1943.42  101.56  1943.5  102.92 1943.55
  103.54  1943.6  103.77 1943.62  104.67  1943.7  105.74 1943.79   105.8  1943.8
  105.93 1943.81  109.77  1943.9  110.26 1943.96  110.47    1944  110.57 1944.02
  110.98  1944.1  111.16 1944.14  111.48  1944.2  111.71 1944.24  111.99  1944.3
  112.23 1944.35   112.5  1944.4  112.75 1944.45     113  1944.5  113.26 1944.55
  113.51  1944.6  113.78 1944.65  114.01  1944.7  114.29 1944.75  114.52  1944.8
   114.8 1944.85  115.03  1944.9  115.31 1944.96  115.53    1945  115.82 1945.06
  116.04  1945.1  116.32 1945.16  116.54  1945.2  116.83 1945.26  117.05  1945.3
  117.34 1945.36  117.56  1945.4  117.88 1945.46  118.33  1945.5  118.66 1945.52
  120.71  1945.6  121.77 1945.64  122.49  1945.7  122.62 1945.71  123.67  1945.8
  123.94 1945.82  124.85  1945.9   125.2 1945.93  126.03    1946  126.44 1946.03
  127.21  1946.1  128.06 1946.17  128.39  1946.2  129.53  1946.3  129.57  1946.3
  129.68 1946.31  131.28  1946.4  131.79 1946.43  132.75 1946.48  133.04  1946.5
  133.85 1946.55  134.81  1946.6  135.79 1946.66  136.58  1946.7  137.68 1946.76
  138.34  1946.8  139.07 1946.84  140.11  1946.9  141.01 1946.95  141.87    1947
  143.06 1947.07  143.64  1947.1  145.31 1947.19  145.41  1947.2  145.63 1947.21
  147.01 1947.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02564.92999    .035  118.33    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         64.45  117.88             19.09   24.92   30.78             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2526.44

INPUT
Description:
Station Elevation Data    num=     269
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0 1944.511.610001 1944.572.520004  1944.64.099991 1944.655.490005  1944.7
6.529999 1944.738.459991  1944.88.770004 1944.819.490005 1944.8312.53999 1944.86
15.39999  1944.9   22.92 1944.98   23.23 1944.97   24.88 1944.92   25.42 1944.92
   25.86 1944.91   26.17 1944.91   26.45 1944.93   26.56 1944.93   32.37  1944.9
    34.6 1944.8935.43999 1944.88   35.47 1944.88    35.7 1944.88   36.21  1944.9
   38.15 1944.99   38.35    1945   38.43    194538.50999    1945   39.58 1944.95
    42.7 1944.94   44.58 1944.94    45.8    1945   47.21 1945.07   47.82  1945.1
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    48.1 1945.11   48.99 1945.14   49.83  1945.150.75999 1945.19   50.91  1945.2
51.00999 1945.21   51.29 1945.22   52.03 1945.26   52.91 1945.24   53.71 1945.22
   54.59  1945.3    55.4 1945.37   55.71  1945.3   55.92 1945.23   55.99  1945.2
   56.08 1945.17   56.28  1945.1   56.38 1945.07   56.57    1945   56.67 1944.96
   56.85  1944.9   56.98 1944.85   57.14  1944.8   57.32 1944.74   57.42  1944.7
   57.65 1944.62   57.97  1944.7   58.04 1944.72   58.16  1944.758.18999  1944.7
   58.83  1944.6   59.03 1944.57    59.5  1944.5   59.91 1944.44   60.18  1944.4
   60.54 1944.35   60.85  1944.3   61.16 1944.26   61.53  1944.2   61.75 1944.17
    62.2  1944.1   62.29 1944.09   62.49 1944.06    62.6    1944   62.79  1943.9
    62.8 1943.89   62.99  1943.8   63.17  1943.7   63.18  1943.7   63.25 1943.67
   63.63 1943.63   64.04  1943.6   64.66 1943.55   65.24  1943.5   65.74 1943.45
   66.39  1943.4   67.07 1943.3467.50999  1943.3   68.32 1943.22   68.59  1943.2
   69.52 1943.11   69.67  1943.1   70.68    1943   70.73    1943   71.35 1942.94
   71.78 1942.91   71.84  1942.971.93999 1942.89   73.06  1942.8   73.72 1942.75
   74.27  1942.7   74.68 1942.67   75.74 1942.62   75.96 1942.61   76.11  1942.6
76.18999 1942.59   77.47  1942.5   78.23 1942.45   78.86  1942.4   79.91 1942.33
   80.28  1942.3   81.89 1942.21      82  1942.2    82.1 1942.19   82.56 1942.17
   83.42 1942.16   84.98 1942.15   85.49 1942.16   86.27  1942.1   86.82 1942.07
88.00999 1942.09   88.57  1942.1    91.1 1942.14   91.35  1942.1   91.41 1942.09
   91.98    1942   92.28 1941.95   92.61  1941.9   93.03 1941.83   93.56  1941.9
93.92999 1941.95   94.37    1942   95.02 1942.0895.17999  1942.1   95.98  1942.2
   95.99  1942.2      96  1942.2   96.05  1942.2   96.07 1942.21    96.3  1942.2
   97.47 1942.15   98.39 1942.17   99.82  1942.2  100.87 1942.22  101.29 1942.25
  101.52  1942.3  101.53  1942.3  102.06  1942.4  102.29 1942.44  102.61  1942.5
  102.62  1942.5  103.17  1942.6  103.19  1942.6  103.72  1942.7  103.77 1942.71
  104.28  1942.8  104.34 1942.81  104.84  1942.9  104.93 1942.92  105.39    1943
  105.52 1943.02  105.95  1943.1  106.12 1943.13   106.5  1943.2  106.74 1943.24
  107.06  1943.3  107.38 1943.36  107.62  1943.4  108.06 1943.48  108.17  1943.5
  108.49 1943.56  108.73  1943.6  108.75  1943.6   109.3  1943.7  109.42 1943.72
  109.87  1943.8  110.33 1943.79  110.48 1943.78  111.32 1943.77  112.16  1943.8
  112.68 1943.72  112.85  1943.7  113.03 1943.67  113.38  1943.7  113.53 1943.71
   114.7  1943.8  114.82 1943.81  115.15 1943.82  116.19 1943.84  117.63 1943.81
  118.23 1943.83  118.81 1943.85  118.92 1943.85  119.87  1943.9  120.41 1943.94
  121.73    1944  121.96 1944.02  122.87  1944.1  122.97 1944.11  123.09 1944.12
  123.18  1944.1  123.22 1944.09  123.62    1944  123.81 1943.96  123.83 1943.94
  123.85  1943.9  124.44 1943.85  127.65 1943.86  128.84  1943.8  129.55 1943.76
  129.63 1943.76  130.38  1943.8  131.44 1943.86  132.51 1943.86  133.26 1943.86
  133.96  1943.8  134.34 1943.76  134.91  1943.7  135.77  1943.6  138.34  1943.6
  138.52  1943.6  140.51  1943.7  142.29 1943.79  142.53  1943.8  143.05 1943.85
  143.64  1943.9  143.85 1943.92   144.1    1944  144.18 1944.03  144.42  1944.1
  144.55 1944.14  144.73  1944.2   144.9 1944.25  145.05  1944.3  145.22 1944.35
  145.36  1944.4  145.56 1944.46  145.68  1944.5  145.91 1944.57  145.99  1944.6
  146.27 1944.69  146.31  1944.7  146.55 1944.78  146.82 1944.79  147.15  1944.8
  148.18 1944.84   149.6 1944.89  149.61  1944.9  149.72    1945  149.73 1945.01
  149.82  1945.1  149.85 1945.12  149.93  1945.2  149.96 1945.23  150.03  1945.3
  150.07 1945.34  150.14  1945.4  150.18 1945.44  150.24  1945.5  150.31 1945.56
  150.35  1945.6  150.62 1945.56  150.77  1945.5  150.92 1945.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    55.4    .035  122.97    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          55.4  122.87             44.23   24.96   30.79             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2501.48

INPUT
Description:
Station Elevation Data    num=     128
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1942.18     .36  1942.1    1.15 1941.94     1.9  1941.8    2.03 1941.74
    2.25 1941.63    2.83 1941.53    3.22  1941.5    3.92 1941.49    4.52  1941.5
4.530003 1941.374.560001  1941.34.580002 1941.25    4.59  1941.24.650002  1940.9
    4.66  1940.84.670002 1940.75    4.68  1940.7    4.69  1940.6     4.7 1940.44
    4.71 1939.934.720001 1939.78    4.73  1939.74.740002  1939.6    4.75  1939.5
    4.77 1939.224.780003  1937.74.780003  1937.84.810001 1937.575.150002 1937.52
    5.66 1937.456.030003  1937.46.440002 1937.34    6.98  1937.38.110001 1937.21
8.400002 1937.17    9.57 1937.07   11.04 1936.96   11.65  1936.9   12.04 1936.87
   12.77  1936.8   13.78  1936.7   14.02 1936.68    15.9  1936.6   16.96 1936.55
   18.08  1936.5   19.96 1936.41   20.32 1936.39   20.69  1936.4   21.34 1936.41
    22.5 1936.49   23.71 1936.58   23.95  1936.6   24.95 1936.67   25.31  1936.7
   26.19 1936.77    26.7  1936.8   27.46 1936.86    28.1  1936.9   28.74 1936.95
   29.53    1937   30.93  1937.1   32.12 1937.18   32.39  1937.2    33.8 1937.29
   34.92 1937.36   35.08 1937.44   35.19  1937.5   35.39 1937.82    35.4    1938
   35.42 1938.45   35.43 1938.62   35.44 1938.72   35.45 1938.92   35.46 1939.02
   35.47 1939.22   35.48 1939.42   35.49 1939.52    35.5 1939.72   35.51 1939.86
   35.52 1940.04   35.53 1940.81   35.53 1940.71   35.53 1940.51   35.54 1940.32
   35.54 1940.42   35.54 1940.58   35.54 1940.68   35.55  1940.4   35.63 1941.41
   35.64  1941.5   35.68  1941.7    35.7  1941.8   37.49  1941.9   37.74 1941.98
   37.78 1942.03   37.98 1942.11   38.41 1942.14   38.55  1942.2   38.68 1942.26
   39.14 1942.46   39.37 1942.56    39.6 1942.66   40.98 1943.26   41.21 1943.36
   41.44 1943.46   41.67 1943.56    41.9 1943.65   42.18 1943.75   42.31  1943.8
   42.48 1943.86   42.81 1943.96   43.14 1944.07    43.7 1944.26   44.26  1944.1
   44.62    1944   44.81 1943.94    45.2 1943.83   45.58 1943.73   45.96 1943.62
   47.08  1943.3   47.44  1943.2   48.14    1943   48.42  1942.9   48.92  1942.7
   49.35  1942.6   51.03 1942.56    52.2 1942.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    4.52    .013    35.7    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4.52    35.7             20.64   15.87    22.6             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2485.61

INPUT
Description: Upstream of N 5th Street Culvert
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1942.16     .64  1942.2     .78 1942.31     .83  1942.4     .86 1942.46
     .86  1942.4     .86 1942.38     .86  1942.3     .86 1942.27     .86  1942.2
     .86 1942.15     .87 1941.71     .88  1941.6     .88 1941.67     .89  1941.2
      .9 1940.79     .91  1940.3     .92 1939.79     .93 1939.29     .94 1938.71
     .95 1938.26     .96  1937.7     .97 1937.08     .98 1936.38     .99 1935.94
       1  1935.8    1.01 1935.29    1.02 1934.79    1.03 1934.29    1.04 1933.79
    1.05 1933.29    1.06 1932.69    1.07 1932.19    1.08 1931.69    1.09 1931.19
     1.1 1930.58    1.11 1930.07    1.12  1929.6    1.13 1929.44    2.15  1929.3
     2.6 1929.26    3.42 1929.22    3.86  1929.2    4.17  1929.2    5.23 1929.18
```

```
    5.82 1929.17    6.37 1929.15    6.86 1929.15    8.14 1929.16    9.22  1929.2
    9.61 1929.22   11.36  1929.3   11.73 1929.33   12.85  1929.4   13.32 1929.44
    13.5  1929.5   13.52  1929.8   13.53  1930.2   13.54  1930.7   13.55  1931.2
   13.56  1931.6   13.57  1932.1   13.58  1932.6   13.59    1933    13.6  1933.5
   13.61    1934   13.62  1934.4   13.63  1934.9   13.64  1935.4   13.65  1935.8
   13.66  1936.3   13.67  1936.7   13.68  1937.2   13.69  1937.7    13.7    1938
   13.71  1938.6   13.72  1939.1   13.73  1939.5   13.74    1940   13.75  1940.4
   13.76  1940.9   13.77  1941.4   13.78 1941.81   13.79  1941.9   13.79  1941.8
    13.8  1942.4    13.8 1942.41    13.8  1942.5    13.8 1942.54   13.81 1942.48
   13.83 1942.36   13.85  1942.3   13.86 1942.25    14.1 1942.27   14.18  1942.2
   14.43 1942.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025     .86    .013    13.8    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .86    13.8            85.04   85.71    86.5             .1       .3

CULVERT


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2484.00

INPUT
Description: Culvert crossing under North 5th Street

Distance from Upstream XS =       1
Deck/Roadway Width        =      70
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     .86 1942.46  1929.1    13.8 1942.54  1929.1

Upstream Bridge Cross Section Data
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1942.16     .64  1942.2     .78 1942.31     .83  1942.4     .86 1942.46
     .86  1942.4     .86 1942.38     .86  1942.3     .86 1942.27     .86  1942.2
     .86 1942.15     .87 1941.71     .88  1941.6     .88 1941.67     .89  1941.2
      .9 1940.79     .91  1940.3     .92 1939.79     .93 1939.29     .94 1938.71
     .95 1938.26     .96  1937.7     .97 1937.08     .98 1936.38     .99 1935.94
       1  1935.8    1.01 1935.29    1.02 1934.79    1.03 1934.29    1.04 1933.79
    1.05 1933.29    1.06 1932.69    1.07 1932.19    1.08 1931.69    1.09 1931.19
     1.1 1930.58    1.11 1930.07    1.12  1929.6    1.13 1929.44    2.15  1929.3
     2.6 1929.26    3.42 1929.22    3.86  1929.2    4.17  1929.2    5.23 1929.18
    5.82 1929.17    6.37 1929.15    6.86 1929.15    8.14 1929.16    9.22  1929.2
    9.61 1929.22   11.36  1929.3   11.73 1929.33   12.85  1929.4   13.32 1929.44
    13.5  1929.5   13.52  1929.8   13.53  1930.2   13.54  1930.7   13.55  1931.2
   13.56  1931.6   13.57  1932.1   13.58  1932.6   13.59    1933    13.6  1933.5
   13.61    1934   13.62  1934.4   13.63  1934.9   13.64  1935.4   13.65  1935.8
   13.66  1936.3   13.67  1936.7   13.68  1937.2   13.69  1937.7    13.7    1938
   13.71  1938.6   13.72  1939.1   13.73  1939.5   13.74    1940   13.75  1940.4
   13.76  1940.9   13.77  1941.4   13.78 1941.81   13.79  1941.9   13.79  1941.8
    13.8  1942.4    13.8 1942.41    13.8  1942.5    13.8 1942.54   13.81 1942.48
   13.83 1942.36   13.85  1942.3   13.86 1942.25    14.1 1942.27   14.18  1942.2
   14.43 1942.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025     .86    .013    13.8    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
          .86    13.8             .1       .3

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     .16 1937.46 1927.94   11.99  1935.4 1927.92

Downstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.43     .16 1937.46     .16 1929.87     .17 1929.01     .18 1927.94
      .61927.939    5.31 1927.93     5.4 1927.93    5.85 1927.93    7.01 1927.93
   11.93 1927.92   11.99  1935.4   12.09  1935.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
          .16   11.99             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1           Box       4      12
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                  1      67     .013     .013        0                   .4               1
Upstream   Elevation =  1929.4
           Centerline Station =  7.38
Downstream Elevation =  1927.93
           Centerline Station =  6.06

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2399.9

INPUT
Description: Downstream of N. 5th Street Culvert Crossing
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
      0 1937.43     .16 1937.46     .16 1929.87     .17 1929.01     .18 1927.94
     .61927.939    5.31 1927.93     5.4 1927.93    5.85 1927.93    7.01 1927.93
   11.93 1927.92   11.99  1935.4   12.09  1935.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   11.99            23.41   23.41   23.41             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2376.49

INPUT
Description:
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.45     .15 1937.43     .17 1935.82     .17 1927.75    5.67 1927.75
    6.03 1927.74    6.19 1927.74    6.42 1927.75    6.94 1927.75   11.56  1927.8
   11.84 1927.76   12.07 1927.72   12.11 1927.72   12.14 1930.34   12.24 1937.46
   12.35 1937.47    12.4 1937.47   12.48 1937.48

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .15   12.24              25      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2351.49

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.47     .22 1937.44     .25 1935.67     .37 1927.53     .44 1927.52
    1.19 1927.47    3.97 1927.42    5.83 1927.43    9.66 1927.43   11.19 1927.48
   11.88 1927.51   12.17 1927.51   12.22 1930.46   12.33 1937.46   12.48 1937.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .22   12.33              50      50      50             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2301.49

INPUT
Description:
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.48     .25 1937.47     .25 1937.45     .29 1934.95     .43 1926.92
     .68 1926.92     .77 1926.92     .99 1926.91    1.03 1926.91    6.04  1926.8
    6.17  1926.8    7.11  1926.8    8.58 1926.83   11.44 1926.91   11.86 1926.92
   11.87 1926.92   11.88 1926.92    11.9 1926.92   11.95 1926.93   11.97 1926.94
   12.16 1926.97   12.19 1928.02   12.26 1931.37   12.39 1937.36   12.42 1937.38
   12.88 1937.38

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .25   12.39              25   25.01      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2276.48

INPUT
Description:
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1937.17    .059 1937.17     .06 1937.17     .23 1937.16     .33 1928.39
     .35 1926.66     .59 1926.65     .92 1926.63    2.78  1926.6    4.79 1926.55
    6.08 1926.55    7.18 1926.54    9.03 1926.61   11.86 1926.67   12.02 1926.69
   12.09 1926.69   12.25 1934.29    12.3 1936.86   12.51 1936.82   12.99 1936.84

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .23    12.3            50.02      50   49.99             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2226.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1936.19     .39 1936.13     .48 1929.53     .53 1926.01    2.11 1925.99
    5.85 1925.92    6.09 1925.91    6.28 1925.91    7.86 1925.92    8.59 1925.96
   11.81 1926.11   12.08 1926.11   12.18 1931.27   12.23 1934.91   12.86 1935.02

Manning's n Values        num=       1
     Sta   n Val
       0    .013
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .39   12.23               25      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2201.48

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1935.69     .45 1935.62     .55 1927.48     .58 1925.71    3.95 1925.66
    6.11 1925.62    6.36 1925.62   10.19 1925.72   11.76 1925.77   11.87 1925.78
   12.11 1925.78   12.14 1928.27   12.24 1934.73   12.54 1934.77

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .45   12.24               25      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2176.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1935.14     .23  1935.1     .27 1931.91     .35  1925.4    2.34 1925.37
    6.16 1925.39   10.83 1925.42   11.16 1925.42   11.31 1925.42    11.4 1925.42
   11.48 1925.43   11.86 1925.45   11.94 1930.87      12 1934.74   12.12 1934.76

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .23      12               25      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2151.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.71     .13 1934.69      .2 1931.22     .33 1925.08    3.55 1925.09
    5.66  1925.1    5.99  1925.1    6.87 1925.12   11.67  1925.2   11.92 1932.86
   11.96 1933.77   11.98 1934.74      12 1934.74   12.03 1934.73   12.13 1934.73

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .13   11.98            25.18      25   24.82             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2126.48

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.51    .003 1934.51     .08  1934.5     .08 1934.45.3199997 1924.77
2.559999 1924.79    5.69 1924.81    5.94 1924.819.459999 1924.87    11.7 1924.92
   11.79 1927.67   11.95 1934.72   12.09 1934.71   12.23  1934.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .08   11.95            25.01   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2101.47

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.63     .22 1934.62     .27 1934.62     .51 1925.92     .55 1924.72
     .55 1924.52    1.95 1924.53    5.63 1924.54    8.48 1924.55    9.15 1924.56
   11.98 1924.63   12.05  1929.4   12.17 1934.71   12.31  1934.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .27   12.17               25   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2076.46

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
      0 1930.09     .32 1930.09     .37 1924.45     .37 1924.29      .7 1924.29
   5.09 1924.34   12.25 1924.42   12.25 1924.71   12.31 1930.13   12.81 1930.14
  12.83 1930.14   12.88 1929.18      13  1929.2

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .32   12.31               25   25.01   25.01             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2051.45

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1929.41     .16  1929.4     .17 1924.22     .17 1924.16    4.42 1924.15
   11.97 1924.15   11.98 1924.15   12.03 1924.15   12.06 1929.45   12.06 1929.46
   12.14 1929.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   12.06            24.83   24.93   25.12             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2026.52

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1929.43     .07 1929.62     .08 1929.19     .16 1923.85    1.85 1923.85
    1.91 1923.85    2.96 1923.84    4.02 1923.85    12.1  1923.9    12.1 1924.84
   12.13 1929.45   12.24 1929.45   12.28 1929.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .07   12.13               25      25   25.02             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2001.52

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1928.9     .03  1928.9     .16 1923.47     .49 1923.48    3.84 1923.52
   11.96 1923.62   11.98 1926.37   11.99 1929.45   12.27 1929.15   12.57 1928.79
    12.6 1928.79   12.61 1928.74   13.05 1928.65

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0   11.99            25.02      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1976.52

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1925.94      .9 1925.91     .97  1923.2    4.77 1923.24   12.32 1923.33
   12.81 1923.34   12.85  1928.5   12.86 1928.76   12.86 1928.79   12.89 1928.79
    12.9 1928.74   13.46 1928.73   13.54  1928.1   13.54 1928.13   14.06 1928.23

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .9   12.86            25.12      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1951.52

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    -8.8    1928   -8.52    1924       0 1923.01    3.15 1922.92    3.22 1922.92
     7.1 1922.96   15.09 1923.03   15.12 1927.05   15.13 1928.15   15.26 1928.14
   15.71 1928.12   16.47 1928.32

Manning's n Values        num=       1
     Sta   n Val
    -8.8    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -8.8   15.13            75.59   74.96   75.08             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    -8.8       0  1929.5       F
```

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1876.56

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1926.85	.16	1927.02	.18	1924.17	.23	1922.08	4.37	1922.11
4.48	1922.11	12.15	1922.08	12.18	1923.61	12.22	1926.79	12.46	1926.8
12.9	1926.8	12.94	1926.61	13.83	1926.31				

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.16	12.22	25	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1851.56

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1926.79	.19	1926.84	.36	1926.84	.8	1926.87	.82	1925.41
.86	1921.83	5.18	1921.82	9.63	1921.8	12.78	1921.78	12.8	1923.19
12.85	1926.8	13	1926.8	13.5	1926.8	13.52	1926.6	13.85	1926.47
13.89	1926.25	14.3	1926.3						

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.8	12.85	25.01	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1826.56

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1926.93	.18	1926.92	.27	1926.93	.35	1922.31	.36	1921.6
2.11	1921.59	4.71	1921.57	12.2	1921.52	12.26	1926.03	12.27	1926.77
12.74	1926.77	12.85	1926.77	12.92	1926.12	13.59	1925.85		

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.013	12.2	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.27	12.27	25	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1801.56

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1926.88	.16	1926.87	.19	1924.12	.24	1921.28	4.68	1921.24
6.5	1921.23	12.01	1921.24	12.05	1924.05	12.08	1926.79	12.38	1926.79
12.67	1926.79	12.69	1926.12	12.74	1925.72	13.32	1925.5		

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.013	12.08	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.16	12.08	25	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1776.56

INPUT
Description: "BR" STA 10+43.34
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1926.83	.27	1926.8	.27	1920.94	12.02	1920.94	12.02	1926.8
12.71	1926.52	12.74	1925.31	12.97	1925.32	13	1925.31	13.25	1925.22

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.27	12.02	24.9	24.98	25.08	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1751.58

INPUT
Description: "BR" STA 10+68.32
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1925.29	0	1920.7	13.15	1920.7	13.15	1925.29

```
Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0   13.15               25   25.01      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1726.57

INPUT
Description: "BR" STA 10+91.47
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      .5 1925.03      .5 1920.44      15 1920.44      15 1925.03

Manning's n Values        num=       1
     Sta   n Val
      .5    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .5      15            25.01      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1701.57

INPUT
Description: "BR" STA 11+19.84
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1924.73       0 1920.14      16 1920.14      16 1924.73

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0      16            39.81   34.17   29.44             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1667.4

INPUT
Description: Upstream of Losee Crossing "BR" STA 11+55.38
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.68       0 1919.72       9 1919.72       9 1922.72      10 1922.72
      10 1919.72      19 1919.72      19 1926.68

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0      19            141.4  136.64   130.2             .1       .3
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0 1923.72 1922.72      19 1923.72 1922.72

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1530.0

INPUT
Description: Downstream of Losee Crossing "BR" STA 12+90.10
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1925.7       0 1918.74       9 1918.74       9 1921.72      10 1921.72
      10 1918.74      19 1918.74      19  1925.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0      19               1       1       1             .1       .3
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0 1924.72 1921.72      19 1924.72 1921.72

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1529.8

INPUT
Description: "BR" STA 12+90.10
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   -23.5 1923.78   -23.5 1918.75      19 1918.75      19 1923.61

Manning's n Values        num=       1
     Sta   n Val
   -23.5    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -23.5      19            28.27   28.27   28.27             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1515.66*
```

```
INPUT
Description: "BR" STA 13+18.37
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -20.74 1923.08  -20.74 1921.17   -7.74 1921.17   -7.74 1922.95   -7.24 1922.95
   -7.24 1917.84   20.76 1917.84   20.76 1922.67   21.26 1922.67

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  -20.74    .013   -7.24    .013   20.76    .013   21.26    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -7.24   20.76            28.27   28.27   28.27             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1501.53

INPUT
Description: "BR" STA 13+46.64
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -10.39 1922.36  -10.39 1918.54    2.61 1918.54    2.61  1922.1    3.61  1922.1
    3.61 1916.92   22.52 1916.92   22.52  1921.7   23.52  1921.7

Manning's n Values        num=       1
     Sta   n Val
  -10.39    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.61   22.52            25.04   25.04   25.04             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  -10.39    3.61 1920.54       F
   22.52   23.52 1920.54       F

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1476.5

INPUT
Description: "BR" STA 13+69.34
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1920.82    3.98  1921.5    6.95 1921.22      14 1919.88      14 1916.11
   32.59 1916.11   32.59 1919.88   37.27 1921.18   37.99 1921.18

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            14   32.59            12.84   12.84   12.84             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1462.50

INPUT
Description: "BR" STA 13+84.15
Station Elevation Data    num=       6
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1921.72    3.98 1921.54    3.98 1915.69   21.98 1915.69   21.98 1921.22
   26.98 1921.72

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.98   21.98            23.32   23.32   23.32             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1451.37

INPUT
Description: "BR" STA 14+07.08
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1921.43    8.18 1921.05   10.97 1920.94   16.68  1920.2   16.68  1915.2
   34.68  1915.2   34.68  1920.2   42.39 1920.57   42.44 1920.56   42.69 1920.56
   43.77 1920.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .013   16.68    .013   34.68    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         16.68   34.68              25   25.01      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1426.37

INPUT
Description: "BR" STA 14+32.08
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1921.24    3.88 1921.09    10.7 1919.66    10.7 1914.66    28.7 1914.66
    28.7 1919.66   35.52    1920   36.28    1920    36.4 1919.99

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .013    10.7    .013    28.7    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          10.7    28.7            25.38   25.02   25.08             .1       .3
```

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1401.35

INPUT
Description: "BR" STA 14+57.10
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1919.56	.01	1919.56	.03	1919.6	6.64	1919.68	6.64	1914.13
24.64	1914.13	24.64	1919.68	31.28	1919.4	31.99	1919.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.013	6.64	.013	24.64	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
6.64	24.64	27.16	25.15	22.91	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1376.2

INPUT
Description: "BR" STA 14+82.25
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1919.09	.14	1919.07	2.35	1918.55	5.99	1918.6	5.99	1913.6
23.99	1913.6	23.99	1918.6	27.63	1918.71	28.33	1918.68	28.93	1918.67
29.47	1918.72	29.56	1918.74	29.59	1918.75				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.013	5.99	.013	23.99	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
5.99	23.99	25.55	25.03	24.62	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1351.17

INPUT
Description: "BR" STA 15+07.28
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1918.4	1.63	1918.36	1.92	1918.37	2.18	1918.35	6.97	1918.07
6.97	1913.07	24.97	1913.07	24.97	1918.07	29.75	1917.99	30.04	1918.01
30.67	1917.98	31.29	1918.14	31.34	1918.1	31.88	1918.15		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.013	6.97	.013	24.97	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
6.97	24.97	25.06	25.01	24.96	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1326.16

INPUT
Description: "BR" STA 15+32.29
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1917.88	2.2	1917.7	2.21	1917.81	8.27	1917.28	8.27	1912.53
26.27	1912.53	26.27	1917.28	32.34	1917.59	32.37	1917.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.013	8.27	.013	26.27	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
8.27	26.27	27.06	25.02	23.19	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1301.14

INPUT
Description: "BR" STA 15+57.31
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1917.47	1.38	1917.37	1.38	1917.42	1.57	1917.35	7.8	1916.75
7.8	1912	25.8	1912	25.8	1916.75	32.22	1917.39	32.46	1917.38
32.51	1917.35	33.07	1917.35						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.013	7.8	.013	25.8	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7.8	25.8	25	25	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1276.14

INPUT
Description: "BR" STA 15+82.31
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1917.1	.7	1917.05	7.11	1916.22	7.11	1911.47	25.11	1911.47
25.11	1916.22	31.49	1916.96	31.52	1916.97	31.95	1916.96	31.96	1916.96
32.01	1916.96	32.99	1916.96						

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .013    7.11    .013   25.11    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          7.11   25.11             25.88   24.99   24.17             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1251.15

INPUT
Description: "BR" STA 16+07.30
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1916.63    1.97 1916.48    8.29 1915.69    8.29 1910.94   26.29 1910.94
   26.29 1915.69   32.61 1916.34   32.82 1916.33   33.05 1916.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .013    8.29    .013   26.29    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          8.29   26.29             25.55   24.97   24.47             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1226.18

INPUT
Description: "BR" STA 16+32.27
20.17   1912.17
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    1916    1.72 1915.87    7.84 1915.15    7.84  1910.4   25.84  1910.4
   25.84 1915.15   31.96  1915.5   32.02 1915.53

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .013    7.84    .013   25.84    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          7.84   25.84             26.31   24.84    23.7             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1201.34

INPUT
Description: "BR" STA 16+57.52
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1915.51    2.33 1915.35    6.96 1914.63    6.96 1909.88   24.96 1909.88
   24.96 1914.63   32.58  1915.1   32.82 1915.15   33.17 1915.15   33.56 1915.15

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .013    6.96    .013   24.96    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          6.96   24.96             14.02   14.02   14.02             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1151.6

INPUT
Description: "BR" STA 16+71.13
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1919.76    8.73 1918.65    8.73 1909.65   26.73 1909.65   26.73  1914.4
   38.45 1914.88   38.48 1914.88   38.88 1914.88

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .013    8.73    .013   26.73    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          8.73   26.73              51.5   49.89   51.66             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1101.71

INPUT
Description: "BR" STA 17+21.02
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1918.71    9.11 1917.87    9.11 1908.87   29.11 1908.87   29.11 1917.87
   38.23    1918   43.02    1918   54.27 1917.85      58 1917.77   58.29 1917.76

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .013   29.11    .013   38.23    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9.11   29.11             25.09   25.09   25.09             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1076.62

INPUT
Description: "BR" STA 17+46.11
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
       0 1919.59   17.62 1917.48   17.62 1908.48    39.6 1908.48    39.6 1917.48
    45.7 1916.94   50.79  1917.2   55.03 1916.94    57.6 1916.45   58.71 1916.75

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .013    39.6    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         17.62    39.6             24.95   24.95   24.95             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1051.67

INPUT
Description: "BR" STA 17+71.06
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1921.87    2.02 1920.86      15 1917.09      15 1908.09   37.44 1908.09
   37.44 1917.09   53.56  1916.7   53.62  1916.7   53.71  1916.7   54.12 1916.63
   57.29 1916.63

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .013    2.02    .013   37.44    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           15   37.44             17.29   17.29   17.29             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1034.38

INPUT
Description: "BR" STA 17+89.45 - end Brooks Channel
Station Elevation Data    num=       7
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1922.11    2.86 1922.16    18.5 1916.82    18.5 1907.82   44.25 1907.82
   44.25 1916.82   60.45 1917.48

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    18.5    .013   44.25    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
          18.5   44.25             .1       .3


SUMMARY OF MANNING'S N VALUES

River:FL-ALIGN

      Reach          River Sta.       n1        n2        n3        n4        n5

 FL-ALIGN             3398.92           .013      .016      .013
 FL-ALIGN             3373.92           .013      .016      .013
 FL-ALIGN             3348.92           .013      .016      .013
 FL-ALIGN             3323.92           .013      .016      .013
 FL-ALIGN             3298.92           .013      .016      .013      .025
 FL-ALIGN             3273.6            .025      .013      .016      .013      .025
 FL-ALIGN             3248.92           .025      .013      .016      .013      .025
 FL-ALIGN             3223.92           .025      .013      .016      .013      .025
 FL-ALIGN             3210.22           .025      .035      .025
 FL-ALIGN             3198.92           .025      .035      .025
 FL-ALIGN             3173.92           .025      .035      .025
 FL-ALIGN             3148.92           .025      .035      .025
 FL-ALIGN             3098.95           .025      .035      .025
 FL-ALIGN             3073.97           .025      .035      .025
 FL-ALIGN             3048.96           .025       .05      .025
 FL-ALIGN             3023.98           .025       .05      .025
 FL-ALIGN             2998.98           .025       .05      .025
 FL-ALIGN             2973.99           .025       .05      .025
 FL-ALIGN             2948.99           .025       .05      .025
 FL-ALIGN             2923.99           .025       .05      .025
 FL-ALIGN             2898.97           .025       .05       .05
 FL-ALIGN             2874.04           .025       .05      .025
 FL-ALIGN             2849.1            .025       .05      .025
 FL-ALIGN             2824.82           .025       .05      .025
 FL-ALIGN             2799.78           .025      .035      .025
 FL-ALIGN             2774.63           .025      .035      .025
 FL-ALIGN             2750.44           .025      .035      .025
 FL-ALIGN             2725.42           .025      .035      .025
 FL-ALIGN             2700.17           .025      .035      .025
 FL-ALIGN             2675.8            .025      .035      .025
 FL-ALIGN             2650.79           .025      .035      .025
 FL-ALIGN             2626.19           .025      .035      .025
 FL-ALIGN             2601.78           .025       .05      .025
 FL-ALIGN             2576.59           .025      .035      .025
 FL-ALIGN             2551.36           .025      .035      .025
 FL-ALIGN             2526.44           .025      .035      .025
 FL-ALIGN             2501.48           .025      .013      .025
 FL-ALIGN             2485.61           .025      .013      .025
 FL-ALIGN             2484.00       Culvert
 FL-ALIGN             2399.9            .013
 FL-ALIGN             2376.49           .013
 FL-ALIGN             2351.49           .013
 FL-ALIGN             2301.49           .013
 FL-ALIGN             2276.48           .013
 FL-ALIGN             2226.48           .013
 FL-ALIGN             2201.48           .013
 FL-ALIGN             2176.48           .013
 FL-ALIGN             2151.48           .013
 FL-ALIGN             2126.48           .013
 FL-ALIGN             2101.47           .013
 FL-ALIGN             2076.46           .013
 FL-ALIGN             2051.45           .013
 FL-ALIGN             2026.52           .013
 FL-ALIGN             2001.52           .013
 FL-ALIGN             1976.52           .013
 FL-ALIGN             1951.52           .013
 FL-ALIGN             1876.56           .013
 FL-ALIGN             1851.56           .013
 FL-ALIGN             1826.56           .013      .025
```

FL-ALIGN	1801.56	.013	.025		
FL-ALIGN	1776.56	.013			
FL-ALIGN	1751.58	.013			
FL-ALIGN	1726.57	.013			
FL-ALIGN	1701.57	.013			
FL-ALIGN	1667.4	.013			
FL-ALIGN	1530.0	.013			
FL-ALIGN	1529.8	.013			
FL-ALIGN	1515.66*	.013	.013	.013	.013
FL-ALIGN	1501.53	.013			
FL-ALIGN	1476.5	.013			
FL-ALIGN	1462.50	.013			
FL-ALIGN	1451.37	.013	.013	.013	
FL-ALIGN	1426.37	.013	.013	.013	
FL-ALIGN	1401.35	.013	.013	.013	
FL-ALIGN	1376.2	.013	.013	.013	
FL-ALIGN	1351.17	.013	.013	.013	
FL-ALIGN	1326.16	.013	.013	.013	
FL-ALIGN	1301.14	.013	.013	.013	
FL-ALIGN	1276.14	.013	.013	.013	
FL-ALIGN	1251.15	.013	.013	.013	
FL-ALIGN	1226.18	.013	.013	.013	
FL-ALIGN	1201.34	.013	.013	.013	
FL-ALIGN	1151.6	.013	.013	.013	
FL-ALIGN	1101.71	.013	.013	.025	
FL-ALIGN	1076.62	.013	.025		
FL-ALIGN	1051.67	.013	.013	.025	
FL-ALIGN	1034.38	.025	.013	.025	

SUMMARY OF REACH LENGTHS

River: FL-ALIGN

Reach	River Sta.	Left	Channel	Right
FL-ALIGN	3398.92	25.01	25	25.02
FL-ALIGN	3373.92	25.03	25	25.05
FL-ALIGN	3348.92	25.18	25	26.53
FL-ALIGN	3323.92	27.48	25	31.71
FL-ALIGN	3298.92	28.27	25.32	26.5
FL-ALIGN	3273.6	26	24.68	24.56
FL-ALIGN	3248.92	25.13	25	30.09
FL-ALIGN	3223.92	14.07	13.7	14.32
FL-ALIGN	3210.22	11.65	11.3	11.82
FL-ALIGN	3198.92	25.32	25	25.98
FL-ALIGN	3173.92	25.43	25	25.55
FL-ALIGN	3148.92	55.38	49.97	47.04
FL-ALIGN	3098.95	20.29	24.98	28.02
FL-ALIGN	3073.97	25	25.01	25.07
FL-ALIGN	3048.96	28.34	24.98	23.09
FL-ALIGN	3023.98	21.46	25	27.03
FL-ALIGN	2998.98	28.33	24.99	23.13
FL-ALIGN	2973.99	23.9	25	25.86
FL-ALIGN	2948.99	26.22	25	25.08
FL-ALIGN	2923.99	15.83	25.02	30.98
FL-ALIGN	2898.97	17.15	24.93	30.48
FL-ALIGN	2874.04	39.68	24.94	17.95
FL-ALIGN	2849.1	38.99	24.28	10.13
FL-ALIGN	2824.82	22.37	25.04	27.85
FL-ALIGN	2799.78	23.04	25.15	28.16
FL-ALIGN	2774.63	36.1	24.19	18.16
FL-ALIGN	2750.44	30.61	25.02	22.4
FL-ALIGN	2725.42	21.47	25.25	27.5
FL-ALIGN	2700.17	16.35	24.37	29.93
FL-ALIGN	2675.8	25.2	25.01	25.01
FL-ALIGN	2650.79	21.98	24.6	26.83
FL-ALIGN	2626.19	19.32	24.41	28.81
FL-ALIGN	2601.78	24.17	25.19	26.43
FL-ALIGN	2576.59	36.89	25.23	18.12
FL-ALIGN	2551.36	19.09	24.92	30.78
FL-ALIGN	2526.44	44.23	24.96	30.79
FL-ALIGN	2501.48	20.64	15.87	22.6
FL-ALIGN	2485.61	85.04	85.71	86.5
FL-ALIGN	2484.00	Culvert		
FL-ALIGN	2399.9	23.41	23.41	23.41
FL-ALIGN	2376.49	25	25	25
FL-ALIGN	2351.49	50	50	50
FL-ALIGN	2301.49	25	25.01	25
FL-ALIGN	2276.48	50.02	50	49.99
FL-ALIGN	2226.48	25	25	25
FL-ALIGN	2201.48	25	25	25
FL-ALIGN	2176.48	25	25	25
FL-ALIGN	2151.48	25.18	25	24.82
FL-ALIGN	2126.48	25.01	25.01	25.01
FL-ALIGN	2101.47	25	25.01	25.01
FL-ALIGN	2076.46	25	25.01	25.01
FL-ALIGN	2051.45	24.83	24.93	25.12
FL-ALIGN	2026.52	25	25	25.02
FL-ALIGN	2001.52	25.02	25	25
FL-ALIGN	1976.52	25.12	25	25
FL-ALIGN	1951.52	75.59	74.96	75.08
FL-ALIGN	1876.56	25	25	25
FL-ALIGN	1851.56	25.01	25	25
FL-ALIGN	1826.56	25	25	25
FL-ALIGN	1801.56	25	25	25
FL-ALIGN	1776.56	24.9	24.98	25.08
FL-ALIGN	1751.58	25	25.01	25
FL-ALIGN	1726.57	25.01	25	25
FL-ALIGN	1701.57	39.81	34.17	29.44
FL-ALIGN	1667.4	141.4	136.64	130.2
FL-ALIGN	1530.0	1	1	1
FL-ALIGN	1529.8	28.27	28.27	28.27
FL-ALIGN	1515.66*	28.27	28.27	28.27
FL-ALIGN	1501.53	25.04	25.04	25.04
FL-ALIGN	1476.5	12.84	12.84	12.84
FL-ALIGN	1462.50	23.32	23.32	23.32
FL-ALIGN	1451.37	25	25.01	25
FL-ALIGN	1426.37	25.38	25.02	25.08
FL-ALIGN	1401.35	27.16	25.15	22.91
FL-ALIGN	1376.2	25.55	25.03	24.62
FL-ALIGN	1351.17	25.06	25.01	24.96
FL-ALIGN	1326.16	27.06	25.02	23.19
FL-ALIGN	1301.14	25	25	25
FL-ALIGN	1276.14	25.88	24.99	24.17
FL-ALIGN	1251.15	25.55	24.97	24.47

FL-ALIGN	1226.18	26.31	24.84	23.7
FL-ALIGN	1201.34	14.02	14.02	14.02
FL-ALIGN	1151.6	51.5	49.89	51.66
FL-ALIGN	1101.71	25.09	25.09	25.09
FL-ALIGN	1076.62	24.95	24.95	24.95
FL-ALIGN	1051.67	17.29	17.29	17.29
FL-ALIGN	1034.38			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: FL-ALIGN

Reach	River Sta.	Contr.	Expan.
FL-ALIGN	3398.92	.1	.3
FL-ALIGN	3373.92	.1	.3
FL-ALIGN	3348.92	.1	.3
FL-ALIGN	3323.92	.1	.3
FL-ALIGN	3298.92	.1	.3
FL-ALIGN	3273.6	.1	.3
FL-ALIGN	3248.92	.1	.3
FL-ALIGN	3223.92	.1	.3
FL-ALIGN	3210.22	.1	.3
FL-ALIGN	3198.92	.1	.3
FL-ALIGN	3173.92	.1	.3
FL-ALIGN	3148.92	.1	.3
FL-ALIGN	3098.95	.1	.3
FL-ALIGN	3073.97	.1	.3
FL-ALIGN	3048.96	.1	.3
FL-ALIGN	3023.98	.1	.3
FL-ALIGN	2998.98	.1	.3
FL-ALIGN	2973.99	.1	.3
FL-ALIGN	2948.99	.1	.3
FL-ALIGN	2923.99	.1	.3
FL-ALIGN	2898.97	.1	.3
FL-ALIGN	2874.04	.1	.3
FL-ALIGN	2849.1	.1	.3
FL-ALIGN	2824.82	.1	.3
FL-ALIGN	2799.78	.1	.3
FL-ALIGN	2774.63	.1	.3
FL-ALIGN	2750.44	.1	.3
FL-ALIGN	2725.42	.1	.3
FL-ALIGN	2700.17	.1	.3
FL-ALIGN	2675.8	.1	.3
FL-ALIGN	2650.79	.1	.3
FL-ALIGN	2626.19	.1	.3
FL-ALIGN	2601.78	.1	.3
FL-ALIGN	2576.59	.1	.3
FL-ALIGN	2551.36	.1	.3
FL-ALIGN	2526.44	.1	.3
FL-ALIGN	2501.48	.1	.3
FL-ALIGN	2485.61	.1	.3
FL-ALIGN	2484.00	Culvert	
FL-ALIGN	2399.9	.1	.3
FL-ALIGN	2376.49	.1	.3
FL-ALIGN	2351.49	.1	.3
FL-ALIGN	2301.49	.1	.3
FL-ALIGN	2276.48	.1	.3
FL-ALIGN	2226.48	.1	.3
FL-ALIGN	2201.48	.1	.3
FL-ALIGN	2176.48	.1	.3
FL-ALIGN	2151.48	.1	.3
FL-ALIGN	2126.48	.1	.3
FL-ALIGN	2101.47	.1	.3
FL-ALIGN	2076.46	.1	.3
FL-ALIGN	2051.45	.1	.3
FL-ALIGN	2026.52	.1	.3
FL-ALIGN	2001.52	.1	.3
FL-ALIGN	1976.52	.1	.3
FL-ALIGN	1951.52	.1	.3
FL-ALIGN	1876.56	.1	.3
FL-ALIGN	1851.56	.1	.3
FL-ALIGN	1826.56	.1	.3
FL-ALIGN	1801.56	.1	.3
FL-ALIGN	1776.56	.1	.3
FL-ALIGN	1751.58	.1	.3
FL-ALIGN	1726.57	.1	.3
FL-ALIGN	1701.57	.1	.3
FL-ALIGN	1667.4	.1	.3
FL-ALIGN	1530.0	.1	.3
FL-ALIGN	1529.8	.1	.3
FL-ALIGN	1515.66*	.1	.3
FL-ALIGN	1501.53	.1	.3
FL-ALIGN	1476.5	.1	.3
FL-ALIGN	1462.50	.1	.3
FL-ALIGN	1451.37	.1	.3
FL-ALIGN	1426.37	.1	.3
FL-ALIGN	1401.35	.1	.3
FL-ALIGN	1376.2	.1	.3
FL-ALIGN	1351.17	.1	.3
FL-ALIGN	1326.16	.1	.3
FL-ALIGN	1301.14	.1	.3
FL-ALIGN	1276.14	.1	.3
FL-ALIGN	1251.15	.1	.3
FL-ALIGN	1226.18	.1	.3
FL-ALIGN	1201.34	.1	.3
FL-ALIGN	1151.6	.1	.3
FL-ALIGN	1101.71	.1	.3
FL-ALIGN	1076.62	.1	.3
FL-ALIGN	1051.67	.1	.3
FL-ALIGN	1034.38	.1	.3

Appendix C-4

Proposed Condition Dual Crossing Calculations for Downstream Tail Water Elevation at UPRR Embankment

Client:	CITY OF NORTH LAS VEGAS & CC REGIONAL FLOOD CONTROL DISTRICT	**Sheet:**	1 of 2
Project:	BROOKS CHANNEL PROJECT	**Date:**	10/1/2014
Description:	HEADWATER CALCULATION - PROPOSED CONDITION: SCENARIO #1	**Job No:**	10500960
	By: R VALDEZ	**Chkd By:**	JRP

CULVERT HEADWATER CALCULATION

Proposed Condition Scenario 1: Brooks Channel flow peaking, Freeway Channel flow attenuated

This calculation determines the flow intercepted by each of the two culverts and calculates the headwater depth at the upstream headwall.
The flow intercepted by each culvert is determined based on headlosses incurred by each facility until the headwater converges (equalizes)

Referencing WSPG Model "FWCI1.OUT"

8' PIPE CULVERT			**EX 8'X4' BOX CULVERT**		
			WIDTH:	8	
DIAM:	8	FT	HEIGHT:	4	FT
n	0.013		n	0.013	
R	2	FT	R	1.333333	FT
Q1	551	CFS	Q2	318	CFS
LENGTH	110	FT	LENGTH	148	FT
Ke	0.5		Ke	0.5	
AREA	50.27	SQ FT	AREA	32	SQ FT
Sf	0.00365	FT/FT	Sf	0.00515	FT/FT
Hf	0.40145	FT	Hf	0.76222	FT
Velocity	10.9618	FT/S	Velocity	9.9375	FT/S
hv	1.865854	FT	hv	1.533446	FT
He	0.932927	FT	He	0.766723	FT
TWE	1912.24	FT	TWE	1912.32	FT
Outlet Inv	1907.99	FT	Outlet Inv	1904.41	FT
Inlet Inv	1908.37	FT	Inlet Inv	1907.82	FT
HWE	**1915.4**		**HWE**	**1915.4**	
HW Depth	7.070231		HW Depth	7.562388	
Total HL	3.200231	FT	Total HL	3.062388	FT

Tail water depths from WSPG Analysis

Average Headwater Elev = 1915.4 feet

CULVERT EQUATIONS:

$HL = he + hf + hv$	Total headloss
$he = Ke\ (V^2 / 2g)$	Entrance headloss
$hf = (29n^2\ L / R^{1.33})\ (V^2 / 2g)$	Friction headloss
$hv = (V^2 / 2g)$	Velocity head

Q_{total} = 869 cfs

63% Conveyed by Pipe Culvert
37% Conveyed by Ex Box Culvert

Client:	*CITY OF NORTH LAS VEGAS & CC REGIONAL FLOOD CONTROL DISTRICT*	**Sheet:**	2 **of** *2*
Project:	*BROOKS CHANNEL PROJECT*	**Date:**	*10/1/2014*
Description:	*HEADWATER CALCULATION - PROPOSED CONDITION: SCENARIO #2*	**Job No:**	*10500960*
	By: *R VALDEZ*	**Chkd By:**	*JRP*

CULVERT HEADWATER CALCULATION

Proposed Condition Scenario 2: Brooks Channel flow attenuated, Freeway Channel peak flow

This calculation determines the flow intercepted by each of the two culverts and calculates the headwater depth at the upstream headwall.
The flow intercepted by each culvert is determined based on headlosses incurred by each facility until the headwater converges (equalizes)

Referencing WSPG Model "FWCI2.OUT"

8' PIPE CULVERT			**EX 8'X4' BOX CULVERT**		
			WIDTH:	8	
DIAM:	8	FT	HEIGHT:	4	FT
n, roughness	0.013		n, roughness	0.013	
Hydraulic Radius, R	2	FT	Hydraulic Radius, R	1.333333	FT
Q_1	339	CFS	Q_2	212	CFS
LENGTH	110	FT	LENGTH	148	FT
Ke	0.5		Ke	0.5	
AREA	50.26548	SQ FT	AREA	32	SQ FT
Friction Slope Sf	0.001381	FT/FT	Friction Slope Sf	0.002289	FT/FT
hf	0.15196	FT	hf	0.338764	FT
Velocity	6.744191	FT/S	Velocity	6.625	FT/S
hv, Vel Head	0.706275	FT	hv, Vel Head	0.681531	FT
he	0.353137	FT	he	0.340766	FT
Tail Water Elev	1914.59	FT	Tail Water Elev	1914.43	FT
Outlet Inv Elev	1907.99	FT	Outlet Inv Elev	1904.41	FT
Inlet Inv Elev	1908.37	FT	Inlet Inv Elev	1907.82	FT
Headwater Elev	**1915.8**		**Headwater Elev**	**1915.8**	
Headwater Depth	7.431372		Headwater Depth	7.971061	
Total HL	1.211372	FT	Total HL	1.361061	FT

CULVERT EQUATIONS:

$HL = he + hf + hv$	Total headloss
$he = Ke\ (V^2 / 2g)$	Entrance headloss
$hf = (29n^2\ L / R^{1.33})\ (V^2 / 2g)$	Friction headloss
$hv = (V^2 / 2g)$	Velocity head

Q_{total} = **551 cfs**

62% Conveyed by Pipe Culvert
38% Conveyed by Ex Box Culvert

Tail water depths from WSPG Analysis

Average Headwater Elev = 1915.8 feet

Proposed Freeway Channel WSPG Analysis with Brooks Confluence

STORM DRAIN ANALYSIS PLUS

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Version 1.20
Serial Number 07010220

Mar 16, 2014 3:25:53

Input file : fwci1.txt
Output file: fwci1.out

INPUT FILE LISTING

```
T1 FREEWAY CHANNEL HYDRAULICS - "FWCI1"
T2 PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
T3 BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS
SO   1000.001887.45 14      .013                1897.39
R    1132.941887.73 14      .013                       84.0
R    1194.831887.88 14      .013
R    2565.441889.22 14      .013
TS   2616.881889.28 13      .013
JX   2704.821889.39 13 3    .013   499.0        1889.39        00.01
WX   2704.821889.39 12      .013
R    2785.711889.49 12      .013
R    2883.971889.60 12      .013
R    3421.301890.20 12      .013
R    3661.151890.85 12      .013
WX   3661.151890.85  6      .013
R    5164.801902.12  6      .013
TS   5287.751903.07 19      .013
R    5391.101903.16 19      .013
R    6572.991904.11 17      .013
R    6617.211904.15 17      .013
R    6667.211904.23 17      .013
JX   6717.211904.31 1718    .013   551.0        1904.31         0.01
TS   6717.211904.31 16      .013
R    6769.491904.40 16      .013
JX   6772.841904.41 16 8    .013   318.0        1904.41         0.01
TS   6772.841904.41 15      .013
R    6806.651904.47 15      .013
TS   6891.681904.57 10      .013
R    6909.491904.57 10      .013
R    8349.321906.07 10      .013
JX   8349.321906.07 1011    .013    83.0        1909.95        69.00
R    9961.211909.24 10      .013
R    9961.531910.13 10      .013
R    9995.991910.42 10      .013
R   10092.781910.43 10      .013                       351.5
R   10150.661910.63 10      .013
R   10278.651910.64 10      .013                       351.5
R   10438.111910.72 10      .013
R   10543.481910.88 10      .013                       446.5
R   10637.051910.92 10      .013
R   10722.041911.19 10      .013                       355.5
R   11810.551913.37 10      .013
SH  11810.551913.37 10      .013               1923.693
1                                                   SP
                                  WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING                                PAGE    1
0 CARD  SECT  CHN   NO OF  AVE PIER  HEIGHT 1  BASE    ZL    ZR   INV   Y(1)  Y(2)  Y(3)  Y(4)  Y(5)  Y(6)  Y(7)  Y(8)  Y(9)  Y(10)
  CODE   NO   TYPE  PIERS   WIDTH    DIAMETER  WIDTH              DROP

  CD      1    1      0        .00     10.00   24.50   1.50   .00   .00
  CD      2    1      0        .00     10.00   20.00   1.50  1.50   .00
  CD      3    3      0        .00     12.00    9.00    .00   .00   .00
  CD      4    1      0        .00     10.00   20.00   1.50  1.50   .00
  CD      5    2      0        .00     10.00   36.00                 .00
  CD      6    3      1       2.00     10.00   28.00    .00   .00   .00
  CD      7    1      0        .00     10.00   27.00   1.50  1.50   .00
  CD      8    2      0        .00     12.00    8.00                 .00
  CD      9    1      0        .00     10.00   20.00   1.50   .00   .00
  CD     10    1      0        .00     10.00   15.00   1.50  1.50   .00
  CD     11    1      0        .00      6.00    5.00   1.50  1.50   .00
  CD     12    2      0        .00     11.00   35.00                 .00
  CD     13    2      0        .00     11.00   45.00                 .00
  CD     14    2      0        .00     11.00   50.00                 .00
  CD     15    2      0        .00     12.00   32.00                 .00
  CD     16    2      0        .00     12.00   40.00                 .00
  CD     17    2      0        .00     12.00   50.00                 .00
  CD     18    2      0        .00     12.00    9.00                 .00
  CD     19    2      0        .00     11.00   28.00                 .00
1                                                                                                   PAGE NO   1
0                            WATER SURFACE PROFILE - TITLE CARD LISTING
0HEADING LINE NO 1 IS -
0                              FREEWAY CHANNEL HYDRAULICS - "FWCI1"
0HEADING LINE NO 2 IS -
0                              PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
0HEADING LINE NO 3 IS -
0                              BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS
1                                                                                                   PAGE NO   2
0                            WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO   1 IS A SYSTEM OUTLET      *          *          *
                       U/S DATA   STATION    INVERT  SECT                                    W S ELEV
                                  1000.00 1887.45   14                                      1897.39
0 ELEMENT NO   2 IS A REACH             *          *          *
                       U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                                  1132.94 1887.73   14              .013                                84.00    .00     .00     0
0 ELEMENT NO   3 IS A REACH             *          *          *
                       U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                                  1194.83 1887.88   14              .013                                   .00    .00     .00     0
0 ELEMENT NO   4 IS A REACH             *          *          *
                       U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                                  2565.44 1889.22   14              .013                                   .00    .00     .00     0
0 ELEMENT NO   5 IS A TRANSITION        *          *          *
                       U/S DATA   STATION    INVERT  SECT              N
                                  2616.88 1889.28   13              .013
0 ELEMENT NO   6 IS A JUNCTION          *          *     *     *                  *                  *              *
                       U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                  2704.82 1889.39   13     3     0   .013    499.0       .0  1889.39      .00    .01     .00
0 ELEMENT NO   7 IS A  WALL  EXIT                  *
                       U/S DATA   STATION    INVERT  SECT
                                  2704.82 1889.39   12
0 ELEMENT NO   8 IS A REACH             *          *          *
                       U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
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                          2785.71 1889.49   12              .013                                .00    .00     .00     0
0 ELEMENT NO   9 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          2883.97 1889.60   12              .013                                .00    .00     .00     0
0 ELEMENT NO  10 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          3421.30 1890.20   12              .013                                .00    .00     .00     0
0 ELEMENT NO  11 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          3661.15 1890.85   12              .013                                .00    .00     .00     0
0 ELEMENT NO  12 IS A  WALL  EXIT                    *
                  U/S DATA   STATION    INVERT  SECT
                          3661.15 1890.85    6
1                                                                                                                    PAGE NO   3
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO  13 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          5164.80 1902.12    6              .013                                .00    .00     .00     0
0 ELEMENT NO  14 IS A TRANSITION           *         *     *
                  U/S DATA   STATION    INVERT  SECT              N
                          5287.75 1903.07   19              .013
0 ELEMENT NO  15 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          5391.10 1903.16   19              .013                                .00    .00     .00     0
 WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
0 ELEMENT NO  16 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6572.99 1904.11   17              .013                                .00    .00     .00     0
0 ELEMENT NO  17 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6617.21 1904.15   17              .013                                .00    .00     .00     0
0 ELEMENT NO  18 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6667.21 1904.23   17              .013                                .00    .00     .00     0
0 ELEMENT NO  19 IS A JUNCTION             *         *     *     *           *                 *                *
                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                          6717.21 1904.31   17    18     0   .013    551.0        .0  1904.31      .00    .01     .00
0 ELEMENT NO  20 IS A TRANSITION           *         *     *
                  U/S DATA   STATION    INVERT  SECT              N
                          6717.21 1904.31   16              .013
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO  21 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6769.49 1904.40   16              .013                                .00    .00     .00     0
0 ELEMENT NO  22 IS A JUNCTION             *         *     *     *           *                 *                *
                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                          6772.84 1904.41   16     8     0   .013    318.0        .0  1904.41      .00    .01     .00
0 ELEMENT NO  23 IS A TRANSITION           *         *     *
                  U/S DATA   STATION    INVERT  SECT              N
                          6772.84 1904.41   15              .013
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
1                                                                                                                    PAGE NO   4
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO  24 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6806.65 1904.47   15              .013                                .00    .00     .00     0
0 ELEMENT NO  25 IS A TRANSITION           *         *     *
                  U/S DATA   STATION    INVERT  SECT              N
                          6891.68 1904.57   10              .013
0 ELEMENT NO  26 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6909.49 1904.57   10              .013                                .00    .00     .00     0
0 ELEMENT NO  27 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          8349.32 1906.07   10              .013                                .00    .00     .00     0
0 ELEMENT NO  28 IS A JUNCTION             *         *     *     *           *                 *                *
                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                          8349.32 1906.07   10    11     0   .013     83.0        .0  1909.95      .00  69.00     .00
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO  29 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          9961.21 1909.24   10              .013                                .00    .00     .00     0
0 ELEMENT NO  30 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          9961.53 1910.13   10              .013                                .00    .00     .00     0
0 ELEMENT NO  31 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          9995.99 1910.42   10              .013                                .00    .00     .00     0
0 ELEMENT NO  32 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10092.78 1910.43   10              .013                                351.50 .00     .00     0
0 ELEMENT NO  33 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10150.66 1910.63   10              .013                                .00    .00     .00     0
0 ELEMENT NO  34 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10278.65 1910.64   10              .013                                351.50 .00     .00     0
0 ELEMENT NO  35 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10438.11 1910.72   10              .013                                .00    .00     .00     0
1                                                                                                                    PAGE NO   5
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO  36 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10543.48 1910.88   10              .013                                446.50 .00     .00     0
0 ELEMENT NO  37 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10637.05 1910.92   10              .013                                .00    .00     .00     0
0 ELEMENT NO  38 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10722.04 1911.19   10              .013                                355.50 .00     .00     0
0 ELEMENT NO  39 IS A REACH                *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         11810.55 1913.37   10              .013                                .00    .00     .00     0
0 ELEMENT NO  40 IS A SYSTEM HEADWORKS                   *                 *
                  U/S DATA   STATION    INVERT  SECT                                    W S ELEV
                         11810.55 1913.37   10                                          1923.69
 NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

1                                                                                                                    PAGE    1
                                                WATER SURFACE PROFILE LISTING
                          FREEWAY CHANNEL HYDRAULICS - "FWCI1"
                          PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
                          BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS
0 STATION    INVERT   DEPTH     W.S.        Q       VEL     VEL      ENERGY   SUPER  CRITICAL           HGT/   BASE/    ZL   NO  AVBPR
              ELEV   OF FLOW    ELEV                        HEAD    GRD.EL.   ELEV    DEPTH             DIA    ID NO.        PIER
0 L/ELEM      SO                                        SF AVE     HF                    NORM DEPTH                      ZR
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0 STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
0 L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR		
0 1000.00	1887.45	9.94	1897.39	3725.0	7.49	.87	1898.26	1.04	5.57	11.00	50.00	.00	0	.00
0 132.94	.00211					.00033	.04		5.31			.00		
0 1132.94	1887.73	9.65	1897.38	3725.0	7.72	.93	1898.31	.00	5.57	11.00	50.00	.00	0	.00
0 61.89	.00242					.00035	.02		5.07			.00		
0 1194.83	1887.88	9.49	1897.37	3725.0	7.85	.96	1898.33	.00	5.57	11.00	50.00	.00	0	.00
0 586.17	.00098					.00039	.23		6.81			.00		
0 1781.00	1888.45	9.05	1897.50	3725.0	8.23	1.05	1898.56	.00	5.57	11.00	50.00	.00	0	.00
0 594.73	.00098					.00045	.27		6.81			.00		
0 2375.73	1889.03	8.63	1897.66	3725.0	8.63	1.16	1898.82	.00	5.57	11.00	50.00	.00	0	.00
0 189.71	.00098					.00049	.09		6.81			.00		
0 2565.44	1889.22	8.50	1897.72	3725.0	8.76	1.19	1898.91	.00	5.57	11.00	50.00	.00	0	.00
0TRANS STR	.00117					.00061	.03					.00		
0 2616.88	1889.28	8.14	1897.42	3725.0	10.17	1.61	1899.03	.00	5.97	11.00	45.00	.00	0	.00
0JUNCT STR	.00125					.00059	.05					.00		
0 2704.82	1889.39	8.75	1898.14	3226.0	8.19	1.04	1899.18	.00	5.43	11.00	45.00	.00	0	.00
0 WALL EXIT												.00		
0 2704.82	1889.39	8.75	1898.14	3226.0	10.53	1.72	1899.86	.00	6.42	11.00	35.00	.00	0	.00
0 80.89	.00124					.00082	.07		7.56			.00		
0 2785.71	1889.49	8.69	1898.18	3226.0	10.60	1.75	1899.93	.00	6.42	11.00	35.00	.00	0	.00
0 98.26	.00112					.00083	.08		7.82			.00		
0 2883.97	1889.60	8.65	1898.25	3226.0	10.66	1.77	1900.01	.00	6.42	11.00	35.00	.00	0	.00
0 460.63	.00112					.00087	.40		7.83			.00		

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WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI1"
PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
0 L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR		
0 3344.60	1890.11	8.45	1898.56	3226.0	10.91	1.85	1900.41	.00	6.42	11.00	35.00	.00	0	.00
0HYDRAULIC JUMP												.00		
0 3344.60	1890.11	4.74	1894.85	3226.0	19.46	5.88	1900.73	.00	6.42	11.00	35.00	.00	0	.00
0 76.70	.00112					.00536	.41		7.83			.00		
0 3421.30	1890.20	4.54	1894.74	3226.0	20.29	6.40	1901.14	.00	6.42	11.00	35.00	.00	0	.00
0 1.36	.00271					.00570	.01		5.80			.00		
0 3422.66	1890.20	4.54	1894.74	3226.0	20.30	6.41	1901.15	.00	6.42	11.00	35.00	.00	0	.00
0 124.55	.00271					.00616	.77		5.80			.00		
0 3547.22	1890.54	4.33	1894.87	3226.0	21.30	7.05	1901.92	.00	6.42	11.00	35.00	.00	0	.00
0 113.93	.00271					.00713	.81		5.80			.00		
0 3661.15	1890.85	4.13	1894.98	3226.0	22.33	7.75	1902.73	.00	6.42	11.00	35.00	.00	0	.00
0 WALL EXIT												.00		
0 3661.15	1890.85	5.90	1896.75	3226.0	21.02	6.86	1903.62	.00	7.82	10.00	28.00	.00	1	2.00
0 WALL EXIT												.00		
0 3661.15	1890.85	5.90	1896.75	3226.0	21.02	6.86	1903.62	.00	7.82	10.00	28.00	.00	1	2.00
0 274.90	.00750					.00750	2.06		5.90			.00		
0 3936.05	1892.91	5.90	1898.81	3226.0	21.02	6.86	1905.68	.00	7.82	10.00	28.00	.00	1	2.00
0 758.20	.00750					.00715	5.42		5.90			.00		
0 4694.24	1898.59	6.12	1904.71	3226.0	20.27	6.39	1911.10	.00	7.82	10.00	28.00	.00	1	2.00
0 256.68	.00750					.00640	1.64		5.90			.00		
0 4950.93	1900.52	6.42	1906.94	3226.0	19.33	5.81	1912.74	.00	7.82	10.00	28.00	.00	1	2.00
0 115.15	.00750					.00563	.65		5.90			.00		

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WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI1"
PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
0 L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR		
0 5066.07	1901.38	6.73	1908.11	3226.0	18.43	5.28	1913.39	.00	7.82	10.00	28.00	.00	1	2.00
0 59.72	.00750					.00496	.30		5.90			.00		
0 5125.79	1901.83	7.06	1908.89	3226.0	17.57	4.80	1913.69	.00	7.82	10.00	28.00	.00	1	2.00
0 29.35	.00750					.00438	.13		5.90			.00		
0 5155.15	1902.05	7.41	1909.45	3226.0	16.75	4.36	1913.82	.00	7.82	10.00	28.00	.00	1	2.00
0 9.65	.00750					.00386	.04		5.90			.00		
0 5164.80	1902.12	7.77	1909.89	3226.0	15.97	3.97	1913.85	.00	7.82	10.00	28.00	.00	1	2.00
0TRANS STR	.00773					.00292	.36					.00		
0 5287.75	1903.07	7.44	1910.51	3226.0	15.48	3.72	1914.24	.00	7.44	11.00	28.00	.00	0	.00
0 20.53	.00087					.00209	.04		10.38			.00		
0 5308.28	1903.09	7.81	1910.90	3226.0	14.76	3.38	1914.28	.00	7.44	11.00	28.00	.00	0	.00
0 77.45	.00087					.00182	.14		10.38			.00		
0 5385.73	1903.16	8.19	1911.34	3226.0	14.07	3.08	1914.42	.00	7.44	11.00	28.00	.00	0	.00
0 5.38	.00087					.00169	.01		10.38			.00		
0 5391.10	1903.16	8.21	1911.37	3226.0	7.86	.96	1912.33	.00	5.06	12.00	50.00	.00	0	.00
0 806.33	.00080					.00045	.36		6.61			.00		
0 6197.43	1903.81	7.82	1911.63	3226.0	8.25	1.06	1912.69	.00	5.06	12.00	50.00	.00	0	.00
0 375.56	.00080					.00050	.19		6.61			.00		
0 6572.99	1904.11	7.66	1911.77	3226.0	8.42	1.10	1912.88	.00	5.06	12.00	50.00	.00	0	.00
0 44.22	.00091					.00052	.02		6.36			.00		
0 6617.21	1904.15	7.64	1911.79	3226.0	8.44	1.11	1912.90	.00	5.06	12.00	50.00	.00	0	.00
0 .00	.00091					.00052	.00		6.36			.00		

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WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI1"
PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
0 L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR		
0 6617.21	1904.15	7.64	1911.79	3226.0	8.44	1.11	1912.90	.00	5.06	12.00	50.00	.00	0	.00
0 50.00	.00160					.00053	.03		5.29			.00		
0 6667.21	1904.23	7.56	1911.79	3226.0	8.53	1.13	1912.92	.00	5.06	12.00	50.00	.00	0	.00
0JUNCT STR	.00160					.00043	.02					.00		
0 6717.21	1904.31	7.93	1912.24	2675.0	6.75	.71	1912.95	.00	4.46	12.00	50.00	.00	0	.00
0TRANS STR	.00000					.00047	.00					.00		
0 6717.21	1904.31	7.51	1911.82	2675.0	8.91	1.23	1913.05	.00	5.18	12.00	40.00	.00	0	.00
0 52.28	.00172					.00064	.03		5.38			.00		
0 6769.49	1904.40	7.42	1911.82	2675.0	9.01	1.26	1913.09	.00	5.18	12.00	40.00	.00	0	.00
0 .00	.00172					.00065	.00		5.38			.00		
0 6769.49	1904.40	7.42	1911.82	2675.0	9.01	1.26	1913.09	.00	5.18	12.00	40.00	.00	0	.00
0JUNCT STR	.00299					.00054	.00					.00		
0 6772.84	1904.41	7.91	1912.32	2357.0	7.45	.86	1913.18	.00	4.76	12.00	40.00	.00	0	.00
0TRANS STR	.00000					.00065	.00					.00		
0 6772.84	1904.41	7.36	1911.77	2357.0	10.01	1.56	1913.32	.00	5.52	12.00	32.00	.00	0	.00
0 21.78	.00177					.00089	.02		5.82			.00		
0 6794.62	1904.45	7.32	1911.77	2357.0	10.06	1.57	1913.34	.00	5.52	12.00	32.00	.00	0	.00
0HYDRAULIC JUMP												.00		
0 6794.62	1904.45	4.05	1908.50	2357.0	18.20	5.15	1913.64	.00	5.52	12.00	32.00	.00	0	.00
0 12.03	.00177					.00536	.06		5.82			.00		
0 6806.65	1904.47	4.02	1908.49	2357.0	18.31	5.21	1913.70	.00	5.52	12.00	32.00	.00	0	.00
0TRANS STR	.00118					.00354	.30					.00		

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FREEWAY CHANNEL HYDRAULICS - "FWCI1"
PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH / NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 6891.68	1904.57	7.17	1911.74	2357.0	12.76	2.53	1914.27	.00	7.17	10.00	15.00	1.50	0	.00
0 17.81	.00000					.00153	.03		.00			1.50		
0 6909.49	1904.57	7.51	1912.08	2357.0	11.95	2.22	1914.30	.00	7.17	10.00	15.00	1.50	0	.00
0 196.68	.00104					.00131	.26		8.09			1.50		
0 7106.17	1904.77	7.76	1912.54	2357.0	11.39	2.02	1914.56	.00	7.17	10.00	15.00	1.50	0	.00
0 731.29	.00104					.00115	.84		8.09			1.50		
0 7837.46	1905.54	8.03	1913.56	2357.0	10.86	1.83	1915.40	.00	7.17	10.00	15.00	1.50	0	.00
0 511.86	.00104					.00106	.55		8.09			1.50		
0 8349.32	1906.07	8.06	1914.13	2357.0	10.80	1.81	1915.94	.00	7.17	10.00	15.00	1.50	0	.00
0JUNCT STR	.00000					.00091	.00					1.50		
0 8349.32	1906.07	8.57	1914.64	2274.0	9.53	1.41	1916.05	.00	7.03	10.00	15.00	1.50	0	.00
0 117.71	.00197					.00083	.10		6.74			1.50		
0 8467.03	1906.30	8.29	1914.59	2274.0	10.00	1.55	1916.15	.00	7.03	10.00	15.00	1.50	0	.00
0 109.87	.00197					.00094	.10		6.74			1.50		
0 8576.90	1906.52	8.02	1914.54	2274.0	10.49	1.71	1916.25	.00	7.03	10.00	15.00	1.50	0	.00
0 100.45	.00197					.00107	.11		6.74			1.50		
0 8677.35	1906.72	7.76	1914.48	2274.0	11.00	1.88	1916.36	.00	7.03	10.00	15.00	1.50	0	.00
0 88.11	.00197					.00122	.11		6.74			1.50		
0 8765.47	1906.89	7.51	1914.40	2274.0	11.54	2.07	1916.46	.00	7.03	10.00	15.00	1.50	0	.00
0 38.22	.00197					.00134	.05		6.74			1.50		
0 8803.69	1906.96	7.39	1914.35	2274.0	11.79	2.16	1916.52	.00	7.03	10.00	15.00	1.50	0	.00
0HYDRAULIC JUMP												1.50		

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WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI1"
PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH / NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 8803.69	1906.96	6.68	1913.65	2274.0	13.59	2.87	1916.52	.00	7.03	10.00	15.00	1.50	0	.00
0 214.55	.00197					.00208	.45		6.74			1.50		
0 9018.24	1907.39	6.61	1913.99	2274.0	13.81	2.97	1916.96	.00	7.03	10.00	15.00	1.50	0	.00
0 239.92	.00197					.00228	.55		6.74			1.50		
0 9258.16	1907.86	6.39	1914.24	2274.0	14.49	3.26	1917.51	.00	7.03	10.00	15.00	1.50	0	.00
0 175.27	.00197					.00260	.46		6.74			1.50		
0 9433.42	1908.20	6.17	1914.37	2274.0	15.20	3.59	1917.96	.00	7.03	10.00	15.00	1.50	0	.00
0 149.93	.00197					.00296	.44		6.74			1.50		
0 9583.35	1908.50	5.96	1914.46	2274.0	15.94	3.95	1918.40	.00	7.03	10.00	15.00	1.50	0	.00
0 135.32	.00197					.00338	.46		6.74			1.50		
0 9718.66	1908.76	5.76	1914.52	2274.0	16.72	4.34	1918.86	.00	7.03	10.00	15.00	1.50	0	.00
0 125.18	.00197					.00385	.48		6.74			1.50		
0 9843.85	1909.01	5.56	1914.57	2274.0	17.53	4.78	1919.34	.00	7.03	10.00	15.00	1.50	0	.00
0 117.36	.00197					.00440	.52		6.74			1.50		
0 9961.21	1909.24	5.37	1914.61	2274.0	18.39	5.25	1919.86	.00	7.03	10.00	15.00	1.50	0	.00
0 .02	2.77858					.00462	.00		.87			1.50		
0 9961.23	1909.31	5.41	1914.71	2274.0	18.20	5.15	1919.86	.00	7.03	10.00	15.00	1.50	0	.00
0 .10	2.77858					.00428	.00		.87			1.50		
0 9961.33	1909.58	5.60	1915.18	2274.0	17.36	4.68	1919.86	.00	7.03	10.00	15.00	1.50	0	.00
0 .08	2.77858					.00375	.00		.87			1.50		
0 9961.41	1909.81	5.80	1915.61	2274.0	16.55	4.26	1919.86	.00	7.03	10.00	15.00	1.50	0	.00
0 .07	2.77858					.00329	.00		.87			1.50		

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WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI1"
PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH / NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 9961.48	1909.99	6.00	1915.99	2274.0	15.78	3.87	1919.86	.00	7.03	10.00	15.00	1.50	0	.00
0 .05	2.77858					.00288	.00		.87			1.50		
0 9961.53	1910.13	6.21	1916.34	2274.0	15.04	3.52	1919.86	.00	7.03	10.00	15.00	1.50	0	.00
0 .00	2.77858					.00269	.00		.87			1.50		
0 9961.53	1910.13	6.21	1916.34	2274.0	15.04	3.52	1919.86	.00	7.03	10.00	15.00	1.50	0	.00
0 11.65	.00842					.00259	.03		4.58			1.50		
0 9973.19	1910.23	6.35	1916.58	2274.0	14.61	3.32	1919.89	.00	7.03	10.00	15.00	1.50	0	.00
0 13.20	.00842					.00233	.03		4.58			1.50		
0 9986.38	1910.34	6.57	1916.91	2274.0	13.93	3.01	1919.92	.00	7.03	10.00	15.00	1.50	0	.00
0 7.31	.00842					.00204	.01		4.58			1.50		
0 9993.69	1910.40	6.80	1917.20	2274.0	13.28	2.74	1919.94	.00	7.03	10.00	15.00	1.50	0	.00
0 2.30	.00842					.00179	.00		4.58			1.50		
0 9995.99	1910.42	7.03	1917.45	2274.0	12.66	2.49	1919.94	.29	7.03	10.00	15.00	1.50	0	.00
0 9.65	.00010					.00157	.02		13.97			1.50		
0 10005.64	1910.42	7.27	1917.69	2274.0	12.07	2.26	1919.96	.27	7.03	10.00	15.00	1.50	0	.00
0 32.53	.00010					.00138	.04		13.97			1.50		
0 10038.17	1910.42	7.52	1917.94	2274.0	11.51	2.06	1920.00	.25	7.03	10.00	15.00	1.50	0	.00
0 54.62	.00010					.00122	.07		13.97			1.50		
0 10092.78	1910.43	7.75	1918.18	2274.0	11.01	1.89	1920.07	.24	7.03	10.00	15.00	1.50	0	.00
0 .00	.00010					.00114	.00		13.97			1.50		
0 10092.78	1910.43	7.75	1918.18	2274.0	11.01	1.89	1920.07	.00	7.03	10.00	15.00	1.50	0	.00
0 29.21	.00345					.00122	.04		5.82			1.50		

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WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI1"
PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH / NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 10121.99	1910.53	7.50	1918.03	2274.0	11.55	2.07	1920.10	.00	7.03	10.00	15.00	1.50	0	.00
0 15.87	.00345					.00137	.02		5.82			1.50		
0 10137.85	1910.59	7.31	1917.90	2274.0	11.98	2.23	1920.13	.00	7.03	10.00	15.00	1.50	0	.00
0HYDRAULIC JUMP												1.50		
0 10137.85	1910.59	6.76	1917.35	2274.0	13.38	2.78	1920.13	.00	7.03	10.00	15.00	1.50	0	.00
0 3.65	.00345					.00193	.01		5.82			1.50		
0 10141.51	1910.60	6.80	1917.40	2274.0	13.28	2.74	1920.14	.00	7.03	10.00	15.00	1.50	0	.00
0 9.15	.00345					.00179	.02		5.82			1.50		
0 10150.66	1910.63	7.03	1917.66	2274.0	12.66	2.49	1920.15	.29	7.03	10.00	15.00	1.50	0	.00
0 9.49	.00008					.00157	.01		14.92			1.50		
0 10160.15	1910.63	7.27	1917.90	2274.0	12.07	2.26	1920.17	.27	7.03	10.00	15.00	1.50	0	.00
0 31.90	.00008					.00138	.04		14.92			1.50		
0 10192.05	1910.63	7.52	1918.15	2274.0	11.51	2.06	1920.21	.25	7.03	10.00	15.00	1.50	0	.00
0 59.26	.00008					.00121	.07		14.92			1.50		
0 10251.31	1910.64	7.77	1918.41	2274.0	10.97	1.87	1920.28	.23	7.03	10.00	15.00	1.50	0	.00
0 27.34	.00008					.00111	.03		14.92			1.50		
0 10278.65	1910.64	7.86	1918.50	2274.0	10.80	1.81	1920.31	.00	7.03	10.00	15.00	1.50	0	.00
0 159.46	.00050					.00103	.16		9.54			1.50		

0	10438.11	1910.72	8.09	1918.81	2274.0	10.36	1.67	1920.48	.17	7.03		10.00	15.00	1.50	0	.00
0	105.37	.00152					.00100	.11			7.21			1.50		
0	10543.48	1910.88	7.95	1918.83	2274.0	10.63	1.76	1920.58	.00	7.03		10.00	15.00	1.50	0	.00
0	93.57	.00043					.00100	.09			9.92			1.50		
1															PAGE	9

WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI1"
PROPOSED CONDITION SCENARIO #1 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

	STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
	L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
0	10637.05	1910.92	8.09	1919.01	2274.0	10.36	1.67	1920.68	.00	7.03		10.00	15.00	1.50	0	.00
0	.00	.00043					.00097	.00			9.92			1.50		
0	10637.05	1910.92	8.09	1919.01	2274.0	10.36	1.67	1920.68	.48	7.03		10.00	15.00	1.50	0	.00
0	44.80	.00318					.00104	.05			5.95			1.50		
0	10681.85	1911.06	7.83	1918.89	2274.0	10.87	1.84	1920.72	.52	7.03		10.00	15.00	1.50	0	.00
0	36.10	.00318					.00118	.04			5.95			1.50		
0	10717.95	1911.18	7.57	1918.75	2274.0	11.40	2.02	1920.77	.56	7.03		10.00	15.00	1.50	0	.00
0	4.09	.00318					.00127	.01			5.95			1.50		
0	10722.04	1911.19	7.54	1918.73	2274.0	11.47	2.05	1920.77	.56	7.03		10.00	15.00	1.50	0	.00
0	.00	.00318					.00128	.00			5.95			1.50		
0	10722.04	1911.19	7.54	1918.73	2274.0	11.47	2.05	1920.77	.00	7.03		10.00	15.00	1.50	0	.00
0	52.34	.00200					.00134	.07			6.71			1.50		
0	10774.38	1911.29	7.36	1918.65	2274.0	11.87	2.19	1920.84	.00	7.03		10.00	15.00	1.50	0	.00
0	HYDRAULIC JUMP													1.50		
0	10774.38	1911.29	6.71	1918.01	2274.0	13.51	2.84	1920.85	.00	7.03		10.00	15.00	1.50	0	.00
0	680.35	.00200					.00200	1.36			6.71			1.50		
0	11454.74	1912.66	6.71	1919.37	2274.0	13.51	2.84	1922.21	.00	7.03		10.00	15.00	1.50	0	.00
0	283.63	.00200					.00196	.55			6.71			1.50		
0	11738.37	1913.23	6.80	1920.02	2274.0	13.28	2.74	1922.76	.00	7.03		10.00	15.00	1.50	0	.00
0	72.18	.00200					.00179	.13			6.71			1.50		
0	11810.55	1913.37	7.03	1920.40	2274.0	12.66	2.49	1922.89	.00	7.03		10.00	15.00	1.50	0	.00
1																

STORM DRAIN ANALYSIS PLUS

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Version 1.20
Serial Number 07010220

Mar 16, 2014 3:26:16

Input file : fwci2.txt
Output file: fwci2.out

INPUT FILE LISTING

```
T1 FREEWAY CHANNEL HYDRAULICS - "FWCI2"
T2 PROPOSED CONDITION SCENARIO #2 - FINAL DESIGN REPORT - FEB 2014
T3 BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS
SO   1000.001887.45 14      .013                1897.39
R    1132.941887.73 14      .013                       84.0
R    1194.831887.88 14      .013
R    2565.441889.22 14      .013
TS   2616.881889.28 13      .013
JX   2704.821889.39 13 3    .013   499.0        1889.39        00.01
WX   2704.821889.39 12      .013
R    2785.711889.49 12      .013
R    2883.971889.60 12      .013
R    3421.301890.20 12      .013
R    3661.151890.85 12      .013
WX   3661.151890.85  6      .013
R    5164.801902.12  6      .013
TS   5287.751903.07 19      .013
R    5391.101903.16 19      .013
R    6572.991904.11 17      .013
R    6617.211904.15 17      .013
R    6667.211904.23 17      .013
JX   6717.211904.31 1718    .013   339.0        1904.31         0.01
TS   6717.211904.31 16      .013
R    6769.491904.40 16      .013
JX   6772.841904.41 16 8    .013   212.0        1904.41         0.01
TS   6772.841904.41 15      .013
R    6806.651904.47 15      .013
TS   6891.681904.57 10      .013
R    6909.491904.57 10      .013
R    8349.321906.07 10      .013
JX   8349.321906.07 1011    .013    83.0        1909.95        69.00
R    9961.211909.24 10      .013
R    9961.531910.13 10      .013
R    9995.991910.42 10      .013
R   10092.781910.43 10      .013                       351.5
R   10150.661910.63 10      .013
R   10278.651910.64 10      .013                       351.5
R   10438.111910.72 10      .013
R   10543.481910.88 10      .013                       446.5
R   10637.051910.92 10      .013
R   10722.041911.19 10      .013                       355.5
R   11810.551913.37 10      .013
SH  11810.551913.37 10      .013               1923.693
1                                                    SP
                                  WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING                                 PAGE    1
0 CARD  SECT  CHN   NO OF  AVE PIER  HEIGHT 1  BASE    ZL    ZR   INV   Y(1)  Y(2)  Y(3)  Y(4)  Y(5)  Y(6)  Y(7)  Y(8)  Y(9)  Y(10)
  CODE   NO   TYPE  PIERS   WIDTH    DIAMETER  WIDTH              DROP

  CD      1    1      0        .00     10.00   24.50   1.50   .00   .00
  CD      2    1      0        .00     10.00   20.00   1.50  1.50   .00
  CD      3    3      0        .00     12.00    9.00    .00   .00   .00
  CD      4    1      0        .00     10.00   20.00   1.50  1.50   .00
  CD      5    2      0        .00     10.00   36.00                 .00
  CD      6    3      1       2.00     10.00   28.00    .00   .00   .00
  CD      7    1      0        .00     10.00   27.00   1.50  1.50   .00
  CD      8    2      0        .00     12.00    8.00                 .00
  CD      9    1      0        .00     10.00   20.00   1.50   .00   .00
  CD     10    1      0        .00     10.00   15.00   1.50  1.50   .00
  CD     11    1      0        .00      6.00    5.00   1.50  1.50   .00
  CD     12    2      0        .00     11.00   35.00                 .00
  CD     13    2      0        .00     11.00   45.00                 .00
  CD     14    2      0        .00     11.00   50.00                 .00
  CD     15    2      0        .00     12.00   32.00                 .00
  CD     16    2      0        .00     12.00   40.00                 .00
  CD     17    2      0        .00     12.00   50.00                 .00
  CD     18    2      0        .00     12.00    9.00                 .00
  CD     19    2      0        .00     11.00   28.00                 .00
1                                                                                                    PAGE NO   1
0                            WATER SURFACE PROFILE - TITLE CARD LISTING
0HEADING LINE NO 1 IS -
0                              FREEWAY CHANNEL HYDRAULICS - "FWCI2"
0HEADING LINE NO 2 IS -
0                              PROPOSED CONDITION SCENARIO #2 - FINAL DESIGN REPORT - FEB 2014
0HEADING LINE NO 3 IS -
0                              BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS
1                                                                                                    PAGE NO   2
0                            WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO   1 IS A SYSTEM OUTLET      *          *          *
                       U/S DATA   STATION    INVERT  SECT                                    W S ELEV
                                  1000.00 1887.45   14                                      1897.39
0 ELEMENT NO   2 IS A REACH             *          *          *
                       U/S DATA   STATION    INVERT  SECT              N                              RADIUS  ANGLE  ANG PT  MAN H
                                  1132.94 1887.73   14              .013                               84.00    .00     .00     0
0 ELEMENT NO   3 IS A REACH             *          *          *
                       U/S DATA   STATION    INVERT  SECT              N                              RADIUS  ANGLE  ANG PT  MAN H
                                  1194.83 1887.88   14              .013                                  .00    .00     .00     0
0 ELEMENT NO   4 IS A REACH             *          *          *
                       U/S DATA   STATION    INVERT  SECT              N                              RADIUS  ANGLE  ANG PT  MAN H
                                  2565.44 1889.22   14              .013                                  .00    .00     .00     0
0 ELEMENT NO   5 IS A TRANSITION        *          *          *
                       U/S DATA   STATION    INVERT  SECT              N
                                  2616.88 1889.28   13              .013
0 ELEMENT NO   6 IS A JUNCTION          *          *          *          *                    *              *
                       U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                  2704.82 1889.39   13     3     0   .013    499.0       .0  1889.39      .00    .01     .00
0 ELEMENT NO   7 IS A  WALL  EXIT                  *
                       U/S DATA   STATION    INVERT  SECT
                                  2704.82 1889.39   12
0 ELEMENT NO   8 IS A REACH             *          *          *
                       U/S DATA   STATION    INVERT  SECT              N                              RADIUS  ANGLE  ANG PT  MAN H
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                          2785.71 1889.49   12              .013                                .00    .00     .00     0
0 ELEMENT NO   9 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          2883.97 1889.60   12              .013                                .00    .00     .00     0
0 ELEMENT NO  10 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          3421.30 1890.20   12              .013                                .00    .00     .00     0
0 ELEMENT NO  11 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          3661.15 1890.85   12              .013                                .00    .00     .00     0
0 ELEMENT NO  12 IS A  WALL  EXIT                  *
                  U/S DATA   STATION    INVERT  SECT
                          3661.15 1890.85    6
1                                                                                                                  PAGE NO   3
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO  13 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          5164.80 1902.12    6              .013                                .00    .00     .00     0
0 ELEMENT NO  14 IS A TRANSITION         *         *     *
                  U/S DATA   STATION    INVERT  SECT              N
                          5287.75 1903.07   19              .013
0 ELEMENT NO  15 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          5391.10 1903.16   19              .013                                .00    .00     .00     0
 WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
0 ELEMENT NO  16 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6572.99 1904.11   17              .013                                .00    .00     .00     0
0 ELEMENT NO  17 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6617.21 1904.15   17              .013                                .00    .00     .00     0
0 ELEMENT NO  18 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6667.21 1904.23   17              .013                                .00    .00     .00     0
0 ELEMENT NO  19 IS A JUNCTION           *         *     *     *           *                 *                 *
                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                          6717.21 1904.31   17    18     0   .013    339.0        .0  1904.31      .00    .01     .00
0 ELEMENT NO  20 IS A TRANSITION         *         *     *
                  U/S DATA   STATION    INVERT  SECT              N
                          6717.21 1904.31   16              .013
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO  21 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6769.49 1904.40   16              .013                                .00    .00     .00     0
0 ELEMENT NO  22 IS A JUNCTION           *         *     *     *           *                 *                 *
                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                          6772.84 1904.41   16     8     0   .013    212.0        .0  1904.41      .00    .01     .00
0 ELEMENT NO  23 IS A TRANSITION         *         *     *
                  U/S DATA   STATION    INVERT  SECT              N
                          6772.84 1904.41   15              .013
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
1                                                                                                                  PAGE NO   4
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO  24 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6806.65 1904.47   15              .013                                .00    .00     .00     0
0 ELEMENT NO  25 IS A TRANSITION         *         *     *
                  U/S DATA   STATION    INVERT  SECT              N
                          6891.68 1904.57   10              .013
0 ELEMENT NO  26 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          6909.49 1904.57   10              .013                                .00    .00     .00     0
0 ELEMENT NO  27 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          8349.32 1906.07   10              .013                                .00    .00     .00     0
0 ELEMENT NO  28 IS A JUNCTION           *         *     *     *           *                 *                 *
                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                          8349.32 1906.07   10    11     0   .013     83.0        .0  1909.95      .00   69.00     .00
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
0 ELEMENT NO  29 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          9961.21 1909.24   10              .013                                .00    .00     .00     0
0 ELEMENT NO  30 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          9961.53 1910.13   10              .013                                .00    .00     .00     0
0 ELEMENT NO  31 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                          9995.99 1910.42   10              .013                                .00    .00     .00     0
0 ELEMENT NO  32 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10092.78 1910.43   10              .013                                351.50 .00     .00     0
0 ELEMENT NO  33 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10150.66 1910.63   10              .013                                .00    .00     .00     0
0 ELEMENT NO  34 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10278.65 1910.64   10              .013                                351.50 .00     .00     0
0 ELEMENT NO  35 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10438.11 1910.72   10              .013                                .00    .00     .00     0
1                                                                                                                  PAGE NO   5
0                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO  36 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10543.48 1910.88   10              .013                                446.50 .00     .00     0
0 ELEMENT NO  37 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10637.05 1910.92   10              .013                                .00    .00     .00     0
0 ELEMENT NO  38 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         10722.04 1911.19   10              .013                                355.50 .00     .00     0
0 ELEMENT NO  39 IS A REACH              *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                         11810.55 1913.37   10              .013                                .00    .00     .00     0
0 ELEMENT NO  40 IS A SYSTEM HEADWORKS                     *                 *
                  U/S DATA   STATION    INVERT  SECT                                        W S ELEV
                         11810.55 1913.37   10                                              1923.69
 NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

1                                                                                                                  PAGE    1
                                        WATER SURFACE PROFILE LISTING
                     FREEWAY CHANNEL HYDRAULICS - "FWCI2"
                     PROPOSED CONDITION SCENARIO #2 - FINAL DESIGN REPORT - FEB 2014
                     BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS
0 STATION    INVERT   DEPTH     W.S.        Q       VEL     VEL      ENERGY   SUPER  CRITICAL           HGT/   BASE/    ZL   NO  AVBPR
              ELEV   OF FLOW    ELEV                        HEAD    GRD.EL.   ELEV    DEPTH             DIA    ID NO.        PIER
0 L/ELEM      SO                                        SF AVE     HF                    NORM DEPTH                      ZR
```

0	1000.00	1887.45	9.94	1897.39	4965.0	9.99	1.55	1898.94	1.85	6.74		11.00	50.00	.00	0	.00
0	132.94	.00211					.00058	.08			6.39			.00		
0	1132.94	1887.73	9.64	1897.37	4965.0	10.30	1.65	1899.02	.00	6.74		11.00	50.00	.00	0	.00
0	61.89	.00242					.00063	.04			6.11			.00		
0	1194.83	1887.88	9.47	1897.35	4965.0	10.49	1.71	1899.06	.00	6.74		11.00	50.00	.00	0	.00
0	949.45	.00098					.00069	.66			8.24			.00		
0	2144.28	1888.81	9.03	1897.84	4965.0	11.00	1.88	1899.72	.00	6.74		11.00	50.00	.00	0	.00
0	421.16	.00098					.00076	.32			8.24			.00		
0	2565.44	1889.22	8.87	1898.09	4965.0	11.19	1.95	1900.04	.00	6.74		11.00	50.00	.00	0	.00
0	TRANS STR	.00117					.00104	.05						.00		
0	2616.88	1889.28	8.14	1897.42	4965.0	13.56	2.86	1900.27	.00	7.23		11.00	45.00	.00	0	.00
0	JUNCT STR	.00125					.00098	.09						.00		
0	2704.82	1889.39	9.48	1898.87	4466.0	10.47	1.70	1900.57	.00	6.74		11.00	45.00	.00	0	.00
0	WALL EXIT													.00		
0	2704.82	1889.39	9.48	1898.87	4466.0	13.46	2.82	1901.68	.00	7.97		11.00	35.00	.00	0	.00
0	80.89	.00124					.00123	.10			9.47			.00		
0	2785.71	1889.49	9.48	1898.97	4466.0	13.47	2.82	1901.78	.00	7.97		11.00	35.00	.00	0	.00
0	98.26	.00112					.00123	.12			9.80			.00		
0	2883.97	1889.60	9.50	1899.10	4466.0	13.43	2.80	1901.90	.00	7.97		11.00	35.00	.00	0	.00
0	200.71	.00112					.00121	.24			9.81			.00		
0	3084.68	1889.82	9.54	1899.37	4466.0	13.37	2.78	1902.15	.00	7.97		11.00	35.00	.00	0	.00
0	HYDRAULIC JUMP													.00		

0 STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
0 L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
0	3084.68	1889.82	6.58	1896.40	4466.0	19.40	5.85	1902.25	.00	7.97		11.00	35.00	.00	0	.00
0	19.90	.00112					.00362	.07			9.81			.00		
0	3104.58	1889.85	6.52	1896.37	4466.0	19.57	5.95	1902.32	.00	7.97		11.00	35.00	.00	0	.00
0	102.98	.00112					.00395	.41			9.81			.00		
0	3207.56	1889.96	6.22	1896.18	4466.0	20.53	6.55	1902.73	.00	7.97		11.00	35.00	.00	0	.00
0	106.31	.00112					.00456	.48			9.81			.00		
0	3313.88	1890.08	5.93	1896.01	4466.0	21.53	7.20	1903.21	.00	7.97		11.00	35.00	.00	0	.00
0	107.42	.00112					.00526	.56			9.81			.00		
0	3421.30	1890.20	5.65	1895.85	4466.0	22.58	7.92	1903.78	.00	7.97		11.00	35.00	.00	0	.00
0	89.74	.00271					.00586	.53			7.22			.00		
0	3511.04	1890.44	5.50	1895.95	4466.0	23.19	8.36	1904.30	.00	7.97		11.00	35.00	.00	0	.00
0	150.11	.00271					.00657	.99			7.22			.00		
0	3661.15	1890.85	5.25	1896.10	4466.0	24.32	9.19	1905.29	.00	7.97		11.00	35.00	.00	0	.00
0	WALL EXIT													.00		
0	3661.15	1890.85	7.55	1898.40	4466.0	22.75	8.04	1906.44	.00	9.72		10.00	28.00	.00	1	2.00
0	WALL EXIT													.00		
0	3661.15	1890.85	7.55	1898.40	4466.0	22.75	8.04	1906.44	.00	9.72		10.00	28.00	.00	1	2.00
0	728.03	.00750					.00734	5.34			7.54			.00		
0	4389.18	1896.31	7.66	1903.96	4466.0	22.44	7.82	1911.79	.00	9.72		10.00	28.00	.00	1	2.00
0	477.77	.00750					.00679	3.24			7.54			.00		
0	4866.95	1899.89	8.03	1907.92	4466.0	21.39	7.11	1915.03	.00	9.72		10.00	28.00	.00	1	2.00
0	170.18	.00750					.00600	1.02			7.54			.00		

0 STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
0 L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
0	5037.13	1901.16	8.42	1909.58	4466.0	20.40	6.47	1916.05	.00	9.72		10.00	28.00	.00	1	2.00
0	80.70	.00750					.00530	.43			7.54			.00		
0	5117.82	1901.77	8.83	1910.60	4466.0	19.45	5.88	1916.48	.00	9.72		10.00	28.00	.00	1	2.00
0	36.88	.00750					.00469	.17			7.54			.00		
0	5154.71	1902.04	9.26	1911.31	4466.0	18.54	5.34	1916.65	.00	9.72		10.00	28.00	.00	1	2.00
0	10.09	.00750					.00416	.04			7.54			.00		
0	5164.80	1902.12	9.72	1911.84	4466.0	17.68	4.86	1916.69	.00	9.72		10.00	28.00	.00	1	2.00
0	TRANS STR	.00773					.00276	.34						.00		
0	5287.75	1903.07	10.52	1913.58	4466.0	15.17	3.58	1917.16	.00	9.25		11.00	28.00	.00	0	.00
0	103.35	.00087					.00157	.16			13.18			.00		
0	5391.10	1903.16	10.73	1913.89	4466.0	8.33	1.08	1914.96	.00	6.28		12.00	50.00	.00	0	.00
0	941.40	.00080					.00039	.37			8.19			.00		
0	6332.50	1903.92	10.23	1914.15	4466.0	8.73	1.19	1915.33	.00	6.28		12.00	50.00	.00	0	.00
0	240.49	.00080					.00042	.10			8.19			.00		
0	6572.99	1904.11	10.11	1914.22	4466.0	8.84	1.21	1915.43	.00	6.28		12.00	50.00	.00	0	.00
0	44.22	.00091					.00043	.02			7.87			.00		
0	6617.21	1904.15	10.08	1914.23	4466.0	8.86	1.22	1915.45	.00	6.28		12.00	50.00	.00	0	.00
0	.00	.00091					.00043	.00			7.87			.00		
0	6617.21	1904.15	10.08	1914.23	4466.0	8.86	1.22	1915.45	.00	6.28		12.00	50.00	.00	0	.00
0	50.00	.00160					.00044	.02			6.53			.00		
0	6667.21	1904.23	10.00	1914.23	4466.0	8.93	1.24	1915.47	.00	6.28		12.00	50.00	.00	0	.00
0	JUNCT STR	.00160					.00040	.02						.00		

0 STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
0 L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
0	6717.21	1904.31	10.28	1914.59	4127.0	8.03	1.00	1915.59	.00	5.96		12.00	50.00	.00	0	.00
0	TRANS STR	.00000					.00053	.00						.00		
0	6717.21	1904.31	9.66	1913.97	4127.0	10.68	1.77	1915.75	.00	6.92		12.00	40.00	.00	0	.00
0	52.28	.00172					.00073	.04			7.18			.00		
0	6769.49	1904.40	9.58	1913.98	4127.0	10.77	1.80	1915.78	.00	6.92		12.00	40.00	.00	0	.00
0	.00	.00172					.00073	.00			7.18			.00		
0	6769.49	1904.40	9.58	1913.98	4127.0	10.77	1.80	1915.78	.00	6.92		12.00	40.00	.00	0	.00
0	JUNCT STR	.00299					.00066	.00						.00		
0	6772.84	1904.41	10.02	1914.43	3915.0	9.77	1.48	1915.91	.00	6.68		12.00	40.00	.00	0	.00
0	TRANS STR	.00000												.00		
0	6772.84	1904.41	6.36	1910.77	3915.0	19.23	5.74	1916.52	.00	7.75		12.00	32.00	.00	0	.00
0	33.81	.00177					.00382	.13			8.23			.00		
0	6806.65	1904.47	6.28	1910.75	3915.0	19.48	5.90	1916.65	.00	7.75		12.00	32.00	.00	0	.00
0	TRANS STR	.00118					.00273	.23						.00		
0	6891.68	1904.57	9.41	1913.98	3915.0	14.28	3.17	1917.15	.00	9.41		10.00	15.00	1.50	0	.00
0	17.81	.00000					.00146	.03			.00			1.50		
0	6909.49	1904.57	9.78	1914.35	3915.0	13.49	2.83	1917.18	.00	9.41		10.00	15.00	1.50	0	.00
0	268.62	.00104					.00126	.34			10.41			1.50		
0	7178.11	1904.85	10.10	1914.95	3915.0	12.86	2.57	1917.52	.00	9.41		10.00	15.00	1.50	0	.00
0	1171.21	.00104					.00111	1.30			10.41			1.50		
0	8349.32	1906.07	10.40	1916.47	3915.0	12.30	2.35	1918.82	.00	9.41		10.00	15.00	1.50	0	.00
0	JUNCT STR	.00000					.00094	.00						1.50		

FREEWAY CHANNEL HYDRAULICS - "FWCI2"
PROPOSED CONDITION SCENARIO #2 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH / NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 8349.32	1906.07	10.87	1916.94	3832.0	11.26	1.97	1918.91	.00	9.31	10.00	15.00	1.50	0	.00
0 129.87	.00197					.00089	.12		8.80			1.50		
0 8479.19	1906.33	10.54	1916.86	3832.0	11.81	2.17	1919.03	.00	9.31	10.00	15.00	1.50	0	.00
0 116.75	.00197					.00102	.12		8.80			1.50		
0 8595.94	1906.56	10.21	1916.76	3832.0	12.38	2.38	1919.15	.00	9.31	10.00	15.00	1.50	0	.00
0 80.29	.00197					.00114	.09		8.80			1.50		
0 8676.23	1906.71	9.96	1916.68	3832.0	12.84	2.56	1919.24	.00	9.31	10.00	15.00	1.50	0	.00
0HYDRAULIC JUMP												1.50		
0 8676.23	1906.71	8.68	1915.39	3832.0	15.76	3.86	1919.25	.00	9.31	10.00	15.00	1.50	0	.00
0 411.62	.00197					.00222	.91		8.80			1.50		
0 9087.85	1907.52	8.42	1915.94	3832.0	16.48	4.22	1920.16	.00	9.31	10.00	15.00	1.50	0	.00
0 275.24	.00197					.00251	.69		8.80			1.50		
0 9363.10	1908.06	8.15	1916.21	3832.0	17.28	4.64	1920.85	.00	9.31	10.00	15.00	1.50	0	.00
0 223.41	.00197					.00286	.64		8.80			1.50		
0 9586.50	1908.50	7.88	1916.38	3832.0	18.13	5.11	1921.49	.00	9.31	10.00	15.00	1.50	0	.00
0 196.18	.00197					.00326	.64		8.80			1.50		
0 9782.69	1908.89	7.62	1916.51	3832.0	19.01	5.62	1922.13	.00	9.31	10.00	15.00	1.50	0	.00
0 178.52	.00197					.00371	.66		8.80			1.50		
0 9961.21	1909.24	7.37	1916.61	3832.0	19.94	6.18	1922.79	.00	9.31	10.00	15.00	1.50	0	.00
0 .09	2.77858					.00376	.00		1.18			1.50		
0 9961.30	1909.49	7.57	1917.06	3832.0	19.20	5.73	1922.79	.00	9.31	10.00	15.00	1.50	0	.00
0 .10	2.77858					.00335	.00		1.18			1.50		

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WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI2"
PROPOSED CONDITION SCENARIO #2 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH / NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 9961.40	1909.76	7.83	1917.58	3832.0	18.31	5.21	1922.80	.00	9.31	10.00	15.00	1.50	0	.00
0 .08	2.77858					.00294	.00		1.18			1.50		
0 9961.47	1909.97	8.09	1918.06	3832.0	17.46	4.74	1922.80	.00	9.31	10.00	15.00	1.50	0	.00
0 .06	2.77858					.00258	.00		1.18			1.50		
0 9961.53	1910.13	8.36	1918.49	3832.0	16.65	4.31	1922.80	.00	9.31	10.00	15.00	1.50	0	.00
0 6.59	.00842					.00237	.02		6.06			1.50		
0 9968.13	1910.19	8.44	1918.63	3832.0	16.40	4.18	1922.81	.00	9.31	10.00	15.00	1.50	0	.00
0 16.10	.00842					.00218	.04		6.06			1.50		
0 9984.23	1910.32	8.72	1919.04	3832.0	15.64	3.80	1922.85	.00	9.31	10.00	15.00	1.50	0	.00
0 8.95	.00842					.00192	.02		6.06			1.50		
0 9993.18	1910.40	9.01	1919.41	3832.0	14.91	3.46	1922.86	.00	9.31	10.00	15.00	1.50	0	.00
0 2.81	.00842					.00168	.00		6.06			1.50		
0 9995.99	1910.42	9.31	1919.73	3832.0	14.22	3.14	1922.87	.44	9.31	10.00	15.00	1.50	0	.00
0 12.90	.00010					.00148	.02		17.79			1.50		
0 10008.89	1910.42	9.61	1920.03	3832.0	13.56	2.86	1922.89	.41	9.31	10.00	15.00	1.50	0	.00
0 43.36	.00010					.00130	.06		17.79			1.50		
0 10052.25	1910.43	9.92	1920.35	3832.0	12.92	2.60	1922.94	.38	9.31	10.00	15.00	1.50	0	.00
0 40.53	.00010					.00117	.05		17.79			1.50		
0 10092.78	1910.43	10.10	1920.53	3832.0	12.58	2.46	1922.99	.36	9.31	10.00	15.00	1.50	0	.00
0 .00	.00010					.00113	.00		17.79			1.50		
0 10092.78	1910.43	10.10	1920.53	3832.0	12.58	2.46	1922.99	.00	9.31	10.00	15.00	1.50	0	.00
0 31.23	.00345					.00121	.04		7.63			1.50		

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WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI2"
PROPOSED CONDITION SCENARIO #2 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH / NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 10124.01	1910.54	9.79	1920.32	3832.0	13.20	2.71	1923.03	.00	9.31	10.00	15.00	1.50	0	.00
0 5.20	.00345					.00130	.01		7.63			1.50		
0 10129.21	1910.56	9.72	1920.27	3832.0	13.33	2.76	1923.04	.00	9.31	10.00	15.00	1.50	0	.00
0HYDRAULIC JUMP												1.50		
0 10129.21	1910.56	8.90	1919.46	3832.0	15.18	3.58	1923.04	.00	9.31	10.00	15.00	1.50	0	.00
0 10.76	.00345					.00184	.02		7.63			1.50		
0 10139.97	1910.59	9.01	1919.60	3832.0	14.91	3.46	1923.06	.00	9.31	10.00	15.00	1.50	0	.00
0 10.69	.00345					.00168	.02		7.63			1.50		
0 10150.66	1910.63	9.31	1919.94	3832.0	14.22	3.14	1923.08	.44	9.31	10.00	15.00	1.50	0	.00
0 12.67	.00008					.00148	.02		18.96			1.50		
0 10163.33	1910.63	9.61	1920.24	3832.0	13.56	2.86	1923.10	.41	9.31	10.00	15.00	1.50	0	.00
0 42.47	.00008					.00130	.06		18.96			1.50		
0 10205.80	1910.63	9.92	1920.56	3832.0	12.92	2.60	1923.15	.38	9.31	10.00	15.00	1.50	0	.00
0 72.85	.00008					.00115	.08		18.96			1.50		
0 10278.65	1910.64	10.22	1920.86	3832.0	12.36	2.37	1923.24	.00	9.31	10.00	15.00	1.50	0	.00
0 159.46	.00050					.00103	.16		12.30			1.50		
0 10438.11	1910.72	10.47	1921.19	3832.0	11.91	2.21	1923.40	.26	9.31	10.00	15.00	1.50	0	.00
0 105.37	.00152					.00101	.11		9.39			1.50		
0 10543.48	1910.88	10.32	1921.20	3832.0	12.19	2.31	1923.51	.00	9.31	10.00	15.00	1.50	0	.00
0 93.57	.00043					.00101	.09		12.78			1.50		
0 10637.05	1910.92	10.47	1921.39	3832.0	11.91	2.21	1923.60	.00	9.31	10.00	15.00	1.50	0	.00
0 .00	.00043					.00098	.00		12.78			1.50		

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WATER SURFACE PROFILE LISTING

FREEWAY CHANNEL HYDRAULICS - "FWCI2"
PROPOSED CONDITION SCENARIO #2 - FINAL DESIGN REPORT - FEB 2014
BROOKS CHANNEL ATTENUATED FLOWS, FWC PEAK FLOWS; Q100 FLOWS

0 STATION / 0 L/ELEM	INVERT ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH / NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
0 10637.05	1910.92	10.47	1921.39	3832.0	11.91	2.21	1923.60	.75	9.31	10.00	15.00	1.50	0	.00
0 49.39	.00318					.00104	.05		7.80			1.50		
0 10686.44	1911.08	10.15	1921.23	3832.0	12.49	2.43	1923.65	.81	9.31	10.00	15.00	1.50	0	.00
0 32.27	.00318					.00117	.04		7.80			1.50		
0 10718.72	1911.18	9.88	1921.06	3832.0	13.00	2.63	1923.69	.86	9.31	10.00	15.00	1.50	0	.00
0HYDRAULIC JUMP												1.50		
0 10718.72	1911.18	8.75	1919.93	3832.0	15.57	3.77	1923.70	1.14	9.31	10.00	15.00	1.50	0	.00
0 3.32	.00318					.00201	.01		7.80			1.50		
0 10722.04	1911.19	8.76	1919.95	3832.0	15.54	3.75	1923.70	1.13	9.31	10.00	15.00	1.50	0	.00
0 .00	.00318					.00200	.00		7.80			1.50		
0 10722.04	1911.19	8.76	1919.95	3832.0	15.54	3.75	1923.70	.00	9.31	10.00	15.00	1.50	0	.00
0 578.41	.00200					.00200	1.16		8.76			1.50		
0 11300.45	1912.35	8.76	1921.11	3832.0	15.54	3.75	1924.86	.00	9.31	10.00	15.00	1.50	0	.00
0 450.85	.00200					.00190	.86		8.76			1.50		
0 11751.30	1913.25	9.01	1922.26	3832.0	14.91	3.46	1925.72	.00	9.31	10.00	15.00	1.50	0	.00
0 59.25	.00200					.00168	.10		8.76			1.50		
0 11810.55	1913.37	9.31	1922.68	3832.0	14.22	3.14	1925.82	.00	9.31	10.00	15.00	1.50	0	.00

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Appendix C-5

Proposed Condition Losee Road Storm Drain Hydraulic Analysis and Drop Inlet Calculations

Losee Road Street Hydraulic Section Calculations

Worksheet for FM:1E-Q10

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Discharge	17.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+50.000	1.03
0+93.000	0.17
0+93.000	0.13
0+94.500	0.00
0+94.500	0.50
0+95.000	0.50
1+00.000	0.60

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+50.000, 1.03)	(0+93.000, 0.13)	0.016
(0+93.000, 0.13)	(1+00.000, 0.60)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.65	ft
Elevation Range	0.00 to 1.03 ft	
Flow Area	7.18	ft²
Wetted Perimeter	31.55	ft
Hydraulic Radius	0.23	ft

Worksheet for FM:1E-Q10

Results

Top Width		30.95	ft
Normal Depth		0.65	ft
Critical Depth		0.62	ft
Critical Slope		0.00585	ft/ft
Velocity		2.37	ft/s
Velocity Head		0.09	ft
Specific Energy		0.74	ft
Froude Number		0.87	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.65	ft
Critical Depth	0.62	ft
Channel Slope	0.43	%
Critical Slope	0.00585	ft/ft

Cross Section for FM:1E-Q10

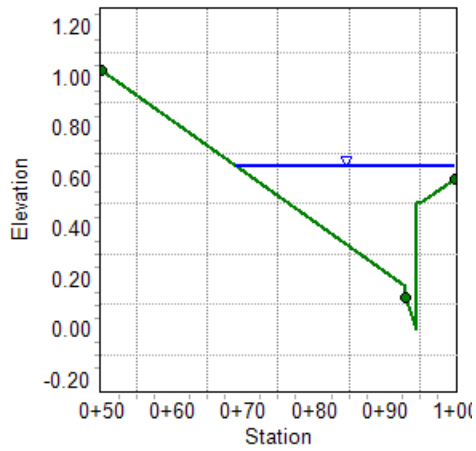
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Normal Depth	0.65	ft
Discharge	17.00	ft³/s

Cross Section Image



Worksheet for FM:1E-Q100

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Discharge	36.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+50.000	1.03
0+93.000	0.17
0+93.000	0.13
0+94.500	0.00
0+94.500	0.50
0+95.000	0.50
1+00.000	0.60

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+50.000, 1.03)	(0+93.000, 0.13)	0.016
(0+93.000, 0.13)	(1+00.000, 0.60)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.80	ft
Elevation Range	0.00 to 1.03 ft	
Flow Area	12.34	ft²
Wetted Perimeter	39.14	ft
Hydraulic Radius	0.32	ft

Worksheet for FM:1E-Q100

Results

Top Width		38.39	ft
Normal Depth		0.80	ft
Critical Depth		0.77	ft
Critical Slope		0.00529	ft/ft
Velocity		2.92	ft/s
Velocity Head		0.13	ft
Specific Energy		0.93	ft
Froude Number		0.91	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.80	ft
Critical Depth	0.77	ft
Channel Slope	0.43	%
Critical Slope	0.00529	ft/ft

Cross Section for FM:1E-Q100

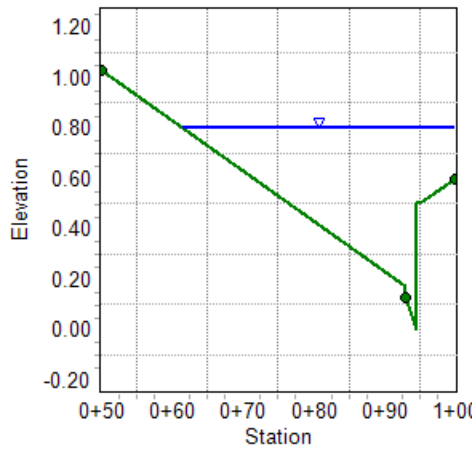
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Normal Depth	0.80	ft
Discharge	36.00	ft³/s

Cross Section Image



Worksheet for FM:1W-Q10

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Discharge	99.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.000	0.60
0+05.000	0.50
0+05.500	0.50
0+05.500	0.00
0+07.000	0.13
0+07.000	0.17
0+50.000	1.03

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.000, 0.60)	(0+07.000, 0.13)	0.013
(0+07.000, 0.13)	(0+50.000, 1.03)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		1.08	ft
Elevation Range	0.00 to 1.03 ft		
Flow Area		25.27	ft²
Wetted Perimeter		51.09	ft
Hydraulic Radius		0.49	ft

Worksheet for FM:1W-Q10

Results

Top Width		50.00	ft
Normal Depth		1.08	ft
Critical Depth		1.07	ft
Critical Slope		0.00459	ft/ft
Velocity		3.92	ft/s
Velocity Head		0.24	ft
Specific Energy		1.32	ft
Froude Number		0.97	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.08	ft
Critical Depth	1.07	ft
Channel Slope	0.43	%
Critical Slope	0.00459	ft/ft

Cross Section for FM:1W-Q10

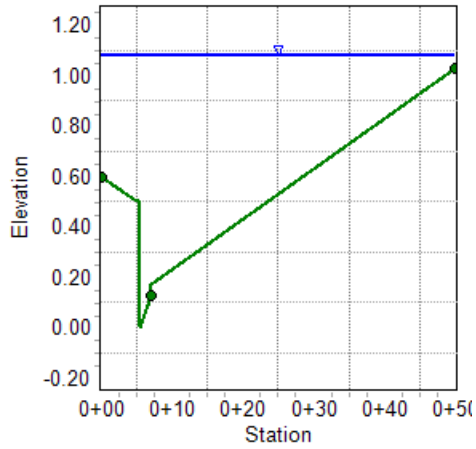
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Normal Depth	1.08	ft
Discharge	99.00	ft³/s

Cross Section Image



Worksheet for FM:1W-Q100

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Discharge	221.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.000	0.60
0+05.000	0.50
0+05.500	0.50
0+05.500	0.00
0+07.000	0.13
0+07.000	0.17
0+50.000	1.03

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.000, 0.60)	(0+07.000, 0.13)	0.013
(0+07.000, 0.13)	(0+50.000, 1.03)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	1.40	ft
Elevation Range	0.00 to 1.03 ft	
Flow Area	41.12	ft²
Wetted Perimeter	51.73	ft
Hydraulic Radius	0.79	ft

Worksheet for FM:1W-Q100

Results

Top Width		50.00	ft
Normal Depth		1.40	ft
Critical Depth		1.42	ft
Critical Slope		0.00391	ft/ft
Velocity		5.37	ft/s
Velocity Head		0.45	ft
Specific Energy		1.85	ft
Froude Number		1.04	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.40	ft
Critical Depth	1.42	ft
Channel Slope	0.43	%
Critical Slope	0.00391	ft/ft

Cross Section for FM:1W-Q100

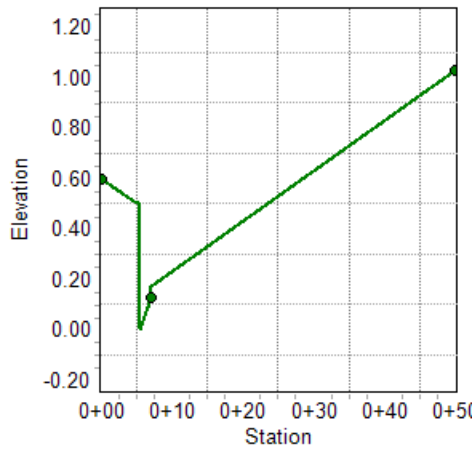
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Normal Depth	1.40	ft
Discharge	221.00	ft³/s

Cross Section Image



Worksheet for FM:2W-Q10

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Discharge	33.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.000	0.60
0+05.000	0.50
0+05.500	0.50
0+05.500	0.00
0+07.000	0.13
0+07.000	0.17
0+50.000	1.03

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.000, 0.60)	(0+07.000, 0.13)	0.013
(0+07.000, 0.13)	(0+50.000, 1.03)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		0.78	ft
Elevation Range	0.00 to 1.03 ft		
Flow Area		11.58	ft²
Wetted Perimeter		38.11	ft
Hydraulic Radius		0.30	ft

Worksheet for FM:2W-Q10

Results

Top Width		37.38	ft
Normal Depth		0.78	ft
Critical Depth		0.75	ft
Critical Slope		0.00535	ft/ft
Velocity		2.85	ft/s
Velocity Head		0.13	ft
Specific Energy		0.90	ft
Froude Number		0.90	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.78	ft
Critical Depth	0.75	ft
Channel Slope	0.43	%
Critical Slope	0.00535	ft/ft

Cross Section for FM:2W-Q10

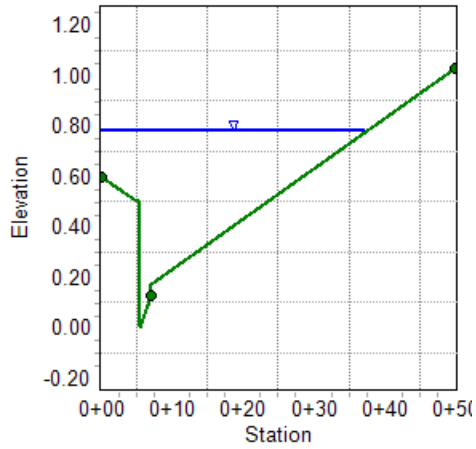
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Normal Depth	0.78	ft
Discharge	33.00	ft³/s

Cross Section Image



Worksheet for FM:2W-Q100

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Discharge	102.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.000	0.60
0+05.000	0.50
0+05.500	0.50
0+05.500	0.00
0+07.000	0.13
0+07.000	0.17
0+50.000	1.03

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.000, 0.60)	(0+07.000, 0.13)	0.013
(0+07.000, 0.13)	(0+50.000, 1.03)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		1.09	ft
Elevation Range	0.00 to 1.03 ft		
Flow Area		25.74	ft²
Wetted Perimeter		51.11	ft
Hydraulic Radius		0.50	ft

Worksheet for FM:2W-Q100

Results

Top Width		50.00	ft
Normal Depth		1.09	ft
Critical Depth		1.08	ft
Critical Slope		0.00456	ft/ft
Velocity		3.96	ft/s
Velocity Head		0.24	ft
Specific Energy		1.34	ft
Froude Number		0.97	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.09	ft
Critical Depth	1.08	ft
Channel Slope	0.43	%
Critical Slope	0.00456	ft/ft

Cross Section for FM:2W-Q100

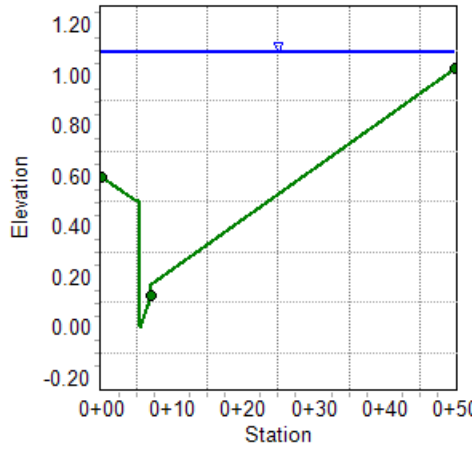
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.43	%
Normal Depth	1.09	ft
Discharge	102.00	ft³/s

Cross Section Image



Losee Road Local Facility Storm Drain WSPG Analysis

STORM DRAIN ANALYSIS PLUS

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Version 1.20
Serial Number 07010220

Oct 30, 2014 8:43:20

Input file : LOSSD100.TXT
Output file: LOSSD100.OUT

INPUT FILE LISTING

```
T1 BROOKS CHANNEL
T2 LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL-"SD3" STATIONING
T3 ULTIMATE CONDITION 100-YEAR PEAK FLOWS
SO   1000.001918.74  3      .013                1921.19
R    1012.451918.78  3      .013                                    45.0
R    1030.891918.84  3      .013                                    45.0
JX   1078.201919.01  3 6    .013    80.0        1919.01         45.0
R    1078.201919.01  3      .013
JX   1225.671919.52  3 2  1 .013    11.0   39.0 1919.85 1919.52 45.0  45.0
R    1233.001919.58  3      .013
WX   1233.001919.58  5      .013                                    45.0
R    1407.311920.68  5      .013
SH   1430.051920.84  5      .013
1                                                SP
                                  WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING                                  PAGE    1
0 CARD  SECT  CHN   NO OF  AVE PIER  HEIGHT 1  BASE    ZL    ZR   INV   Y(1)  Y(2)  Y(3)  Y(4)  Y(5)  Y(6)  Y(7)  Y(8)  Y(9)  Y(10)
  CODE   NO   TYPE  PIERS   WIDTH    DIAMETER  WIDTH            DROP

  CD      1    4                      2.50
  CD      2    4                      1.50
  CD      3    3      0        .00    3.00    7.00    .00   .00   .00
  CD      4    4                      3.50
  CD      5    4                      2.00
  CD      6    4                      3.00
1                                                                                                          PAGE NO   1
0                           WATER SURFACE PROFILE - TITLE CARD LISTING
0HEADING LINE NO 1 IS -
0                             BROOKS CHANNEL
0HEADING LINE NO 2 IS -
0                             LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL-"SD3" STATIONING
0HEADING LINE NO 3 IS -
0                             ULTIMATE CONDITION 100-YEAR PEAK FLOWS
1                                                                                                          PAGE NO   2
0                           WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO   1 IS A SYSTEM OUTLET          *       *       *                                    W S ELEV
                    U/S DATA   STATION    INVERT  SECT                                         1921.19
                                 1000.00 1918.74    3
0 ELEMENT NO   2 IS A REACH               *       *       *
                    U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 1012.45 1918.78    3              .013                                    .00    .00   45.00     0
0 ELEMENT NO   3 IS A REACH               *       *       *
                    U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 1030.89 1918.84    3              .013                                    .00    .00   45.00     0
0 ELEMENT NO   4 IS A JUNCTION            *       *       *       *                       *                       *
                    U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                 1078.20 1919.01    3     6     0   .013     80.0       .0  1919.01      .00  45.00     .00
0 ELEMENT NO   5 IS A REACH               *       *       *
                    U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 1078.20 1919.01    3              .013                                    .00    .00     .00     0
0 ELEMENT NO   6 IS A JUNCTION            *       *       *       *                       *                       *
                    U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3       Q4    INVERT-3 INVERT-4  PHI 3   PHI 4
                                 1225.67 1919.52    3     2     1   .013     11.0     39.0  1919.85  1919.50  45.00   45.00
0 ELEMENT NO   7 IS A REACH               *       *       *
                    U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 1233.00 1919.58    3              .013                                    .00    .00     .00     0
0 ELEMENT NO   8 IS A  WALL  EXIT                *
                    U/S DATA   STATION    INVERT  SECT
                                 1233.00 1919.58    5
0 ELEMENT NO   9 IS A REACH               *       *       *
                    U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                 1407.31 1920.68    5              .013                                    .00    .00     .00     0
0 ELEMENT NO  10 IS A SYSTEM HEADWORKS                *                       *
                    U/S DATA   STATION    INVERT  SECT                                         W S ELEV
                                 1430.05 1920.84    5                                              .00
 NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

 ** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC
1                                                                                                          PAGE    1
                                          WATER SURFACE PROFILE LISTING
                              BROOKS CHANNEL
                              LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL-"SD3" STATIONING
                              ULTIMATE CONDITION 100-YEAR PEAK FLOWS
0 STATION    INVERT   DEPTH     W.S.        Q       VEL     VEL      ENERGY   SUPER  CRITICAL           HGT/   BASE/    ZL   NO  AVBPR
            ELEV   OF FLOW    ELEV                        HEAD   GRD.EL.   ELEV    DEPTH              DIA    ID NO.       PIER
0 L/ELEM      SO                                       SF AVE     HF                    NORM DEPTH                  ZR
*****************************************************************************************************************************
0  1000.00  1918.74     2.45   1921.19     145.0    8.45     1.11   1922.30    .00     2.37              3.00    7.00   .00   0    .00
0    12.45   .00322                                    .00333     .04                          2.49                      .00
0  1012.45  1918.78     2.46   1921.24     145.0    8.40     1.10   1922.34    .00     2.37              3.00    7.00   .00   0    .00
0    18.44   .00325                                    .00329     .06                          2.48                      .00
0  1030.89  1918.84     2.47   1921.31     145.0    8.38     1.09   1922.40    .00     2.37              3.00    7.00   .00   0    .00
0JUNCT STR   .00359                                    .00200     .09                                                   .00
0  1078.20  1919.01     3.34   1922.35      65.0    3.13      .15   1922.50    .00     1.39              3.00    7.00   .00   0    .00
0  1078.20  1919.01     3.34   1922.35      65.0    3.13      .15   1922.50    .00     1.39              3.00    7.00   .00   0    .00
0JUNCT STR   .00346                                    .00038     .06                                                   .00
0  1225.67  1919.52     3.03   1922.55      15.0     .72      .01   1922.55    .00      .52              3.00    7.00   .00   0    .00
0     3.22   .00818                                    .00004     .00                           .41                      .00
0  1228.89  1919.55     3.00   1922.55      15.0     .72      .01   1922.55    .00      .52              3.00    7.00   .00   0    .00
0     4.11   .00818                                    .00002     .00                           .41                      .00
0  1233.00  1919.58     2.97   1922.55      15.0     .72      .01   1922.55    .00      .52              3.00    7.00   .00   0    .00
0  WALL EXIT                                                                                                          .00
0  1233.00  1919.58     2.97   1922.55      15.0    4.77      .35   1922.90    .00     1.40              2.00     .00   .00   0    .00
0   174.31   .00631                                    .00440     .77                          1.39                      .00
0  1407.31  1920.68     2.63   1923.31      15.0    4.77      .35   1923.67    .00     1.40              2.00     .00   .00   0    .00
0    22.74   .00631                                    .00220     .05                          1.39                      .00
0  1430.05  1920.84     2.63   1923.47      15.0    4.77      .35   1923.83    .00     1.40              2.00     .00   .00   0    .00
1
```

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 STORM DRAIN ANALYSIS PLUS

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 Version  1.20
 Serial Number 07010220

 Mar 17, 2014   7: 5:11

 Input file : di1.txt
 Output file: di1.out

                                    INPUT FILE LISTING


 T1 BROOKS CHANNEL
 T2 LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL DI#1
 T3 ULTIMATE CONDITION 100-YEAR PEAK FLOWS
 SO   1000.001919.01  1      .013               1922.35
 R    1085.401919.43  1      .013
 SH   1085.401919.43  1      .013
1                                                  SP
                                      WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING                                PAGE    1
0 CARD  SECT  CHN   NO OF  AVE PIER  HEIGHT 1  BASE    ZL    ZR   INV   Y(1)  Y(2)  Y(3)  Y(4)  Y(5)  Y(6)  Y(7)  Y(8)  Y(9)  Y(10)
  CODE   NO   TYPE  PIERS   WIDTH    DIAMETER  WIDTH             DROP

  CD      1    4                      3.00
 ERROR MESSAGE NUMBER  7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
 INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
1                                                                                                                PAGE NO   1
0                              WATER SURFACE PROFILE - TITLE CARD LISTING
0HEADING LINE NO 1 IS -
0                                BROOKS CHANNEL
0HEADING LINE NO 2 IS -
0                                LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL DI#1
0HEADING LINE NO 3 IS -
0                                ULTIMATE CONDITION 100-YEAR PEAK FLOWS
1                                                                                                                PAGE NO   2
0                              WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO   1 IS A SYSTEM OUTLET      *          *      *
                     U/S DATA   STATION    INVERT  SECT                                      W S ELEV
                                  1000.00 1919.01    1                                       1922.35
0 ELEMENT NO   2 IS A REACH              *          *    *
                     U/S DATA   STATION    INVERT  SECT              N                                RADIUS  ANGLE  ANG PT  MAN H
                                  1085.40 1919.43    1             .013                                  .00    .00     .00     0
0 ELEMENT NO   3 IS A SYSTEM HEADWORKS                    *                  *
                     U/S DATA   STATION    INVERT  SECT                                      W S ELEV
                                  1085.40 1919.43    1                                           .00
 NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

 ** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC
1                                                                                                                PAGE    1
                                              WATER SURFACE PROFILE LISTING
                          BROOKS CHANNEL
                          LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL DI#1
                          ULTIMATE CONDITION 100-YEAR PEAK FLOWS
0 STATION    INVERT   DEPTH     W.S.        Q       VEL     VEL      ENERGY   SUPER  CRITICAL           HGT/   BASE/    ZL   NO  AVBPR
           ELEV   OF FLOW    ELEV                        HEAD   GRD.EL.   ELEV    DEPTH              DIA    ID NO.        PIER
0 L/ELEM     SO                                    SF AVE     HF                    NORM DEPTH                          ZR
*****************************************************************************************************************************
0  1000.00  1919.01     3.34   1922.35      80.0   11.32     1.99   1924.34    .00     2.77             3.00     .00   .00   0    .00
0    85.40   .00492                                      .01439     1.23                      3.00                          .00
0  1085.40  1919.43     4.15   1923.58      80.0   11.32     1.99   1925.57    .00     2.77             3.00     .00   .00   0    .00
1
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 STORM DRAIN ANALYSIS PLUS

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 Version  1.20
 Serial Number 07010220

 Mar 17, 2014   7:10:48

 Input file : di2.txt
 Output file: di2.out

                                    INPUT FILE LISTING


 T1 BROOKS CHANNEL
 T2 LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL DI#2
 T3 ULTIMATE CONDITION 100-YEAR PEAK FLOWS
 SO   1000.001919.52  1      .013               1922.55
 R    1073.841920.33  1      .013
 SH   1073.841920.33  1      .013
1                                                    SP
                                      WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING                                PAGE    1
0 CARD  SECT  CHN   NO OF  AVE PIER  HEIGHT 1  BASE    ZL    ZR   INV   Y(1)  Y(2)  Y(3)  Y(4)  Y(5)  Y(6)  Y(7)  Y(8)  Y(9)  Y(10)
  CODE   NO   TYPE  PIERS   WIDTH    DIAMETER  WIDTH             DROP

  CD      1    4                      2.50
 ERROR MESSAGE NUMBER  7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
 INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
1                                                                                                                  PAGE NO   1
0                            WATER SURFACE PROFILE - TITLE CARD LISTING
0HEADING LINE NO 1 IS -
0                              BROOKS CHANNEL
0HEADING LINE NO 2 IS -
0                              LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL DI#2
0HEADING LINE NO 3 IS -
0                              ULTIMATE CONDITION 100-YEAR PEAK FLOWS
1                                                                                                                  PAGE NO   2
0                            WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO   1 IS A SYSTEM OUTLET     *         *     *
                     U/S DATA   STATION    INVERT  SECT                                      W S ELEV
                                  1000.00 1919.52    1                                       1922.55
0 ELEMENT NO   2 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                  1073.84 1920.33    1             .013                                    .00    .00     .00     0
0 ELEMENT NO   3 IS A SYSTEM HEADWORKS                  *                    *
                     U/S DATA   STATION    INVERT  SECT                                      W S ELEV
                                  1073.84 1920.33    1                                           .00
 NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

 ** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC
1                                                                                                                  PAGE    1
                                            WATER SURFACE PROFILE LISTING
                          BROOKS CHANNEL
                          LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL DI#2
                          ULTIMATE CONDITION 100-YEAR PEAK FLOWS
0 STATION    INVERT   DEPTH     W.S.        Q       VEL     VEL      ENERGY   SUPER  CRITICAL           HGT/   BASE/    ZL   NO  AVBPR
           ELEV   OF FLOW    ELEV                        HEAD   GRD.EL.   ELEV    DEPTH              DIA    ID NO.        PIER
0 L/ELEM     SO                                      SF AVE     HF                    NORM DEPTH                        ZR
*****************************************************************************************************************************
0  1000.00  1919.52     3.03   1922.55      39.0    7.95      .98   1923.53    .00     2.11             2.50     .00   .00   0    .00
0    73.84   .01097                                      .00904      .67                      1.87                          .00
0  1073.84  1920.33     2.89   1923.22      39.0    7.95      .98   1924.20    .00     2.11             2.50     .00   .00   0    .00
1
```

```
 STORM DRAIN ANALYSIS PLUS

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 Version  1.20
 Serial Number 07010220

 Mar 17, 2014   7:13:42

 Input file : di3.txt
 Output file: di3.out

                                    INPUT FILE LISTING


 T1 BROOKS CHANNEL
 T2 LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL DI#3
 T3 ULTIMATE CONDITION 100-YEAR PEAK FLOWS
 SO   1000.001919.52  1      .013               1922.55
 R    1030.751920.00  1      .013
 SH   1030.751920.00  1      .013
1                                                  SP
                                      WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING                                 PAGE    1
0 CARD  SECT  CHN   NO OF  AVE PIER  HEIGHT 1  BASE    ZL    ZR   INV   Y(1)  Y(2)  Y(3)  Y(4)  Y(5)  Y(6)  Y(7)  Y(8)  Y(9)  Y(10)
  CODE   NO   TYPE  PIERS   WIDTH    DIAMETER  WIDTH             DROP

  CD      1    4                       1.50
 ERROR MESSAGE NUMBER  7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
 INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
1                                                                                                                  PAGE NO   1
0                              WATER SURFACE PROFILE - TITLE CARD LISTING
0HEADING LINE NO 1 IS -
0                                BROOKS CHANNEL
0HEADING LINE NO 2 IS -
0                                LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL DI#3
0HEADING LINE NO 3 IS -
0                                ULTIMATE CONDITION 100-YEAR PEAK FLOWS
1                                                                                                                  PAGE NO   2
0                              WATER SURFACE PROFILE - ELEMENT CARD LISTING
0 ELEMENT NO   1 IS A SYSTEM OUTLET     *         *     *
                     U/S DATA   STATION    INVERT  SECT                                      W S ELEV
                                  1000.00 1919.52    1                                       1922.55
0 ELEMENT NO   2 IS A REACH              *         *     *
                     U/S DATA   STATION    INVERT  SECT              N                                  RADIUS  ANGLE  ANG PT  MAN H
                                  1030.75 1920.00    1             .013                                    .00    .00     .00     0
0 ELEMENT NO   3 IS A SYSTEM HEADWORKS                    *                   *
                     U/S DATA   STATION    INVERT  SECT                                      W S ELEV
                                  1030.75 1920.00    1                                           .00
 NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

 ** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC
1                                                                                                                  PAGE    1
                                            WATER SURFACE PROFILE LISTING
                          BROOKS CHANNEL
                          LOSEE ROAD STORM DRAIN SYSTEM - NORTH OF BROOKS CHANNEL DI#3
                          ULTIMATE CONDITION 100-YEAR PEAK FLOWS
0 STATION    INVERT   DEPTH     W.S.        Q       VEL     VEL      ENERGY   SUPER  CRITICAL           HGT/   BASE/    ZL   NO  AVBPR
           ELEV   OF FLOW    ELEV                        HEAD   GRD.EL.   ELEV    DEPTH              DIA    ID NO.        PIER
0 L/ELEM     SO                                      SF AVE     HF                  NORM DEPTH                        ZR
*****************************************************************************************************************************
0  1000.00  1919.52     3.03   1922.55      11.0    6.22      .60   1923.15    .00     1.27             1.50     .00   .00   0    .00
0    30.75   .01561                                        .01097      .34                      1.05                          .00
0  1030.75  1920.00     2.89   1922.89      11.0    6.22      .60   1923.49    .00     1.27             1.50     .00   .00   0    .00
1
```

Losee Road Drop Inlet Calculations

Worksheet for DI# 1-Q10

Project Description

Solve For	Efficiency

Input Data

Discharge		75.00	ft³/s
Slope		0.430	%
Gutter Width		1.50	ft
Gutter Cross Slope		8.30	%
Road Cross Slope		2.00	%
Roughness Coefficient		0.016	
Local Depression		0.13	in
Local Depression Width		1.50	ft
Grate Width		1.50	ft
Grate Length		12.50	ft
Grate Type	P-50 mm (P-1-7/8")		
Clogging		50.00	%
Curb Opening Length		12.50	ft

Options

Calculation Option	Use Both
Grate Flow Option	Exclude None

Results

Efficiency	56.35	%
Intercepted Flow	42.26	ft³/s
Bypass Flow	32.74	ft³/s
Spread	42.50	ft
Depth	0.94	ft
Flow Area	18.13	ft²
Gutter Depression	0.09	ft
Total Depression	0.10	ft
Velocity	4.14	ft/s
Splash Over Velocity	15.63	ft/s
Frontal Flow Factor	1.00	
Side Flow Factor	0.41	
Grate Flow Ratio	0.10	
Equivalent Cross Slope	0.02695	ft/ft
Active Grate Length	6.25	ft
Length Factor	0.08	
Total Interception Length	74.97	ft

Worksheet for DI# 1-Q10

Messages

Messages	Grate Length should be within the defined range of HEC-22's Chart 5 (approx. 0.5-4.5 ft / 0.15-1.35 m).

Worksheet for DI# 1-Q100

Project Description

Solve For	Efficiency

Input Data

Discharge		182.00	ft³/s
Slope		0.430	%
Gutter Width		1.50	ft
Gutter Cross Slope		8.30	%
Road Cross Slope		2.00	%
Roughness Coefficient		0.016	
Local Depression		0.13	in
Local Depression Width		1.50	ft
Grate Width		1.50	ft
Grate Length		12.50	ft
Grate Type	P-50 mm (P-1-7/8")		
Clogging		50.00	%
Curb Opening Length		12.50	ft

Options

Calculation Option	Use Both
Grate Flow Option	Exclude None

Results

Efficiency	43.89	%
Intercepted Flow	79.87	ft³/s
Bypass Flow	102.13	ft³/s
Spread	59.33	ft
Depth	1.28	ft
Flow Area	35.27	ft²
Gutter Depression	0.09	ft
Total Depression	0.10	ft
Velocity	5.16	ft/s
Splash Over Velocity	15.63	ft/s
Frontal Flow Factor	1.00	
Side Flow Factor	0.32	
Grate Flow Ratio	0.07	
Equivalent Cross Slope	0.02491	ft/ft
Active Grate Length	6.25	ft
Length Factor	0.05	
Total Interception Length	114.05	ft

Worksheet for DI# 1-Q100

Messages

Messages	Grate Length should be within the defined range of HEC-22's Chart 5 (approx. 0.5-4.5 ft / 0.15-1.35 m).

Worksheet for DI# 2-Q10

Project Description

Solve For	Efficiency

Input Data

Discharge		99.00	ft³/s
Slope		0.430	%
Gutter Width		1.50	ft
Gutter Cross Slope		8.30	%
Road Cross Slope		2.00	%
Roughness Coefficient		0.016	
Local Depression		0.13	in
Local Depression Width		1.50	ft
Grate Width		1.50	ft
Grate Length		5.00	ft
Grate Type	P-50 mm (P-1-7/8")		
Clogging		50.00	%
Curb Opening Length		7.50	ft

Options

Calculation Option	Use Both
Grate Flow Option	Exclude None

Results

Efficiency	24.56	%
Intercepted Flow	24.32	ft³/s
Bypass Flow	74.68	ft³/s
Spread	47.18	ft
Depth	1.04	ft
Flow Area	22.33	ft²
Gutter Depression	0.09	ft
Total Depression	0.10	ft
Velocity	4.43	ft/s
Splash Over Velocity	9.11	ft/s
Frontal Flow Factor	1.00	
Side Flow Factor	0.07	
Grate Flow Ratio	0.09	
Equivalent Cross Slope	0.02623	ft/ft
Active Grate Length	2.50	ft
Length Factor	0.06	
Total Interception Length	85.62	ft

Worksheet for DI# 2-Q10

Messages

Messages	Grate Length should be within the defined range of HEC-22's Chart 5 (approx. 0.5-4.5 ft / 0.15-1.35 m).

Worksheet for DI# 2-Q100

Project Description

Solve For	Efficiency

Input Data

Discharge		221.00	ft³/s
Slope		0.430	%
Gutter Width		1.50	ft
Gutter Cross Slope		8.30	%
Road Cross Slope		2.00	%
Roughness Coefficient		0.016	
Local Depression		0.13	in
Local Depression Width		1.50	ft
Grate Width		1.50	ft
Grate Length		5.00	ft
Grate Type	P-50 mm (P-1-7/8")		
Clogging		50.00	%
Curb Opening Length		7.50	ft

Options

Calculation Option	Use Both
Grate Flow Option	Exclude None

Results

Efficiency	17.77	%
Intercepted Flow	39.28	ft³/s
Bypass Flow	181.72	ft³/s
Spread	63.82	ft
Depth	1.37	ft
Flow Area	40.80	ft²
Gutter Depression	0.09	ft
Total Depression	0.10	ft
Velocity	5.42	ft/s
Splash Over Velocity	9.11	ft/s
Frontal Flow Factor	1.00	
Side Flow Factor	0.05	
Grate Flow Ratio	0.07	
Equivalent Cross Slope	0.02455	ft/ft
Active Grate Length	2.50	ft
Length Factor	0.04	
Total Interception Length	124.82	ft

Worksheet for DI# 2-Q100

Messages

Messages	Grate Length should be within the defined range of HEC-22's Chart 5 (approx. 0.5-4.5 ft / 0.15-1.35 m).

Worksheet for DI# 3-Q10

Project Description

Solve For	Efficiency

Input Data

Discharge		8.00	ft³/s
Slope		0.430	%
Gutter Width		1.50	ft
Gutter Cross Slope		8.30	%
Road Cross Slope		2.00	%
Roughness Coefficient		0.016	
Local Depression		0.13	in
Local Depression Width		1.50	ft
Grate Width		1.50	ft
Grate Length		7.50	ft
Grate Type	P-50 mm (P-1-7/8")		
Clogging		50.00	%
Curb Opening Length		7.50	ft

Options

Calculation Option	Use Both
Grate Flow Option	Exclude None

Results

Efficiency	67.82	%
Intercepted Flow	5.43	ft³/s
Bypass Flow	2.57	ft³/s
Spread	18.11	ft
Depth	0.46	ft
Flow Area	3.35	ft²
Gutter Depression	0.09	ft
Total Depression	0.10	ft
Velocity	2.39	ft/s
Splash Over Velocity	11.14	ft/s
Frontal Flow Factor	1.00	
Side Flow Factor	0.37	
Grate Flow Ratio	0.24	
Equivalent Cross Slope	0.03705	ft/ft
Active Grate Length	3.75	ft
Length Factor	0.15	
Total Interception Length	24.20	ft

Worksheet for DI# 3-Q10

Messages

Messages	Grate Length should be within the defined range of HEC-22's Chart 5 (approx. 0.5-4.5 ft / 0.15-1.35 m).

Worksheet for DI# 3-Q100

Project Description

Solve For	Efficiency

Input Data

Discharge		21.00	ft³/s
Slope		0.430	%
Gutter Width		1.50	ft
Gutter Cross Slope		8.30	%
Road Cross Slope		2.00	%
Roughness Coefficient		0.016	
Local Depression		0.13	in
Local Depression Width		1.50	ft
Grate Width		1.50	ft
Grate Length		7.50	ft
Grate Type	P-50 mm (P-1-7/8")		
Clogging		50.00	%
Curb Opening Length		7.50	ft

Options

Calculation Option	Use Both
Grate Flow Option	Exclude None

Results

Efficiency	51.21	%
Intercepted Flow	10.75	ft³/s
Bypass Flow	10.25	ft³/s
Spread	26.24	ft
Depth	0.62	ft
Flow Area	6.96	ft²
Gutter Depression	0.09	ft
Total Depression	0.10	ft
Velocity	3.02	ft/s
Splash Over Velocity	11.14	ft/s
Frontal Flow Factor	1.00	
Side Flow Factor	0.28	
Grate Flow Ratio	0.16	
Equivalent Cross Slope	0.03153	ft/ft
Active Grate Length	3.75	ft
Length Factor	0.09	
Total Interception Length	39.97	ft

Worksheet for DI# 3-Q100

Messages

Messages	Grate Length should be within the defined range of HEC-22's Chart 5 (approx. 0.5-4.5 ft / 0.15-1.35 m).

Worksheet for DI# 4-Q10

Project Description

Solve For	Efficiency

Input Data

Discharge		17.00	ft³/s
Slope		0.430	%
Gutter Width		1.50	ft
Gutter Cross Slope		8.30	%
Road Cross Slope		2.00	%
Roughness Coefficient		0.016	
Local Depression		0.13	in
Local Depression Width		1.50	ft
Grate Width		1.50	ft
Grate Length		7.50	ft
Grate Type	P-50 mm (P-1-7/8")		
Clogging		50.00	%
Curb Opening Length		7.50	ft

Options

Calculation Option	Use Both
Grate Flow Option	Exclude None

Results

Efficiency	54.67	%
Intercepted Flow	9.29	ft³/s
Bypass Flow	7.71	ft³/s
Spread	24.21	ft
Depth	0.58	ft
Flow Area	5.93	ft²
Gutter Depression	0.09	ft
Total Depression	0.10	ft
Velocity	2.87	ft/s
Splash Over Velocity	11.14	ft/s
Frontal Flow Factor	1.00	
Side Flow Factor	0.30	
Grate Flow Ratio	0.18	
Equivalent Cross Slope	0.03256	ft/ft
Active Grate Length	3.75	ft
Length Factor	0.10	
Total Interception Length	35.89	ft

Worksheet for DI# 4-Q10

Messages

Messages	Grate Length should be within the defined range of HEC-22's Chart 5 (approx. 0.5-4.5 ft / 0.15-1.35 m).

Worksheet for DI# 4-Q100

Project Description

Solve For	Efficiency

Input Data

Discharge		36.00	ft³/s
Slope		0.430	%
Gutter Width		1.50	ft
Gutter Cross Slope		8.30	%
Road Cross Slope		2.00	%
Roughness Coefficient		0.016	
Local Depression		0.13	in
Local Depression Width		1.50	ft
Grate Width		1.50	ft
Grate Length		7.50	ft
Grate Type	P-50 mm (P-1-7/8")		
Clogging		50.00	%
Curb Opening Length		7.50	ft

Options

Calculation Option	Use Both
Grate Flow Option	Exclude None

Results

Efficiency	42.96	%
Intercepted Flow	15.46	ft³/s
Bypass Flow	20.54	ft³/s
Spread	32.20	ft
Depth	0.74	ft
Flow Area	10.44	ft²
Gutter Depression	0.09	ft
Total Depression	0.10	ft
Velocity	3.45	ft/s
Splash Over Velocity	11.14	ft/s
Frontal Flow Factor	1.00	
Side Flow Factor	0.23	
Grate Flow Ratio	0.13	
Equivalent Cross Slope	0.02930	ft/ft
Active Grate Length	3.75	ft
Length Factor	0.07	
Total Interception Length	52.39	ft

Worksheet for DI# 4-Q100

Messages

Messages	Grate Length should be within the defined range of HEC-22's Chart 5 (approx. 0.5-4.5 ft / 0.15-1.35 m).

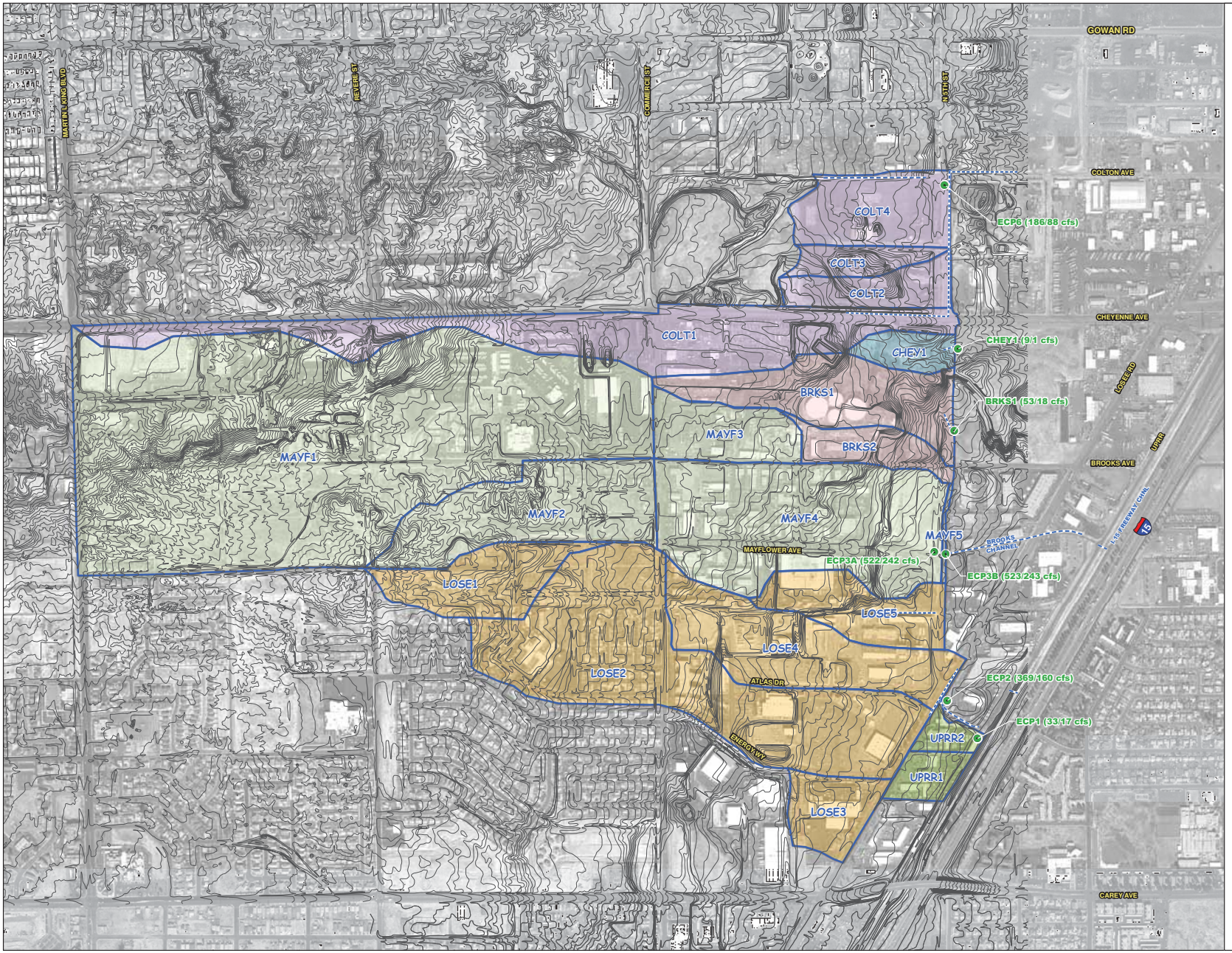
Appendix D

MWH

Appendix D-1

Reference Material

Louis Berger Group (LBG), 90% Technical Drainage Study for the North 5th Street Improvements, Losee Road to Cheyenne Avenue; March 2012



NORTH 5TH STREET LOSEE ROAD TO CHEYENNE AVE

REFERENCE MATERIAL

LEGEND

- Combination Point
- Existing Facilities
- UPRR — UPRR Drainage Area
- LOSE — Losee Channel Drainage Area
- MAYF — Brooks Channel Drainage Area
- BRKS — Brooks Ave Drainage Area
- CHEY — Cheyenne Ave Drainage Area
- COLT — Colton Ave Drainage Area
- 2ft Contours

SUBBASIN FLOW

BASIN ID	Q100 (cfs)	Q10 (cfs)
LOSE1	46	20
LOSE2	178	77
LOSE3	42	21
LOSE4	93	47
LOSE5	59	30
UPRR1	20	10
UPRR2	13	6
MAYF1	350	166
MAYF2	93	41
MAYF3	47	24
MAYF4	178	90
MAYF5	3	1
BRKS1	53	18
BRKS2	18	6
CHEY1	9	1
COLT1	102	47
COLT2	27	14
COLT3	17	8
COLT4	56	28

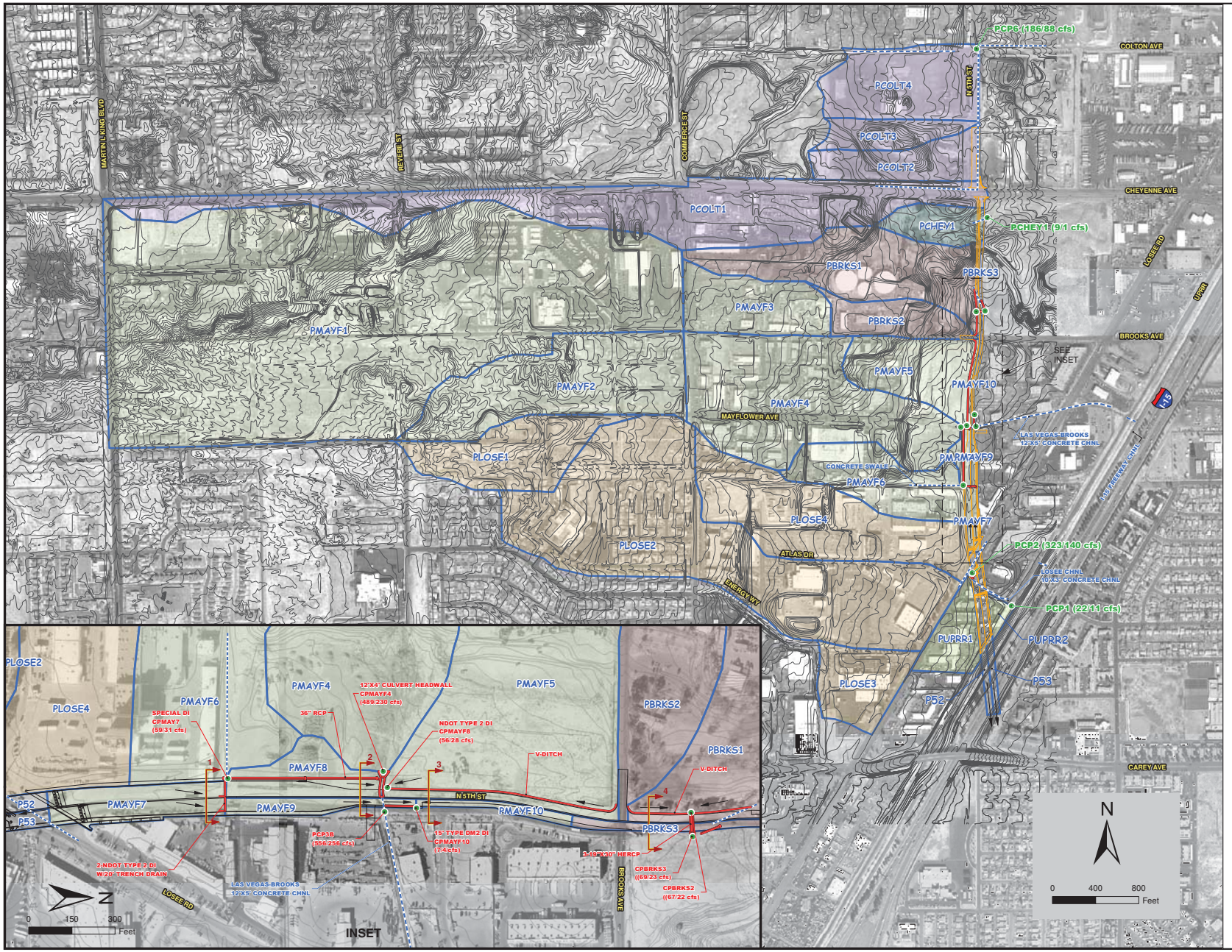
N

0 390 780 Feet

City of North Las Vegas

EXISTING DRAINAGE CONDITIONS MAP

FIGURE 4-1



NORTH 5TH STREET LOSEE ROAD TO CHEYENNE AVE

REFERENCE MATERIAL

LEGEND

- Design / Combination Point
- Existing Facilities (to remain)
- Proposed Facilities
- Road Geometry
- PUPRR — UPRR Drainage Area
- PLOSE — Losee Channel Drainage Area
- PMAYF — Las Vegas - Brooks Drainage Area
- PBRKS — Brooks Ave Drainage Area
- PCHEY — Cheyenne Ave Drainage Area
- PCOLT — Colton Ave Drainage Area
- 2 ft Contours
- 1 — Street Flow Hydraulic Calculation Location

SUBBASIN FLOW

BASIN ID	Q100 (cfs)	Q10 (cfs)
PLOSE1	46	20
PLOSE2	178	77
PLOSE3	42	21
PLOSE4	94	51
PUPRR1	19	9
PUPRR2	4	2
PMAYF1	350	166
PMAYF2	90	41
PMAYF3	47	24
PMAYF4	135	69
PMAYF5	50	25
PMAYF6	53	27
PMAYF7	6	4
PMAYF8	6	3
PMAYF9	5	3
PMAYF10	1	1
PBRKS1	51	17
PBRKS2	16	5
PBRKS3	3	1
PCHEY1	9	1
PCOLT1	102	47
PCOLT2	27	14
PCOLT3	17	8
PCOLT4	56	28

City of North Las Vegas

PROPOSED DRAINAGE CONDITIONS MAP

FIGURE 4-2

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *             JUN   1998               *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   19MAR12  TIME  14:35:27  *
 *                                      *
 ****************************************
```


```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*         609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```


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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10
                    *DIAGRAM
 *** FREE ***
             1      ID   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
             2      ID   Project Name:North 5th Street Improvements Carey Ave. to Cheyenne Ave  *
             3      ID                                                                          *
             4      ID   Model: Existing-100 yr Model                                           *
             5      ID   Existing Drainage Conditions                                           *
             6      ID   Fully developed watershed curve numbers used                           *
             7      ID   Design Storm: 100-YR 6-Hour, SDN3 Storm Distribution                   *
             8      ID   Precipitation:  CCRFCD-HCDDM of McCarran Airport Rainfall Area         *
             9      ID   Curve Number:   Based on 2008 MPU                                     *
            10      ID   FILE EX100YR.DAT                                                       *
            11      ID                                                                          *
            12      ID   Prepared by Chunling Tang in Louis Berger Group Inc., Rev 2012 by FR  *
            13      ID   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
            14      ID                                                                          *
            15      ID   DARF VALUES USED : CCRFCD HCDDM                                        *
            16      ID            AREA(Sq.mi)         DARF                                     *
            17      ID                 0.00             1.00                                    *
            18      ID                 0.25             0.99                                    *
            19      ID                 0.50             0.98                                    *
            20      ID   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
            21      ID
                    *
            22      IT       5       0       0      300
            23      IO       5       0       0
            24      IN       5       0       0
            25      JR    PREC       1    0.99    0.98
                    *
            26      KK   LOSE1
            27      KM   Losee Basin LOSE1
            28      BA  0.0314
            29      PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
            30      PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
            31      PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
            32      PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
            33      PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
            34      PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
            35      PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
            36      PC   0.998   0.999   1.000
            37      PB    2.77
            38      LS    0.00    89.6
            39      UD   0.134
                    *
            40      KK R-LOSE1
            41      KM   Route LOSE1 to LOSE2
            42      RD    4100 0.02098   0.016       0    TRAP      50
                    *
```



```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10
            43      KK   LOSE2
            44      KM   Losee Basin LOSE2
            45      BA   0.134
            46      LS    0.00    90.3
            47      UD   0.192
                    *
            48      KK C1-LOSE
            49      KM   Combine LOSE1 & LOSE2
            50      HC       2
                    *
            51      KK   LOSE3
```

REFERENCE MATERIAL

```
 52          BA  0.0193
 53          LS    0.00    94.0
 54          UD  0.0500
             *

 55          KK C2-LOSE
 56          KM   Combine LOSE1 & LOSE2 & LOSE5
 57          KM   Flows to LOSEE Storm Drain
 58          KM   Finally flows to 10'x 3' Concrete Channel
 59          HC       2
             *

 60          KK   LOSE4
 61          KM   Losee Basin LOSE4
 62          KM   Flows to 10' x 3' Concrete Channel
 63          BA   0.057
 64          LS    0.00    94.4
 65          UD   0.170
             *

 66          KK   LOSE5
 67          KM   Flows in the Concrete Swale
 68          BA   0.030
 69          LS    0.00    94.6
 70          UD   0.081
             *

 71          KK C3-LOSE
 72          KM   Combine LOSE4 & LOSE3
 73          HC       2
             *

 74          KK    ECP2
 75          KM   Flows to 10' x 3' Concrete Channel
 76          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 77          KK   UPRR1
 78          KM   FLOWS TO UPRR TRACKS
 79          BA   0.010
 80          LS    0.00    94.0
 81          UD   0.066
             *

 82          KK   UPRR2
 83          KM   FLOWS TO UPRR TRACKS
 84          BA   0.006
 85          LS    0.00    94.0
 86          UD   0.052
             *

 87          KK    EPC1
 88          KM   FLOWS NORTH ALONG UPRR TRACKS TO CULVERT AND INTO FREEWAY CHANNEL
 89          HC       2
             *

 90          KK   MAYF1
 91          KM   Mayflower Basin MAYF1
 92          BA  0.3263
 93          LS    0.00    92.7
 94          UD   0.385
             *

 95          KKR-MAYF1-3
 96          KM   Route MAYF1 to MAYF3
 97          RD 1405.00 0.01281   0.016       0    TRAP      50
             *

 98          KK   MAYF3
 99          KM   Mayflower Basin MAYF3
100          BA   0.026
101          LS    0.00    94.2
102          UD   0.101
             *

103          KK C1-MAYF
104          KM   Combine MAYF1 and MAYF3
105          HC       2
             *

106          KKR-C1-MAYF
107          KM   Route C1-MAYF to ECP3
108          RD    1275 0.04235   0.016       0    TRAP      50
             *

109          KK   MAYF2
110          KM   Mayflower Basin MAYF2
111          BA   0.060
112          LS    0.00    90.2
113          UD   0.107
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

114          KK R-MAYF2
115          KM   Route MAYF2 to MAYF4
116          RD    2975 0.02555   0.016       0    TRAP      50
             *

117          KK   MAYF4
```

REFERENCE MATERIAL

```
118           KM   Mayflower Basin MAYF4
119           BA   0.103
120           LS    0.00    94.5
121           UD   0.133
              *

122           KK C2-MAYF
123           KM   Combine MAYF2 and MAYF4
124           HC       2
              *

125           KK   ECP3A
126           KM   Combine R-C1-MAYF and C2-MAYF
127           KM   Flows to 12'x 4' RCB, then to concrete channel
128           HC       2
              *

129           KK   MAYF5
130           KM   FLOWS TO LOW POINT ON EAST SIDE OF N 5TH STREET
131           BA  0.0012
132           LS    0.00    98.0
133           UD   0.067
              *

134           KK   ECP3B
135           KM   COMBINE FLOWS IN 12'X4' RCB
136           HC       2
              *

137           KK   BRKS1
138           KM   Brooks Basin BRKS1
139           KM   Named ECP3 in the existing drainage map
140           KM   Flows to an 18" HDPE culvert
141           BA   0.048
142           LS    0.00    82.3
143           UD   0.115
              *

144           KK   BRKS2
145           KM   Brooks Basins BRKS2
146           BA   0.016
147           LS    0.00    82.4
148           UD   0.101
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

149           KK     CP4
150           KM   Combine BRKS1 & BRKS2
151           HC       2
              *

152           KK   CHEY1
153           KM   Named ECP5 in the existing drainage map
154           KM   Cheyenne Basin CHEY1
155           KM   Flows to an 18" HDPE culvert
156           BA   0.011
157           LS    0.00    73.2
158           UD   0.067
              *

159           KK   COLT1
160           KM   Colton Basin COLT1
161           KM   Flows to 36" RCP storm drain
162           BA   0.091
163           LS    0.00    91.8
164           UD   0.344
              *

165           KK   COLT2
166           KM   Colton Basin COLT2
167           KM   Flows to a 36" RCP storm drain
168           BA   0.019
169           LS    0.00    94.0
170           UD   0.222
              *

171           KK     CP7
172           KM   Combine COLT1 & COLT2
173           HC       2
              *

174           KK   COLT3
175           KM   Colton Basin COLT3
176           KM   Flows to  a 36" RCP storm drain
177           BA   0.012
178           LS    0.00    94.0
179           UD   0.232
              *

180           KK     CP8
181           KM   Combine COLT1 & COLT2 & COLT3
182           HC       2
              *

183           KK   COLT4
184           KM   Colton Basin COLT4
185           BA   0.034
186           LS    0.00    94.4
187           UD   0.166
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

REFERENCE MATERIAL

```
            188          KK    ECP6
            189          KM   Combine all the Colton Basins
            190          KM   Flows to a 36" storm drain
            191          HC       2
                         *
            192          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW
   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW
    26       LOSE1
                V
                V
    40     R-LOSE1
                .
                .
    43          .       LOSE2
                .          .
                .          .
    48     C1-LOSE.....    .
                .          .
                .          .
    51          .       LOSE3
                .          .
                .          .
    55     C2-LOSE.....    .
                .          .
                .          .
    60          .       LOSE4
                .          .
                .          .
    66          .          .       LOSE5
                .          .          .
                .          .          .
    71          .     C3-LOSE.....    .
                .          .          .
                .          .          .
    74        ECP2.....    .          .
                .          .          .
                .          .          .
    77          .       UPRR1         .
                .          .          .
                .          .          .
    82          .          .       UPRR2
                .          .          .
                .          .          .
    87          .        EPC1.....    .
                .          .          .
                .          .          .
    90          .          .       MAYF1
                .          .          V
                .          .          V
    95          .          .    R-MAYF1-
                .          .          .
                .          .          .
    98          .          .          .       MAYF3
                .          .          .          .
                .          .          .          .
   103          .          .     C1-MAYF.....    .
                .          .          V          .
                .          .          V          .
   106          .          .    R-C1-MAY          .
                .          .          .          .
                .          .          .          .
   109          .          .          .       MAYF2
                .          .          .          V
                .          .          .          V
   114          .          .          .    R-MAYF2
                .          .          .          .
                .          .          .          .
   117          .          .          .          .       MAYF4
                .          .          .          .          .
                .          .          .          .          .
   122          .          .          .       C2-MAYF.....    .
                .          .          .          .          .
                .          .          .          .          .
   125          .          .       ECP3A.....    .          .
                .          .          .          .          .
                .          .          .          .          .
   129          .          .          .       MAYF5         .
                .          .          .          .          .
                .          .          .          .          .
   134          .          .       ECP3B.....    .          .
                .          .          .          .          .
                .          .          .          .          .
   137          .          .          .       BRKS1         .
                .          .          .          .          .
                .          .          .          .          .
   144          .          .          .          .       BRKS2
                .          .          .          .          .
                .          .          .          .          .
   149          .          .          .        CP4.....    .
                .          .          .          .          .
                .          .          .          .          .
   152          .          .          .          .       CHEY1
                .          .          .          .          .
                .          .          .          .          .
   159          .          .          .          .          .       COLT1
                .          .          .          .          .          .
                .          .          .          .          .          .
   165          .          .          .          .          .          .       COLT2
```

REFERENCE MATERIAL

```
                .          .          .          .          .          .          .
                .          .          .          .          .          .          .
   171          .          .          .          .          .        CP7...........
                .          .          .          .          .          .
                .          .          .          .          .          .
   174          .          .          .          .          .          .       COLT3
                .          .          .          .          .          .          .
                .          .          .          .          .          .          .
   180          .          .          .          .          .        CP8...........
                .          .          .          .          .          .
                .          .          .          .          .          .
   183          .          .          .          .          .          .       COLT4
                .          .          .          .          .          .          .
                .          .          .          .          .          .          .
   188          .          .          .          .          .       ECP6...........

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
 *                                      *                                   *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                   *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                   *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                   *         609 SECOND STREET            *
 *                                      *                                   *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   19MAR12  TIME  14:35:27  *                                   *          (916) 756-1104              *
 *                                      *                                   *                                      *
 ****************************************                                    ****************************************
```

```
                          * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                          Project Name:North 5th Street Improvements Carey Ave. to Cheyenne Ave  *
                                                                                                *
                          Model: Existing-100 yr Model                                          *
                          Existing Drainage Conditions                                          *
                          Fully developed watershed curve numbers used                          *
                          Design Storm: 100-YR 6-Hour, SDN3 Storm Distribution                  *
                          Precipitation:  CCRFCD-HCDDM of McCarran Airport Rainfall Area        *
                          Curve Number:   Based on 2008 MPU                                     *
                          FILE EX100YR.DAT                                                      *
                                                                                                *
                          Prepared by Chunling Tang in Louis Berger Group Inc., Rev 2012 by FR   *
                          * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                                                                                                *
                          DARF VALUES USED : CCRFCD HCDDM                                       *
                                   AREA(Sq.mi)         DARF                                     *
                                        0.00             1.00                                    *
                                        0.25            0.99                                     *
                                        0.50             0.98                                    *
                          * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

```
   23 IO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                        NMIN          5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      2    0  ENDING DATE
                      NDTIME        0055  ENDING TIME
                       ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL     .08 HOURS
                        TOTAL TIME BASE    24.92 HOURS

           ENGLISH UNITS
                DRAINAGE AREA          SQUARE MILES
                PRECIPITATION DEPTH    INCHES
                LENGTH, ELEVATION      FEET
                FLOW                   CUBIC FEET PER SECOND
                STORAGE VOLUME         ACRE-FEET
                SURFACE AREA           ACRES
                TEMPERATURE            DEGREES FAHRENHEIT

      JP          MULTI-PLAN OPTION
                       NPLAN          1  NUMBER OF PLANS

      JR          MULTI-RATIO OPTION
                      RATIOS OF PRECIPITATION
                     1.00       .99       .98
1
```

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1	RATIO 2	RATIO 3
					1.00	.99	.98
HYDROGRAPH AT							
+	LOSE1	.03	1	FLOW	46.	46.	45.
				TIME	3.58	3.58	3.58
ROUTED TO							
+	R-LOSE1	.03	1	FLOW	44.	43.	43.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	LOSE2	.13	1	FLOW	181.	178.	176.

REFERENCE MATERIAL

				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	C1-LOSE	.17	1	FLOW	217.	214.	210.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	LOSE3	.02	1	FLOW	42.	41.	41.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	C2-LOSE	.18	1	FLOW	233.	230.	227.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	LOSE4	.06	1	FLOW	93.	92.	91.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	LOSE5	.03	1	FLOW	59.	58.	58.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	C3-LOSE	.09	1	FLOW	141.	139.	138.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	ECP2	.27	1	FLOW	374.	369.	364.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	UPRR1	.01	1	FLOW	20.	20.	20.
				TIME	3.50	3.50	3.50
HYDROGRAPH AT							
+	UPRR2	.01	1	FLOW	13.	13.	13.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	EPC1	.02	1	FLOW	33.	33.	32.
				TIME	3.50	3.50	3.50
HYDROGRAPH AT							
+	MAYF1	.33	1	FLOW	355.	350.	346.
				TIME	3.83	3.83	3.83
ROUTED TO							
+	R-MAYF1-	.33	1	FLOW	353.	349.	344.
				TIME	3.83	3.83	3.83
HYDROGRAPH AT							
+	MAYF3	.03	1	FLOW	47.	47.	46.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	C1-MAYF	.35	1	FLOW	368.	364.	359.
				TIME	3.83	3.83	3.83
ROUTED TO							
+	R-C1-MAY	.35	1	FLOW	367.	363.	358.
				TIME	3.83	3.83	3.83
HYDROGRAPH AT							
+	MAYF2	.06	1	FLOW	93.	92.	90.
				TIME	3.50	3.50	3.50
ROUTED TO							
+	R-MAYF2	.06	1	FLOW	90.	89.	87.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	MAYF4	.10	1	FLOW	178.	176.	174.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	C2-MAYF	.16	1	FLOW	267.	264.	261.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	ECP3A	.52	1	FLOW	536.	529.	522.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	MAYF5	.00	1	FLOW	3.	3.	3.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	ECP3B	.52	1	FLOW	537.	530.	523.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	BRKS1	.05	1	FLOW	53.	52.	51.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	BRKS2	.02	1	FLOW	18.	18.	17.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	CP4	.06	1	FLOW	71.	69.	68.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	CHEY1	.01	1	FLOW	9.	9.	8.
				TIME	3.50	3.50	3.50

REFERENCE MATERIAL

```
 HYDROGRAPH AT
+                  COLT1       .09     1   FLOW          102.      101.       99.
                                           TIME          3.75      3.75      3.75

 HYDROGRAPH AT
+                  COLT2       .02     1   FLOW           27.       27.       27.
                                           TIME          3.67      3.67      3.67

  2 COMBINED AT
+                    CP7       .11     1   FLOW          126.      124.      123.
                                           TIME          3.75      3.75      3.75

 HYDROGRAPH AT
+                  COLT3       .01     1   FLOW           17.       17.       17.
                                           TIME          3.67      3.67      3.67

  2 COMBINED AT
+                    CP8       .12     1   FLOW          141.      140.      138.
                                           TIME          3.75      3.75      3.75

 HYDROGRAPH AT
+                  COLT4       .03     1   FLOW           56.       55.       55.
                                           TIME          3.58      3.58      3.58

  2 COMBINED AT
+                   ECP6       .16     1   FLOW          188.      186.      184.
                                           TIME          3.67      3.67      3.67
1
                                       SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                           (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                 INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                      PEAK                                    PEAK

                                  (MIN)     (CFS)     (MIN)     (IN)     (MIN)     (CFS)     (MIN)      (IN)

          FOR PLAN = 1  RATIO=  .00
           R-LOSE1  MANE         4.00     44.82    224.00      1.75      5.00     43.86    225.00        1.75

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2913E+01 EXCESS= .0000E+00 OUTFLOW= .2927E+01 BASIN STORAGE= .8112E-02 PERCENT ERROR=   -.7

          FOR PLAN = 1  RATIO=  .00
           R-LOSE1  MANE         4.00     44.26    224.00      1.72      5.00     43.32    225.00        1.73

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2871E+01 EXCESS= .0000E+00 OUTFLOW= .2885E+01 BASIN STORAGE= .8078E-02 PERCENT ERROR=   -.7

          FOR PLAN = 1  RATIO=  .00
           R-LOSE1  MANE         4.25     43.09    221.00      1.70      5.00     42.79    225.00        1.70

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2827E+01 EXCESS= .0000E+00 OUTFLOW= .2841E+01 BASIN STORAGE= .6023E-02 PERCENT ERROR=   -.7

          FOR PLAN = 1  RATIO=  .00
          R-MAYF1-  MANE         2.06    353.95    228.72      2.01      5.00    352.82    230.00        2.01

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3493E+02 EXCESS= .0000E+00 OUTFLOW= .3494E+02 BASIN STORAGE= .2594E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          R-MAYF1-  MANE         2.07    349.21    229.85      1.98      5.00    349.14    230.00        1.98

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3448E+02 EXCESS= .0000E+00 OUTFLOW= .3448E+02 BASIN STORAGE= .2534E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          R-MAYF1-  MANE         2.08    345.41    228.92      1.96      5.00    344.28    230.00        1.95

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3402E+02 EXCESS= .0000E+00 OUTFLOW= .3403E+02 BASIN STORAGE= .2473E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          R-C1-MAY  MANE         1.29    367.33    230.40      2.02      5.00    366.52    230.00        2.02

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3790E+02 EXCESS= .0000E+00 OUTFLOW= .3790E+02 BASIN STORAGE= .1652E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          R-C1-MAY  MANE         1.29    363.11    230.07      1.99      5.00    362.91    230.00        1.99

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3741E+02 EXCESS= .0000E+00 OUTFLOW= .3741E+02 BASIN STORAGE= .1517E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          R-C1-MAY  MANE         1.30    358.28    230.06      1.96      5.00    358.15    230.00        1.97

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3692E+02 EXCESS= .0000E+00 OUTFLOW= .3692E+02 BASIN STORAGE= .1519E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
           R-MAYF2  MANE         3.50     94.47    217.00      1.80      5.00     89.82    215.00        1.80

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .5735E+01 EXCESS= .0000E+00 OUTFLOW= .5750E+01 BASIN STORAGE= .4868E-02 PERCENT ERROR=   -.4
```

REFERENCE MATERIAL

```
          FOR PLAN = 1  RATIO=  .00
           R-MAYF2  MANE         3.50     93.22    217.00      1.77      5.00     88.56    215.00        1.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5654E+01 EXCESS= .0000E+00 OUTFLOW= .5670E+01 BASIN STORAGE= .4843E-02 PERCENT ERROR=   -.4

          FOR PLAN = 1  RATIO=  .00
           R-MAYF2  MANE         3.50     91.97    217.00      1.75      5.00     87.30    215.00        1.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5573E+01 EXCESS= .0000E+00 OUTFLOW= .5589E+01 BASIN STORAGE= .4818E-02 PERCENT ERROR=   -.4


*** NORMAL END OF HEC-1 ***
```

REFERENCE MATERIAL

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *             JUN   1998               *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   19MAR12  TIME  16:07:29  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*         609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10
                    *DIAGRAM
 *** FREE ***
             1      ID   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
             2      ID   Project Name:North 5th Street Improvements Carey Ave. to Cheyenne Ave  *
             3      ID   Phase 1D                                                               *
             4      ID   Model: Proposed-100 yr Model                                          *
             5      ID   Proposed Drainage Conditions                                          *
             6      ID   Fully developed watershed curve numbers used                         *
             7      ID   Design Storm: 100-YR 6-Hour, SDN3 Storm Distribution                 *
             8      ID   Precipitation:  CCRFCD-HCDDM of McCarran Airport Rainfall Area       *
             9      ID   Curve Number:   Based on 2008 MPU                                     *
            10      ID                                                                         *
            11      ID   Prepared by Chunling Tang in Louis Berger Group Inc., Rev 2012 by FR  *
            12      ID   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
            13      ID                                                                         *
            14      ID   DARF VALUES USED : CCRFCD HCDDM                                       *
            15      ID             AREA(Sq.mi)         DARF                                   *
            16      ID                  0.00             1.00                                  *
            17      ID                  0.25             0.99                                   *
            18      ID                  0.50             0.98                                  *
            19      ID   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
            20      ID
                    *
            21      IT       5       0       0      300
            22      IO       5       0       0
            23      IN       5       0       0
            24      JR    PREC       1    0.99     0.98
                    *
            25      KK  PLOSE1
            26      KM   Losee Basin PLOSE1
            27      BA  0.0314
            28      PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
            29      PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
            30      PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
            31      PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
            32      PC   0.449   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
            33      PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
            34      PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
            35      PC   0.998   0.999   1.000
            36      PB    2.77
            37      LS    0.00    89.6
            38      UD   0.134
                    *
            39      KK RPLOSE1
            40      KM   Route PLOSE1 to PLOSE2
            41      RD    4100 0.02098   0.016       0    TRAP      50
                    *
```



```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

            42      KK  PLOSE2
            43      KM   Losee Basin LOSE2
            44      BA   0.134
            45      LS    0.00    90.3
            46      UD   0.192
                    *

            47      KK CPLOSE2
            48      KM   Combine PLOSE1 & PLOSE2
            49      HC       2
                    *

            50      KK  PLOSE3
            51      BA  0.0193
```

REFERENCE MATERIAL

```
 52          LS    0.00    94.0
 53          UD  0.0500
             *

 54          KK CPLOSE3
 55          KM   Combine PLOSE1 & PLOSE2 & PLOSE5
 56          KM   Flows to LOSEE Storm Drain
 57          KM   Finally flows to 10'x 3' Concrete Channel
 58          HC       2
             *

 59          KK  PLOSE4
 60          KM   Losee Basin PLOSE4
 61          KM   Flows to 10' x 3' Concrete Channel
 62          BA   0.054
 63          LS    0.00    96.8
 64          UD   0.167
             *

 65          KK    PCP2
 66          KM   Flows to 10' x 3' Concrete Channel
 67          HC       2
             *

 68          KK  PUPRR1
 69          KM   Flows to UPRR R/W
 70          BA   0.011
 71          LS    0.00    94.0
 72          UD   0.139
             *

 73          KK  PUPRR2
 74          KM   Flows to UPRR R/W
 75          BA   0.002
 76          LS    0.00    94.0
 77          UD   0.089
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 78          KK    PCP1
 79          KM   COMBINE FLOWS AT UPRR R/W
 80          HC       2
             *

 81          KK  PMAYF1
 82          KM   Mayflower Basin PMAYF1
 83          BA  0.3263
 84          LS    0.00    92.7
 85          UD   0.385
             *

 86          KKR-MAYF1-3
 87          KM   Route MAYF1 to MAYF3
 88          RD 1405.00 0.01281   0.016       0    TRAP      50
             *

 89          KK  PMAYF3
 90          KM   Mayflower Basin MAYF3
 91          BA   0.026
 92          LS    0.00    94.2
 93          UD   0.101
             *

 94          KK CPMAYF3
 95          KM   Combine PMAYF1 and PMAYF3
 96          HC       2
             *

 97          KKRCPMAYF3
 98          KM   Route CPMAYF3 to PMAYF5
 99          RD    1275 0.04235   0.016       0    TRAP      50
             *

100          KK  PMAYF2
101          KM   Mayflower Basin PMAYF2
102          BA   0.060
103          LS    0.00    90.2
104          UD   0.107
             *

105          KK RPMAYF2
106          KM   Route PMAYF2 to PMAYF4
107          RD    2975 0.02555   0.016       0    TRAP      50
             *

108          KK  PMAYF4
109          KM   Mayflower Basin PMAYF4
110          BA   0.078
111          LS    0.00    94.6
112          UD   0.133
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

113          KK CPMAYF4
114          KM   Combine PMAYF2 and PMAYF4 AT N 5th STREET NEAR BROOKS CHANNEL
115          HC       3
             *

116          KK  PMAYF6
117          BA   0.027
```

REFERENCE MATERIAL

```
 118          LS    0.00    94.7
 119          UD   0.081
              *

 120          KK  PMAYF7
 121          BA  0.0027
 122          LS    0.00    98.0
 123          UD   0.050
              *

 124          KK  CPMAY7
 125          KM   COMBINE FLOWS AT DROP INLET NEAR CONCRETE DRAINAGE
 126          HC       2
              *

 127          KK RCPMAY7
 128          KM   ROUTE TO BROOKS CHANNEL IN 36" STORM DRAIN
 129          RD     540   0.006   0.013       0    CIRC       3
              *

 130          KK CRCPAY7
 131          KM   COMBINE FLOWS AT 12'X4' RCB
 132          HC       2
              *

 133          KK  PMAYF5
 134          KM   Mayflower Basin PMAY5 - FLOW IN V-DITCH
 135          BA   0.025
 136          LS    0.00    94.0
 137          UD   0.068
              *

 138          KK  PMAYF8
 139          BA  0.0027
 140          LS    0.00    94.0
 141          UD   0.050
              *

 142          KK CPMAYF8
 143          KM   COMBINE FLOWS IN DROP INLET
 144          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 145          KK   PCP3A
 146          KM   Combine FLOWS IN 12'X4' RCB
 147          KM   Flows to 12'x 4' RCB, then to concrete channel
 148          HC       2
              *

 149          KK  PMAYF9
 150          BA  0.0027
 151          LS    0.00    98.0
 152          UD   0.095
              *

 153          KK PMAYF10
 154          BA  0.0006
 155          LS    0.00    98.0
 156          UD   0.068
              *

 157          KKCPMAYF10
 158          KM   COMBINE FLOWS AT DROP INLET IN SAG
 159          HC       2
              *

 160          KK   PCP3B
 161          KM   COMBINE FLOWS IN DROP INLET
 162          HC       2
              *

 163          KK  PBRKS1
 164          KM   THIS FLOWS EASTWARD DOWN BROOKS
 165          BA   0.047
 166          LS    0.00    82.0
 167          UD   0.115
              *

 168          KK  PBRKS2
 169          KM   Mayflower Basin 5MAYF3
 170          BA   0.015
 171          LS    0.00    81.6
 172          UD   0.102
              *

 173          KK CPBRKS2
 174          KM   COMBINE FLOWS ON BROOKS, EAST OF N 5th ST
 175          HC       2
              *

 176          KK  PBRKS3
 177          BA  0.0011
 178          LS    0.00    98.0
 179          UD   0.053
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 180          KK CPBRKS3
 181          HC       2
```

REFERENCE MATERIAL

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                    *
             182    KK  PCHEY1
             183    KM   FLOWS EASTWARD ON CHEYENNE
             184    BA   0.011
             185    LS    0.00    73.2
             186    UD   0.067
                    *
             187    KK  PCOLT1
             188    KM   Colton Basin PCOLT1
             189    KM   Flows to 36" RCP storm drain
             190    BA   0.091
             191    LS    0.00    91.8
             192    UD   0.344
                    *
             193    KK  PCOLT2
             194    KM   Colton Basin PCOLT2
             195    KM   Flows to a 36" RCP storm drain
             196    BA   0.019
             197    LS    0.00    94.0
             198    UD   0.222
                    *
             199    KK CPCOLT2
             200    KM   Combine PCOLT1 & PCOLT2 AT CHEYENNE AND N 5th STREET
             201    HC       2
                    *
             202    KK  PCOLT3
             203    KM   Colton Basin PCOLT3
             204    KM   Flows to  a 36" RCP storm drain
             205    BA   0.012
             206    LS    0.00    94.0
             207    UD   0.232
                    *
             208    KK CPCOLT3
             209    KM   Combine PCOLT1 & PCOLT2 & PCOLT3 AT N 5tH STREET NORTH OF CHEYENNE
             210    HC       2
                    *
             211    KK  PCOLT4
             212    KM   Colton Basin PCOLT4
             213    BA   0.034
             214    LS    0.00    94.4
             215    UD   0.166
                    *
1                                                HEC-1 INPUT                                                PAGE  7

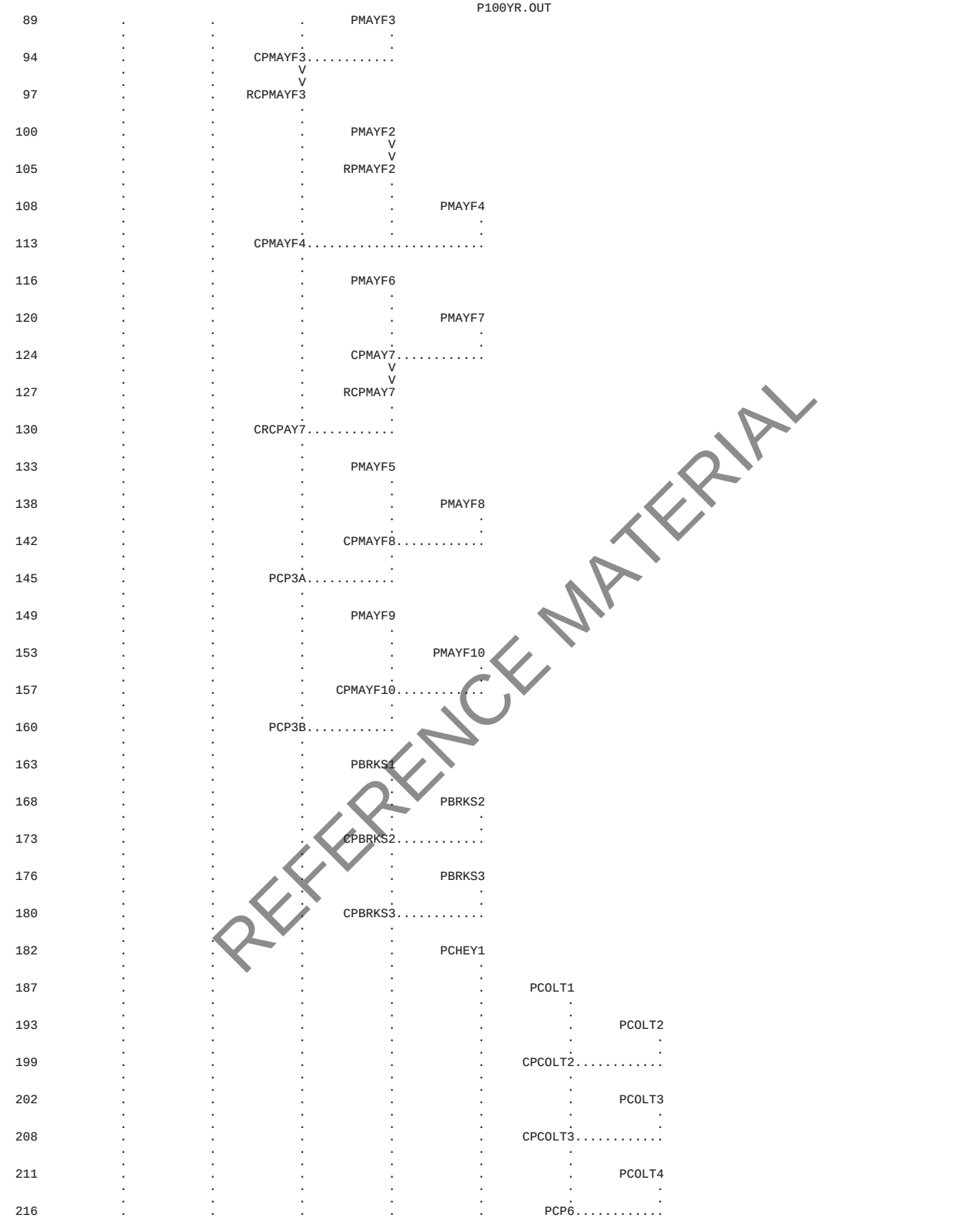
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

             216    KK    PCP6
             217    KM   Combine all the Colton Basins AT N 5th STREET AND COLTON
             218    KM   Flows to a 36" storm drain
             219    HC       2
                    *
             220    ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

    NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     25      PLOSE1
               V
               V
     39     RPLOSE1
               .
               .
     42           .      PLOSE2
                  .           .
                  .           .
     47     CPLOSE2............
               .
               .
     50           .      PLOSE3
                  .           .
                  .           .
     54     CPLOSE3............
               .
               .
     59           .      PLOSE4
                  .           .
                  .           .
     65        PCP2............
               .
               .
     68           .      PUPRR1
                  .           .
                  .           .
     73           .           .      PUPRR2
                  .           .           .
                  .           .           .
     78           .        PCP1............
                  .           .
                  .           .
     81           .           .      PMAYF1
                  .           .           V
                  .           .           V
     86           .           .    R-MAYF1-
                  .           .           .
                  .           .           .
```

REFERENCE MATERIAL



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1**********

```
*                                    *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN   1998            *
*           VERSION 4.1              *
*                                    *
*  RUN DATE   19MAR12  TIME  16:07:29   *
```

```
*                                    *
*    U.S. ARMY CORPS OF ENGINEERS    *
*    HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET         *
*       DAVIS, CALIFORNIA 95616      *
*           (916) 756-1104           *
```

REFERENCE MATERIAL

```
                          * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                          Project Name:North 5th Street Improvements Carey Ave. to Cheyenne Ave  *
                          Phase 1D                                                               *
                          Model: Proposed-100 yr Model                                           *
                          Proposed Drainage Conditions                                           *
                          Fully developed watershed curve numbers used                           *
                          Design Storm: 100-YR 6-Hour, SDN3 Storm Distribution                   *
                          Precipitation:  CCRFCD-HCDDM of McCarran Airport Rainfall Area         *
                          Curve Number:   Based on 2008 MPU                                      *
                                                                                                 *
                          Prepared by Chunling Tang in Louis Berger Group Inc., Rev 2012 by FR   *
                          * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                                                                                                 *
                          DARF VALUES USED : CCRFCD HCDDM                                        *
                                  AREA(Sq.mi)         DARF                                       *
                                       0.00             1.00                                     *
                                       0.25             0.99                                      *
                                       0.50             0.98                                     *
                          * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *


   22 IO          OUTPUT CONTROL VARIABLES
                        IPRNT          5  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                        NMIN           5  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1    0  STARTING DATE
                        ITIME        0000  STARTING TIME
                          NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      2    0  ENDING DATE
                       NDTIME        0055  ENDING TIME
                       ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL     .08 HOURS
                         TOTAL TIME BASE   24.92 HOURS

           ENGLISH UNITS
                DRAINAGE AREA         SQUARE MILES
                PRECIPITATION DEPTH   INCHES
                LENGTH, ELEVATION     FEET
                FLOW                  CUBIC FEET PER SECOND
                STORAGE VOLUME        ACRE-FEET
                SURFACE AREA          ACRES
                TEMPERATURE           DEGREES FAHRENHEIT

      JP          MULTI-PLAN OPTION
                        NPLAN          1  NUMBER OF PLANS

      JR          MULTI-RATIO OPTION
                      RATIOS OF PRECIPITATION
                     1.00       .99       .98
1

                PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                          TIME TO PEAK IN HOURS


                                                                          RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN                          RATIO 1  RATIO 2  RATIO 3
                                                                      1.00      .99      .98

 HYDROGRAPH AT
+                PLOSE1       .03     1   FLOW                       46.      46.      45.
                                          TIME                     3.58     3.58     3.58

 ROUTED TO
+                RPLOSE1      .03     1   FLOW                       44.      43.      43.
                                          TIME                     3.75     3.75     3.75

 HYDROGRAPH AT
+                PLOSE2       .13     1   FLOW                      181.     178.     176.
                                          TIME                     3.58     3.58     3.58

   2 COMBINED AT
+                CPLOSE2      .17     1   FLOW                      217.     214.     210.
                                          TIME                     3.67     3.67     3.67

 HYDROGRAPH AT
+                PLOSE3       .02     1   FLOW                       42.      41.      41.
                                          TIME                     3.50     3.50     3.50

   2 COMBINED AT
+                CPLOSE3      .18     1   FLOW                      233.     230.     227.
                                          TIME                     3.58     3.58     3.58

 HYDROGRAPH AT
+                PLOSE4       .05     1   FLOW                       94.      93.      92.
                                          TIME                     3.58     3.58     3.58

   2 COMBINED AT
+                  PCP2       .24     1   FLOW                      328.     323.     319.
                                          TIME                     3.58     3.58     3.58

 HYDROGRAPH AT
+                PUPRR1       .01     1   FLOW                       19.      18.      18.
                                          TIME                     3.58     3.58     3.58
```


REFERENCE MATERIAL

HYDROGRAPH AT							
+	PUPRR2	.00	1	FLOW	4.	4.	4.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	PCP1	.01	1	FLOW	22.	22.	21.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	PMAYF1	.33	1	FLOW	355.	350.	346.
				TIME	3.83	3.83	3.83
ROUTED TO							
+	R-MAYF1-	.33	1	FLOW	353.	349.	344.
				TIME	3.83	3.83	3.83
HYDROGRAPH AT							
+	PMAYF3	.03	1	FLOW	47.	47.	46.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	CPMAYF3	.35	1	FLOW	368.	364.	359.
				TIME	3.83	3.83	3.83
ROUTED TO							
+	RCPMAYF3	.35	1	FLOW	367.	363.	358.
				TIME	3.83	3.83	3.83
HYDROGRAPH AT							
+	PMAYF2	.06	1	FLOW	93.	92.	90.
				TIME	3.50	3.50	3.50
ROUTED TO							
+	RPMAYF2	.06	1	FLOW	90.	89.	87.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	PMAYF4	.08	1	FLOW	135.	133.	132.
				TIME	3.58	3.58	3.58
3 COMBINED AT							
+	CPMAYF4	.49	1	FLOW	502.	496.	489.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	PMAYF6	.03	1	FLOW	53.	53.	52.
				TIME	3.50	3.50	3.50
HYDROGRAPH AT							
+	PMAYF7	.00	1	FLOW	6.	6.	6.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	CPMAY7	.03	1	FLOW	59.	59.	58.
				TIME	3.50	3.50	3.50
ROUTED TO							
+	RCPMAY7	.03	1	FLOW	58.	57.	56.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	CRCPAY7	.52	1	FLOW	535.	528.	521.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	PMAYF5	.03	1	FLOW	50.	50.	49.
				TIME	3.50	3.50	3.50
HYDROGRAPH AT							
+	PMAYF8	.00	1	FLOW	6.	6.	6.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	CPMAYF8	.03	1	FLOW	56.	56.	55.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	PCP3A	.55	1	FLOW	565.	557.	550.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	PMAYF9	.00	1	FLOW	5.	5.	5.
				TIME	3.50	3.50	3.50
HYDROGRAPH AT							
+	PMAYF10	.00	1	FLOW	1.	1.	1.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	CPMAYF10	.00	1	FLOW	7.	7.	7.
				TIME	3.50	3.50	3.50
2 COMBINED AT							
+	PCP3B	.55	1	FLOW	570.	563.	556.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	PBRKS1	.05	1	FLOW	51.	50.	49.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	PBRKS2	.01	1	FLOW	16.	16.	16.
				TIME	3.50	3.50	3.50
2 COMBINED AT							

REFERENCE MATERIAL

```
+                CPBRKS2       .06     1   FLOW          67.      66.      65.
                                           TIME          3.58     3.58     3.58

 HYDROGRAPH AT
+                 PBRKS3       .00     1   FLOW           3.       3.       2.
                                           TIME          3.50     3.50     3.50

  2 COMBINED AT
+                CPBRKS3       .06     1   FLOW          69.      67.      66.
                                           TIME          3.58     3.58     3.58

 HYDROGRAPH AT
+                 PCHEY1       .01     1   FLOW           9.       9.       8.
                                           TIME          3.50     3.50     3.50

 HYDROGRAPH AT
+                 PCOLT1       .09     1   FLOW         102.     101.      99.
                                           TIME          3.75     3.75     3.75

 HYDROGRAPH AT
+                 PCOLT2       .02     1   FLOW          27.      27.      27.
                                           TIME          3.67     3.67     3.67

  2 COMBINED AT
+                CPCOLT2       .11     1   FLOW         126.     124.     123.
                                           TIME          3.75     3.75     3.75

 HYDROGRAPH AT
+                 PCOLT3       .01     1   FLOW          17.      17.      17.
                                           TIME          3.67     3.67     3.67

  2 COMBINED AT
+                CPCOLT3       .12     1   FLOW         141.     140.     138.
                                           TIME          3.75     3.75     3.75

 HYDROGRAPH AT
+                 PCOLT4       .03     1   FLOW          56.      55.      55.
                                           TIME          3.58     3.58     3.58

  2 COMBINED AT
+                   PCP6       .16     1   FLOW         188.     186.     184.
                                           TIME          3.67     3.67     3.67
1
                                    SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                        (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                  INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME       DT       PEAK    TIME TO     VOLUME
                                                      PEAK                                      PEAK

                                  (MIN)     (CFS)      (MIN)     (IN)     (MIN)     (CFS)     (MIN)       (IN)

          FOR PLAN = 1  RATIO=  .00
           RPLOSE1  MANE         4.00     44.82    224.00      1.75      5.00     43.86    225.00        1.75

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2913E+01 EXCESS= .0000E+00 OUTFLOW= .2927E+01 BASIN STORAGE= .8112E-02 PERCENT ERROR=   -.7

          FOR PLAN = 1  RATIO=  .00
           RPLOSE1  MANE         4.00     44.26    224.00      1.72      5.00     43.32    225.00        1.73

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2871E+01 EXCESS= .0000E+00 OUTFLOW= .2885E+01 BASIN STORAGE= .8078E-02 PERCENT ERROR=   -.7

          FOR PLAN = 1  RATIO=  .00
           RPLOSE1  MANE         4.25     43.09    221.00      1.70      5.00     42.79    225.00        1.70

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2827E+01 EXCESS= .0000E+00 OUTFLOW= .2841E+01 BASIN STORAGE= .6023E-02 PERCENT ERROR=   -.7

          FOR PLAN = 1  RATIO=  .00
          R-MAYF1-  MANE         2.06    353.95    228.72      2.01      5.00    352.82    230.00        2.01

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3493E+02 EXCESS= .0000E+00 OUTFLOW= .3494E+02 BASIN STORAGE= .2594E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          R-MAYF1-  MANE         2.07    349.21    229.85      1.98      5.00    349.14    230.00        1.98

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3448E+02 EXCESS= .0000E+00 OUTFLOW= .3448E+02 BASIN STORAGE= .2534E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          R-MAYF1-  MANE         2.08    345.41    228.92      1.96      5.00    344.28    230.00        1.95

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3402E+02 EXCESS= .0000E+00 OUTFLOW= .3403E+02 BASIN STORAGE= .2473E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPMAYF3  MANE         1.29    367.33    230.40      2.02      5.00    366.52    230.00        2.02

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3790E+02 EXCESS= .0000E+00 OUTFLOW= .3790E+02 BASIN STORAGE= .1652E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPMAYF3  MANE         1.29    363.11    230.07      1.99      5.00    362.91    230.00        1.99

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3741E+02 EXCESS= .0000E+00 OUTFLOW= .3741E+02 BASIN STORAGE= .1517E-02 PERCENT ERROR=    .0
```

REFERENCE MATERIAL

```
          FOR PLAN = 1  RATIO=  .00
          RCPMAYF3  MANE         1.30    358.28    230.06      1.96      5.00    358.15    230.00        1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3692E+02 EXCESS= .0000E+00 OUTFLOW= .3692E+02 BASIN STORAGE= .1519E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
           RPMAYF2  MANE         3.50     94.47    217.00      1.80      5.00     89.82    215.00        1.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5735E+01 EXCESS= .0000E+00 OUTFLOW= .5750E+01 BASIN STORAGE= .4868E-02 PERCENT ERROR=   -.4

          FOR PLAN = 1  RATIO=  .00
           RPMAYF2  MANE         3.50     93.22    217.00      1.77      5.00     88.56    215.00        1.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5654E+01 EXCESS= .0000E+00 OUTFLOW= .5670E+01 BASIN STORAGE= .4843E-02 PERCENT ERROR=   -.4

          FOR PLAN = 1  RATIO=  .00
           RPMAYF2  MANE         3.50     91.97    217.00      1.75      5.00     87.30    215.00        1.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5573E+01 EXCESS= .0000E+00 OUTFLOW= .5589E+01 BASIN STORAGE= .4818E-02 PERCENT ERROR=   -.4

          FOR PLAN = 1  RATIO=  .00
           RCPMAY7  MANE          .90     58.36    210.90      2.23      5.00     57.53    210.00        2.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3528E+01 EXCESS= .0000E+00 OUTFLOW= .3527E+01 BASIN STORAGE= .7712E-04 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
           RCPMAY7  MANE          .90     57.32    210.47      2.20      5.00     56.56    210.00        2.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3485E+01 EXCESS= .0000E+00 OUTFLOW= .3484E+01 BASIN STORAGE= .7705E-04 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
           RCPMAY7  MANE          .91     56.98    210.95      2.17      5.00     56.17    210.00        2.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3442E+01 EXCESS= .0000E+00 OUTFLOW= .3441E+01 BASIN STORAGE= .7685E-04 PERCENT ERROR=    .0


*** NORMAL END OF HEC-1 ***
```

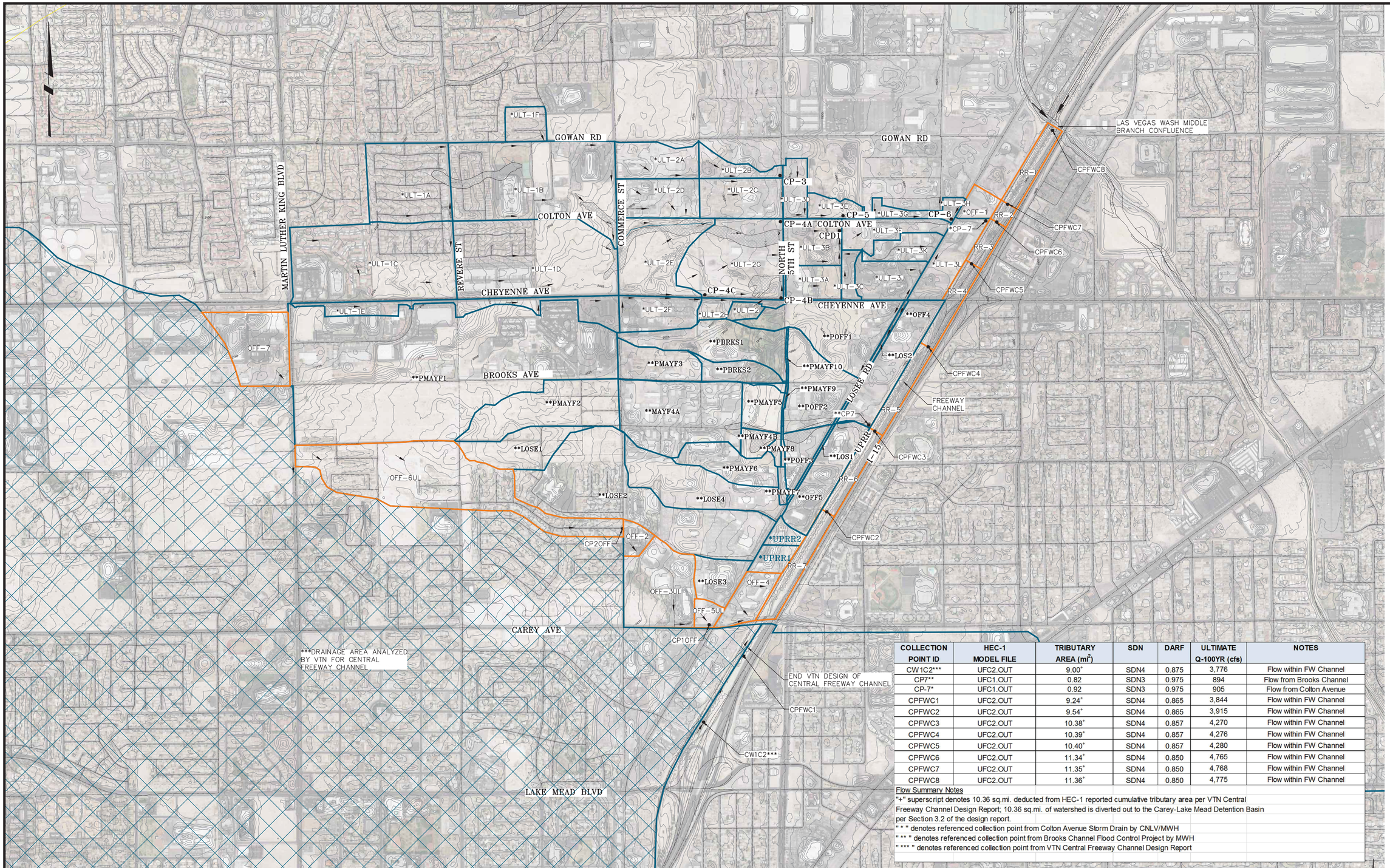
REFERENCE MATERIAL

Appendix D-2

Reference Material

Central Freeway Channel Basin Map and 100-Year HEC-1 Model

Source: Central Freeway Channel Hydrology and Hydraulics Technical Memorandum dated June 2014 (Freeway Channel TM-1)



COLLECTION POINT ID	HEC-1 MODEL FILE	TRIBUTARY AREA (mi^2)	SDN	DARF	ULTIMATE Q-100YR (cfs)	NOTES
CW1C2***	UFC2.OUT	9.00+	SDN4	0.875	3,776	Flow within FW Channel
CP7**	UFC1.OUT	0.82	SDN3	0.975	894	Flow from Brooks Channel
CP-7*	UFC1.OUT	0.92	SDN3	0.975	905	Flow from Colton Avenue
CPFWC1	UFC2.OUT	9.24+	SDN4	0.865	3,844	Flow within FW Channel
CPFWC2	UFC2.OUT	9.54+	SDN4	0.865	3,915	Flow within FW Channel
CPFWC3	UFC2.OUT	10.38+	SDN4	0.857	4,270	Flow within FW Channel
CPFWC4	UFC2.OUT	10.39+	SDN4	0.857	4,276	Flow within FW Channel
CPFWC5	UFC2.OUT	10.40+	SDN4	0.857	4,280	Flow within FW Channel
CPFWC6	UFC2.OUT	11.34+	SDN4	0.850	4,765	Flow within FW Channel
CPFWC7	UFC2.OUT	11.35+	SDN4	0.850	4,768	Flow within FW Channel
CPFWC8	UFC2.OUT	11.36+	SDN4	0.850	4,775	Flow within FW Channel

Flow Summary Notes

"+" superscript denotes 10.36 sq.mi. deducted from HEC-1 reported cumulative tributary area per VTN Central Freeway Channel Design Report; 10.36 sq.mi. of watershed is diverted out to the Carey-Lake Mead Detention Basin per Section 3.2 of the design report.

" * " denotes referenced collection point from Colton Avenue Storm Drain by CNLV/MWH

" ** " denotes referenced collection point from Brooks Channel Flood Control Project by MWH

" *** " denotes referenced collection point from VTN Central Freeway Channel Design Report

*REFERENCED FROM COLTON AVENUE TDS BY CNLV/MWH
**REFERENCED FROM BROOKS CHANNEL STUDY BY MWH & NORTH 5TH STREET IMPROVEMENTS TDS BY LOUIS BERGER GROUP
***REFERENCED FROM CENTRAL FREEWAY CHANNEL–OWENS TO MILLER AVENUE BY VTN NEVADA

REFER TO REFERENCED DRAINAGE MAPS FOR INTERMEDIATE COMBINATION POINTS AND ROUTES.

FEMA TYPE "A" FLOOD ZONE
5' CONTOUR
CP-5 COMBINATION POINT
EX-3A DRAINAGE BASIN NAME
FLOW DIRECTION
BASIN BOUNDARY
REFERENCED BASINS

0 375 750 1500
1 INCH =750 FT.

MWH

SCALE: 1"=750'
DESIGN: SM
DRAWN: SM
CHECKED: RV
APPROVED: APPROVED
DATE: JUNE2013

(DRAWING TITLE) ULTIMATE CONDITION BASIN MAP

(PROJECT TITLE) CENTRAL FREEWAY CHANNEL HYDROLOGIC & HYDRAULIC ANALYSIS

(LOCATION) CITY OF NORTH LAS VEGAS

REFERENCE MATERIAL

FIGURE VERSION 2
DATE: NOVEMBER 2013

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *             JUN  1998                *
 *          VERSION 4.1                 *
 *                                      *
 *  RUN DATE   17FEB14  TIME  14:35:42  *
 *                                      *
 ****************************************
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
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```
X     X  XXXXXXX   XXXXX          X
X     X  X       X     X        XX
X     X  X       X              X
XXXXXXX  XXXX    X       XXXXX  X
X     X  X       X              X
X     X  X       X     X        X
X     X  XXXXXXX   XXXXX        XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


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          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                    *DIAGRAM
 *** FREE ***
             1      ID    FREEWAY CHANNEL ANALYSIS FROM CAREY AVE. TO LAS VEGAS WASH CONFLUENCE
             2      ID    ULTIMATE CONDITIONS
             3      ID    INPUT FILE = UFC2.DAT
             4      ID    INPUT FILE DATE = NOVEMBER 2013 (VERSION 2 WITH CCRFCD COMMENTS INCORPORATED
             5      ID    MODELED BY MWH
             6      ID
             7      ID       ******************************
             8      ID       *                            *
             9      ID       *  SDN4 STORM DISTRIBUTION   *
            10      ID       *                            *
            11      ID       ******************************
            12      ID
            13      ID    REFERENCED HYDROLOGIC MODELS:
            14      ID
            15      ID    *CENTRAL FREEWAY CHANNEL, OWENS AVE. TO MILLER AVE. (VTN NOV 2009)
            16      ID
            17      ID    *BROOKS CHANNEL FLOOD CONTROL PROJECT (MWH 2012)
            18      ID
            19      ID    *90% TECHNICAL DRAINAGE STUDY FOR NORTH 5TH STREET IMPROVEMENTS
            20      ID    LOSEE ROAD TO CHEYENNE AVE (LBG 2012)
            21      ID
            22      ID    *DRAFT DRAINAGE STUDY FOR COLTON AVE FLOOD CONTROL IMPROVEMENTS
            23      ID     5TH STREET TO I-15 CHANNEL(CNLV 2009)
            24      ID
            25      ID    VEGAS DRIVE IMPROVEMENTS PDR, SHADOW MOUNTAIN PLACE TO RANCHO DRIVE (LBG JUL
            26      ID
            27      ID    JD CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
            28      ID
            29      ID    ---------------------------------------------------------------------------
            30      ID
            31      ID    DARF VALUES USED : CCRFCD HCDDM
            32      ID
            33      ID
            34      ID             AREA     DARF
            35      ID             SQ.MI.
            36      ID
            37      ID             8-9      0.875
            38      ID             9-10     0.865
            39      ID             10-11    0.857
            40      ID             11-12    0.850
            41      ID
            42      ID    ---------------------------------------------------------------------------
            43      ID
            44      ID
            45      IT       5       0       0     300
            46      IO       5       0       0
            47      IN       5       0       0
            48      JR    PREC   0.875   0.865   0.857   0.850
                    *
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          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            49      KK OG04-C*
            50      KM   *REF BASIN FROM VTN STUDY*
            51      KM   *CENTRAL FREEWAY CHANNEL REPORT*
            52      BA   0.288
            53      PB    2.77
            54      PC   0.000   0.020   0.058   0.075   0.099   0.126   0.137   0.145   0.149   0.151
            55      PC   0.155   0.156   0.159   0.162   0.169   0.172   0.179   0.189   0.201   0.211
            56      PC   0.220   0.228   0.232   0.240   0.246   0.252   0.260   0.269   0.276   0.283
            57      PC   0.286   0.292   0.302   0.312   0.321   0.332   0.352   0.376   0.415   0.462
            58      PC   0.530   0.610   0.710   0.732   0.756   0.782   0.799   0.813   0.823   0.830
            59      PC   0.835   0.844   0.851   0.864   0.885   0.908   0.924   0.944   0.968   0.973
            60      PC   0.978   0.982   0.984   0.986   0.988   0.991   0.992   0.993   0.994   0.997
            61      PC   0.998   0.999   1.000
            62      LS       0    90.2
            63      UD   0.320
                    *

            64      KKDOG04-C*
            65      KM   *REF FROM VTN STUDY*
            66      KM   *CENTRAL FREEWAY CHANNEL REPORT*
            67      KM  FLOW SPLIT TO PD01-C
            68      KM  COMBINED CAPACITY = 124 CFS
            69      DT   DPD01
            70      DI       0      51     125     500    1000
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REFERENCE MATERIAL

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   71          DQ       0      50     124     124     124
               *

   72          KKRDOG04-C*
   73          KM   *REF ROUTE FROM VTN STUDY*
   74          KM   *CENTRAL FREEWAY CHANNEL REPORT*
   75          KM  ROUTE DOG04-C TO COG05-C
   76          KM  US95 TO CHEYENNE
   77          RD    4100  0.0007   0.016       0    TRAP       0      50
               *

   78          KK OG05-C*
   79          KM   *REF BASIN FROM VTN STUDY*
   80          KM   *CENTRAL FREEWAY CHANNEL REPORT*
   81          BA   0.266
   82          PB    2.77
   83          LS       0    90.7
   84          UD   0.392
               *

   85          KKCOG05-C*
   86          KM   *REF POINT FROM VTN STUDY*
   87          KM   *CENTRAL FREEWAY CHANNEL REPORT*
   88          KM  COMBINE RDOG04-C AND OG05-C
   89          KM  RAINBOW AND CHEYENNE
   90          HC       2
               *
1                                       HEC-1 INPUT                                          PAGE  3

  LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   91          KKRCOG05-C*
   92          KM   *REF ROUTE FROM VTN STUDY*
   93          KM   *CENTRAL FREEWAY CHANNEL REPORT*
   94          KM  ROUTE RCOG05-C TO CCY06B-C
   95          KM  CHEYENNE
   96          RD    7500  0.0097   0.016       0    TRAP       0      50
               *

   97          KKCY06B-C*
   98          KM   *REF BASIN FROM VTN STUDY*
   99          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  100          BA   0.498
  101          PB    2.77
  102          LS       0    86.2
  103          UD   0.697
               *

  104          KKCCY06B-C*
  105          KM   *REF POINT FROM VTN STUDY*
  106          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  107          KM  COMBINE RCOG05-C AND CY06B-C
  108          KM  MICHAEL AND CHEYENNE
  109          HC       2
               *

  110          KKRCCY06B*
  111          KM   *REF ROUTE FROM VTN STUDY*
  112          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  113          KM  ROUTE CCY06B TO CRGOWAN
  114          KM  CHEYENNE
  115          RD    1400    0.01   0.016       0    TRAP       0      50
               * *******************************************************
               * BEGIN FLOW SPLIT FROM GOWAN WATERSHED
               * *******************************************************
               *

  116          KKGD17BG-C*
  117          KM   *REF BASIN FROM VTN STUDY*
  118          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  119          BA   0.364
  120          PB    2.77
  121          LS       0    88.7
  122          UD   0.478
               *

  123          KKRGD17BG*
  124          KM   *REF ROUTE FROM VTN STUDY*
  125          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  126          KM  ROUTE RGD17BG TO CGD11B-C
  127          KM  FACILITY = GOWAN OUTFALL - U.S. 95 CHANNEL
  128          KM  FACILITY # = GO95 0000
  129          KM  LINING = CONCRETE
  130          RD    2640   0.003   0.015       0    TRAP      12       2
               *
1                                       HEC-1 INPUT                                          PAGE  4

  LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  131          KKGD11B-C*
  132          KM   *REF BASIN FROM VTN STUDY*
  133          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  134          BA   0.262
  135          PB    2.77
  136          LS       0    91.4
  137          UD   0.278
               *

  138          KKCGD11B-C*
  139          KM   *REF POINT FROM VTN STUDY*
  140          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  141          KM  COMBINE GD11B-C AND RGD17BG
  142          KM  GOWAN AND US 95
  143          HC       2
               *

  144          KKRCGD11B*
  145          KM   *REF ROUTE FROM VTN STUDY*
  146          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  147          KM  ROUTE CGD11B-C TO CPT6B-C
  148          KM  FACILITY = GOWAN OUTFALL FACILITIES
  149          KM  FACILITY # = GOOF 0511
  150          KM  LINING = RCB
  151          RD    8390   0.005   0.015       0    TRAP       8       0
               *
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REFERENCE MATERIAL

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          KK PT6B-C*
          KM   *REF BASIN FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          BA   0.454
          PB    2.77
          LS       0    86.1
          UD   0.756
          *

          KKCPT6B-C*
          KM   *REF POINT FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  COMBINE PT6B-C AND RCGD11B
          KM  GOWAN AND RANCHO
          HC       2
          *

          KKDPT6B-C1*
          KM   *REF SPLIT FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  FLOW SPLIT TO GOWAN OUTFALL
          KM  DGOW1A
          KM  FROM CWH
          DT  DGOW1A
          DI       0      31      51      71     101     301     561     600    3000    5000
          DQ       0      30      50      70     100     300     560     560     560     560
          *
1                                      HEC-1 INPUT                                          PAGE  5

        LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          KKDPT6B-C2*
          KM   *REF SPLIT FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  FLOW SPLIT TO TRILOGY CHANNEL
          KM  DTRILGY
          KM  FROM CWH
          DT DTRILGY
          DI       0      31      91     202     349     625    1214    1944    2801
          DQ       0       3      33      55      95     173     267     374     491
          *

          KKRCPT6B-C*
          KM   *REF ROUTE FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  ROUTE DPT6B-C2 TO CCPT6B-C
          KM  GOWAN
          RD    3300   0.006   0.016       0    TRAP       0      50
          *

          KK DGOW1A*
          KM   *REF RETRIEVE FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  RETRIEVE DGOW1A
          DR  DGOW1A
          *

          KKRDGOW1A*
          KM   *REF ROUTE FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  ROUTE PT6B-C TO CCPT6B-C
          KM  FACILITY = GOWAN OUTFALL FACILITIES
          KM  FACILITY # = GOOF 0486
          KM  LINING = RCB
          RD    3300   0.006   0.015       0    TRAP       8       0
          *

          KKCCPT6B-C*
          KM   *REF POINT FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  COMBINE RCPT6B-C AND RDGOW1A
          KM  GOWAN AND DECATUR
          HC       2
          *

          KKDTRILGY*
          KM   *REF RETRIEVE FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  RETRIEVE DTRILGY
          DR DTRILGY
          *
1                                      HEC-1 INPUT                                          PAGE  6

        LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          KK  CY07B*
          KM   *REF BASIN FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          BA   0.203
          PB    2.77
          LS       0    89.1
          UD   0.461
          *

          KK CCY07B*
          KM   *REF POINT FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  COMBINE DTRILGY AND CY07B
          KM  NEAR RANCHO AND MICHAEL
          HC       2
          *

          KK DCY07B*
          KM   *REF SPLIT FROM VTN STUDY*
          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          KM  FLOW SPLIT TO CENTRAL BASIN
          KM  DIVERT FLOW EAST IN RAN 190
          KM  OPPOSITE OF D9RCHO
          KM  FROM CWH
          DT  DCENT1
          DI       0      19      73     100    1000    2000
          DQ       0       1       1      28     928    1928
          *

          KKRDCY07B*
          KM   *REF ROUTE FROM VTN STUDY*
```

REFERENCE MATERIAL

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          238          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          239          KM  ROUTE DCYO7B TO CCY08-C
          240          KM  DECATUR AND GOWAN
          241          RD    3150   0.007   0.016       0    TRAP       0      50
                       *

          242          KK CY08-C*
          243          KM   *REF BASIN FROM VTN STUDY*
          244          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          245          BA   0.094
          246          PB    2.77
          247          LS       0    88.5
          248          UD   0.306
                       *

          249          KKCCY08-C*
          250          KM   *REF POINT FROM VTN STUDY*
          251          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          252          KM  COMBINE CY08-C, CCPT6B-C, AND RDCY07B
          253          KM  GOWAN AND DECATUR
          254          HC       3
                       *
1                                        HEC-1 INPUT                                                    PAGE  7

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          255          KK DGOW2A*
          256          KM   *REF SPLIT FROM VTN STUDY*
          257          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          258          KM  DIVERT FLOW TO GOWAN OUTFALL
          259          KM  DIVERSION BASED ON GOWAN ROAD DRAINAGE STUDY BY POGGEMEYER
          260          KM  8' X 5' RCB, CAPACITY = 630 CFS (GOOF 0486)
          261          KM  REMAINING FLOW CONTINUES EAST IN GOWAN RD. AND ENTERS THE CENTRAL BASIN
          262          KM  OPPOSITE OF DGOW2A IN CWH
          263          DTDCENTRAL
          264          DI       0      31      51      71     101     301     601     631    3000    5000
          265          DQ       0       1       1       1       1       1       1       1    2370    4370
                       *

          266          KK  D3ALL*
          267          KM   *REF SPLIT FROM VTN STUDY*
          268          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          269          KM  DIVERT OUT ALL FLOW (GOWAN WATERSHED)
          270          DT   D3ALL
          271          DI       0     100     500    1000    5000
          272          DQ       0     100     500    1000    5000
                       *
                       * ****************************************************
                       * END OF FLOW SPLIT FROM GOWAN WATERSHED
                       * ****************************************************
                       *

          273          KK DCENT1*
          274          KM   *REF ROUTE FROM VTN STUDY*
          275          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          276          KM  RETRIEVE DCENT1
          277          DR  DCENT1
                       *

          278          KKRDCENT1*
          279          KM   *REF ROUTE FROM VTN STUDY*
          280          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          281          KM  ROUTE DCENT1
          282          KM  RANCHO
          283          RD    2100  0.0076   0.016       0    TRAP       0      50
                       *

          284          KKCRGOWAN*
          285          KM   *REF POINT FROM VTN STUDY*
          286          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          287          KM  COMBINE RDCENT1, D3ALL, AND RCCY06B
          288          KM  RANCHO AND CHEYENNE
          289          HC       3
                       *
1                                        HEC-1 INPUT                                                    PAGE  8

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          290          KKRCRGOWAN*
          291          KM   *REF ROUTE FROM VTN STUDY*
          292          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          293          KM  ROUTE CRGOWAN TO CPD05A-C
          294          KM  RANCHO
          295          RD    1700  0.0088   0.016       0    TRAP       0      50
                       *

          296          KKPD05A-C*
          297          KM   *REF BASIN FROM VTN STUDY*
          298          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          299          BA   0.135
          300          PB    2.77
          301          LS       0    93.5
          302          UD   0.406
                       *

          303          KKCPD05A-C*
          304          KM   *REF POINT FROM VTN STUDY*
          305          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          306          KM  COMBINE PD05A-C AND RCRGOWAN
          307          KM  RANCHO AND DECATUR
          308          HC       2
                       *

          309          KKDCPD05A*
          310          KM   *REF SPLIT FROM VTN STUDY*
          311          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          312          KM  FLOW SPLIT TO A1-C1
          313          KM  OPPOSITE OF DA2 FLOW SPLIT IN CWH
          314          KM  CAPACITY RAN 170 = 210 CFS
          315          KM  REMAINING FLOW GOES DOWN WEST SIDE OF RANCHO
          316          DT   DA1-C
          317          DI       0      51     101     211     500    1000    5000
          318          DQ       0      51     101     211     211     211     211
                       *

          319          KK RCPD05*
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REFERENCE MATERIAL

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320          KM   *REF ROUTE FROM VTN STUDY*
321          KM   *CENTRAL FREEWAY CHANNEL REPORT*
322          KM  ROUTE CPD05A-C TO CPD04B-C
323          KM  RANCHO
324          RD    1500   0.006   0.016       0    TRAP       0      50
             *

325          KK  DPD01*
326          KM   *REF RETRIEVE FROM VTN STUDY*
327          KM   *CENTRAL FREEWAY CHANNEL REPORT*
328          KM  RETRIEVE DPD01
329          DR   DPD01
             *
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        LINE ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

330          KK RDPD01*
331          KM   *REF ROUTE FROM VTN STUDY*
332          KM   *CENTRAL FREEWAY CHANNEL REPORT*
333          KM  ROUTE DPD01 TO CPD01-C
334          KM  PEAK DRIVE
335          RD    3500  0.0103   0.016       0    TRAP       0      50
             *

336          KK PD01-C*
337          KM   *REF BASIN FROM VTN STUDY*
338          KM   *CENTRAL FREEWAY CHANNEL REPORT*
339          BA   0.377
340          PB    2.77
341          LS       0    85.3
342          UD   0.436
             *

343          KKCPD01-C*
344          KM   *REF POINT FROM VTN STUDY*
345          KM   *CENTRAL FREEWAY CHANNEL REPORT*
346          KM  COMBINE RDPD01 AND PD01-C
347          KM  TORREY PINES AND PEAK DRIVE
348          HC       2
             *

349          KK RCPD01*
350          KM   *REF ROUTE FROM VTN STUDY*
351          KM   *CENTRAL FREEWAY CHANNEL REPORT*
352          KM  ROUTE CPD01-C TO CCY04A-C
353          KM  FACILITY = LAS VEGAS WASH - PEAK DRIVE SYSTEM
354          KM  FACILITY # = LVPK 0106,0130
355          KM  LINING = RCB
356          RD    2670  0.0061   0.015       0    TRAP       7       0
             *

357          KK CY04A-C
358          KM   *REF BASIN FROM VTN STUDY*
359          KM   *CENTRAL FREEWAY CHANNEL REPORT*
360          BA   0.457
361          PB    2.77
362          LS       0    86.6
363          UD   0.489
             *

364          KKCCY04A-C*
365          KM   *REF POINT FROM VTN STUDY*
366          KM   *CENTRAL FREEWAY CHANNEL REPORT*
367          KM  COMBINE RCPD01 AND CY04A-C
368          KM  JONES AND PEAK DRIVE
369          HC       2
             *
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        LINE ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

370          KKRCCY04A*
371          KM   *REF ROUTE FROM VTN STUDY*
372          KM   *CENTRAL FREEWAY CHANNEL REPORT*
373          KM  ROUTE CCY04A TO CPD04B-C
374          KM  FACILITY = LAS VEGAS WASH - PEAK DRIVE SYSTEM
375          KM  FACILITY # = LVPK 0000,0019,0056,0058,0104
376          KM  LINING = RCB
377          RD    5517  0.0095   0.015       0    TRAP       9       0
             *

378          KKPD04B-C*
379          KM   *REF BASIN FROM VTN STUDY*
380          KM   *CENTRAL FREEWAY CHANNEL REPORT*
381          BA   0.468
382          PB    2.77
383          LS       0    88.0
384          UD   0.539
             *

385          KKCPD04B-C*
386          KM   *REF POINT FROM VTN STUDY*
387          KM   *CENTRAL FREEWAY CHANNEL REPORT*
388          KM  COMBINE RCCY04A AND PD04B-C
389          KM  RANCHO AND PEAK DRIVE
390          HC       2
             *

391          KKCCPD04BC*
392          KM   *REF POINT FROM VTN STUDY*
393          KM   *CENTRAL FREEWAY CHANNEL REPORT*
394          KM  COMBINE RCPD05 AND CPD04B-C
395          KM  RANCHO AND PEAK DRIVE
396          HC       2
             *

397          KKRCPD04B*
398          KM   *REF ROUTE FROM VTN STUDY*
399          KM   *CENTRAL FREEWAY CHANNEL REPORT*
400          KM  ROUTE CCPD04BC TO CSR05B
401          KM  FACILITY = LAS VEGAS WASH - RANCHO
402          KM  FACILITY # = LVRA 0012,0000
403          KM  LINING = RCB
404          RD    3450  0.0078   0.015       0    TRAP      12       0
             *
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REFERENCE MATERIAL

```
  405          KK OG03-C*
  406          KM   *REF BASIN FROM VTN STUDY*
  407          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  408          BA   0.325
  409          PB    2.77
  410          LS       0    87.3
  411          UD   0.388
               *
1                                      HEC-1 INPUT                                          PAGE 11

 LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  412          KKROG03-C*
  413          KM   *REF ROUTE FROM VTN STUDY*
  414          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  415          KM  ROUTE OG03-C TO CCSR00A
  416          KM  SMOKE RANCH
  417          RD    3400  0.0121   0.016       0    TRAP       0      50
               *

  418          KK OG02-C*
  419          KM   *REF BASIN FROM VTN STUDY*
  420          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  421          BA   0.318
  422          PB    2.77
  423          LS       0    90.3
  424          UD   0.351
               *

  425          KKROG02-C*
  426          KM   *REF ROUTE FROM VTN STUDY*
  427          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  428          KM  ROUTE OG02-C TO CLM01-C
  429          KM  FACILITY = LAS VEGAS WASH - LAKE MEAD
  430          KM  FACILITY # = LVLM 0525
  431          KM  LINING = RCP
  432          RD    3400  0.0124   0.013       0    CIRC       4       0
               *

  433          KK LM01-C*
  434          KM   *REF BASIN FROM VTN STUDY*
  435          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  436          BA   0.327
  437          PB    2.77
  438          LS       0    83.1
  439          UD   0.402
               *

  440          KKCLM01-C*
  441          KM   *REF POINT FROM VTN STUDY*
  442          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  443          KM  COMBINE ROG02-C AND LM01-C
  444          KM  TORREY PINES AND LAKE MEAD
  445          HC       2
               *

  446          KKRCLM01-C*
  447          KM   *REF ROUTE FROM VTN STUDY*
  448          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  449          KM  ROUTE CLM01-C TO CSR00A
  450          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
  451          KM  FACILITY # = LVSR 0546
  452          KM  LINING = RCB
  453          RD    2640  0.0057   0.015       0    TRAP       8       0
               *
1                                      HEC-1 INPUT                                          PAGE 12

 LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  454          KKSR00A-C*
  455          KM   *REF BASIN FROM VTN STUDY*
  456          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  457          BA   0.367
  458          PB    2.77
  459          LS       0   85.0
  460          UD   0.444
               *

  461          KK CSR00A*
  462          KM   *REF POINT FROM VTN STUDY*
  463          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  464          KM  COMBINE RCLM01-C AND SR00A-C
  465          KM  TORREY PINES AND SMOKE RANCH
  466          HC       2
               *

  467          KKCCSR00A*
  468          KM   *REF POINT FROM VTN STUDY*
  469          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  470          KM  COMBINE ROG03-C AND CSR00A
  471          KM  TORREY PINES AND SMOKE RANCH
  472          HC       2
               *

  473          KKRCSR00A*
  474          KM   *REF ROUTE FROM VTN STUDY*
  475          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  476          KM  ROUTE CSR00A TO CSR02E
  477          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
  478          KM  FACILITY # = LVSR 0496
  479          KM  LINING = RCB
  480          RD    2855  0.0127   0.015       0    TRAP      10       0
               *

  481          KKSR02E-C*
  482          KM   *REF BASIN FROM VTN STUDY*
  483          KM   *CENTRAL FREEWAY CHANNEL REPORT*
  484          BA   0.302
  485          PB    2.77
  486          LS       0    86.5
  487          UD   0.373
               *

  488          KK CSR02E*
  489          KM   *REF POINT FROM VTN STUDY*
```

REFERENCE MATERIAL

```
          490          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          491          KM  COMBINE SR02E-C AND RCSR00A
          492          KM  JONES AND SMOKE RANCH
          493          HC       2
                       *
1                                        HEC-1 INPUT                                                    PAGE 13

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          494          KKRCSR02E*
          495          KM   *REF ROUTE FROM VTN STUDY*
          496          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          497          KM  ROUTE CSR02E TO CSR05D
          498          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
          499          KM  FACILITY # = LVSR 0397,0447
          500          KM  LINING = RCB
          501          RD    5170  0.0125   0.015       0    TRAP      10       0
                       *

          502          KKSR05D-C*
          503          KM   *REF BASIN FROM VTN STUDY*
          504          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          505          BA   0.303
          506          PB    2.77
          507          LS       0    89.5
          508          UD   0.533
                       *

          509          KK CSR05D*
          510          KM   *REF COMBINE FROM VTN STUDY*
          511          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          512          KM  COMBINE RCSR02E AND SR05D-C
          513          KM  SMOKE RANCH AND DECATUR
          514          HC       2
                       *

          515          KKRCSR05D*
          516          KM   *REF ROUTE FROM VTN STUDY*
          517          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          518          KM  ROUTE CSR05D TO CSR05B
          519          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
          520          KM  FACILITY # = LVSR 0312,0360
          521          KM  LINING = RCB
          522          RD    2150  0.0075   0.015       0    TRAP      10       0
                       *

          523          KKSR05B-C*
          524          KM   *REF BASIN FROM VTN STUDY*
          525          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          526          BA   0.357
          527          PB    2.77
          528          LS       0    89.9
          529          UD   0.662
                       *

          530          KK CSR05B*
          531          KM   *REF POINT FROM VTN STUDY*
          532          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          533          KM  COMBINE RCSR05D AND SR05B-C
          534          KM  SMOKE RANCH AND RANCHO
          535          HC       2
                       *
1                                        HEC-1 INPUT                                                    PAGE 14

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          536          KKCCSR05B*
          537          KM   *REF POINT FROM VTN STUDY*
          538          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          539          KM  COMBINE RPD04B AND CSR05B
          540          KM  SMOKE RANCH AND RANCHO
          541          HC       2
                       *

          542          KKRCCSR05B*
          543          KM   *REF ROUTE FROM VTN STUDY*
          544          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          545          KM  ROUTE CCSR05B TO CB1-C
          546          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
          547          KM  FACILITY # = LVSR 0263,0273,0295
          548          KM  LINING = RCB
          549          RD    2357  0.0092   0.015       0    TRAP      11       0
                       *

          550          KK   B1-C*
          551          KM   *REF BASIN FROM VTN STUDY*
          552          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          553          BA   0.274
          554          PB    2.77
          555          LS       0    93.6
          556          UD   0.473
                       *

          557          KK  CB1-C*
          558          KM   *REF POINT FROM VTN STUDY*
          559          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          560          KM  COMBINE B1-C AND RCCSR05B
          561          KM  AIRPORT AND CAREY
          562          HC       2
                       *

          563          KK RCB1-C*
          564          KM   *REF ROUTE FROM VTN STUDY*
          565          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          566          KM  ROUTE CB1-C TO CB3-1
          567          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
          568          KM  FACILITY # = LVSR 0210,0221,0223
          569          KM  LINING = CONCRETE
          570          RD    3050  0.0096   0.015       0    TRAP      14     1.5
                       *

          571          KK  A1-C1*
          572          KM   *REF BASIN FROM VTN STUDY*
          573          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          574          BA   0.311
          575          PB    2.77
```

REFERENCE MATERIAL

```
          576          LS       0    91.5
          577          UD   0.449
                       *
1                                      HEC-1 INPUT                                                    PAGE 15

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          578          KK  DA1-C*
          579          KM   *REF ROUTE FROM VTN STUDY*
          580          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          581          KM  RETRIEVE DA1-C
          582          DR   DA1-C
                       *

          583          KK RDA1-C*
          584          KM   *REF ROUTE FROM VTN STUDY*
          585          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          586          KM  ROUTE DA1-C TO CA1-C
          587          KM  FACILITY = NORTH LAS VEGAS AIR TERMINAL
          588          KM  FACILITY # = LAAT 0146,0172,0182 AND OVERLAND FLOW (LAAT GEOMETRY ASSUMED)
          589          KM  LINING = CONCRETE
          590          RD    2090  0.0082   0.015       0    TRAP       6     1.5
                       *

          591          KK  CA1-C*
          592          KM   *REF POINT FROM VTN STUDY*
          593          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          594          KM  COMBINE RDA1-C AND A1-C
          595          HC       2
                       *

          596          KK  FN2-C*
          597          KM   *REF BASIN FROM VTN STUDY*
          598          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          599          BA   0.212
          600          PB    2.77
          601          LS       0    91.9
          602          UD   0.381
                       *

          603          KK RFN2-C*
          604          KM   *REF ROUTE FROM VTN STUDY*
          605          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          606          KM  ROUTE FN2-C TO CCA1-C
          607          KM  VALLEY DRIVE AND AIRPORT ROAD
          608          RD    2400  0.0036   0.016       0    TRAP       0      50
                       *

          609          KK CCA1-C*
          610          KM   *REF POINT FROM VTN STUDY*
          611          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          612          KM  COMBINE RCFN2-C AND CA1-C
          613          KM  COMBINE AT LAAT 0146
          614          HC       2
                       *
1                                      HEC-1 INPUT                                                    PAGE 16

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          615          KKRCCA-1C*
          616          KM   *REF ROUTE FROM VTN STUDY*
          617          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          618          KM  ROUTE CCA1-C TO CB3-2
          619          KM  FACILITY = NORTH LAS VEGAS AIR TERMINAL
          620          KM  FACILITY # = LAAT 0031,0062,0078,0098,0140,0146
          621          KM  LINING = RCB
          622          RD    5800   0.006   0.015       0    TRAP      10       0
                       *

          623          KKDCENTRAL*
          624          KM   *REF RETRIEVE FROM VTN STUDY
          625          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          626          KM  RETRIEVE DCENTRAL
          627          DRDCENTRAL
                       *

          628          KKRDCENTRA*
          629          KM   *REF ROUTE FROM VTN STUDY*
          630          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          631          KM  ROUTE DCENTRAL TO ALLEN AND CHEYENNE
          632          KM  GOWAN AND ALLEN
          633          RD    7920   0.004   0.016       0    TRAP       0      50
                       *

          634          KK  FN5-C*
          635          KM   *REF BASIN FROM VTN STUDY
          636          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          637          BA   0.477
          638          PB    2.77
          639          LS       0    89.8
          640          UD   0.572
                       *

          641          KK CFN5-C*
          642          KM   *REF COMBINE FROM VTN STUDY
          643          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          644          KM  COMBINE FN5-C AND RDCENTRA
          645          KM  ALLEN AND CHEYENNE
          646          HC       2
                       *

          647          KK DFN5-C*
          648          KM   *REF SPLIT FROM VTN STUDY*
          649          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          650          KM  FLOW SPLIT REFERENCED FROM SIMMONS ST IMPROVEMENT PROJECT
          651          KM  140 CFS FLOW FROM ALLEN/CHEYENNE GOES INTO AIRPORT 48" EQUIV HERCP
          652          KM  140 CFS BASED ON FLOWMASTER CAPACITY OF FACILITY
          653          KM  EXCESS FLOW CONTINUES EAST IN CHEYENNE
          654          DT    DR-C
          655          DI       0     140     500    1000
          656          DQ       0       0     360     860
                       *
1                                      HEC-1 INPUT                                                    PAGE 17

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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REFERENCE MATERIAL

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          657          KKRDFN5-C*
          658          KM   *REF BASIN FROM VTN STUDY*
          659          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          660          KM  ROUTE DFN5-C TO CB3-2
          661          KM  FACILITY = NORTH LAS VEGAS AIR TERMINAL
          662          KM  FACILITY # = LAAT 0031,0062,0078
          663          KM  LINING = RCB
          664          RD    3500   0.005   0.015       0    TRAP      10       0
                       *

          665          KK   B3-2*
          666          KM   *REF BASIN FROM VTN STUDY*
          667          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          668          BA   0.306
          669          PB    2.77
          670          LS       0    92.0
          671          UD   0.408
                       *

          672          KK  CB3-2*
          673          KM   *REF COMBINE FROM VTN STUDY*
          674          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          675          KM  COMBINE RDFN5-C, B3-2, AND RCCA-1C
          676          KM  COMBINE AT LAAT 0031
          677          HC       3
                       *

          678          KK RCB3-2*
          679          KM   *REF BASIN FROM VTN STUDY*
          680          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          681          KM  ROUTE CB3-2 TO CB3-1
          682          KM  FACILITY = NORTH LAS VEGAS AIR TERMINAL
          683          KM  FACILITY # = LAAT 0000,0006,0014,0031
          684          KM  LINING = RCB
          685          RD    2770  0.0105   0.015       0    TRAP      10       0
                       *

          686          KK   B3-1*
          687          KM   *REF BASIN FROM VTN STUDY
          688          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          689          BA   0.306
          690          PB    2.77
          691          LS       0    92.1
          692          UD   0.447
                       *

          693          KK  CB3-1*
          694          KM   *REF POINT FROM VTN STUDY
          695          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          696          KM  COMBINE RCB3-2 AND B3-1
          697          KM  COMBINE AT LAAT 0000
          698          HC       2
                       *
```



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        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          699          KK CCB3-1*
          700          KM   *REF POINT FROM VTN STUDY
          701          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          702          KM  COMBINE CB3-1 AND RCB1-C
          703          KM  COMBINATION NEAR CAREY-LAKE MEAD DETENTION BASIN
          704          HC       2
                       *

          705          KK   DR-C*
          706          KM   *REF RETRIEVE FROM VTN STUDY
          707          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          708          KM  RETRIEVE DR-C
          709          DR    DR-C
                       *

          710          KK  RDR-C*
          711          KM   *REF ROUTE FROM VTN STUDY*
          712          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          713          KM  ROUTE DR-C TO CR-C
          714          KM  ROUTE AND CHEYENNE AND THROUGH NORTHEAST PORTION OF R2-CA
          715          KM  FLOW WILL ENTER LAAS SYSTEM 1500 FT SOUTH OF CHEYENNE ON SIMMONS
          716          RD    3300   0.007   0.016       0    TRAP       0      50
                       *

          717          KK    R-C*
          718          KM   *REF BASIN FROM VTN STUDY*
          719          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          720          BA   0.266
          721          PB    2.77
          722          LS       0    90.3
          723          UD   0.328
                       *

          724          KK   RR-C*
          725          KM   *REF ROUTE FROM VTN STUDY*
          726          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          727          KM  ROUTE R-C TO CR-C
          728          KM  FACILITY = NORTH LAS VEGAS AIR TERMINAL - SIMMONS
          729          KM  FACILITY # = LAAS 0080,0083,0095,0103
          730          KM  LINING = RCP
          731          RD    1582   0.014   0.013       0    CIRC       5
                       *

          732          KK   CR-C*
          733          KM   *REF POINT FROM VTN STUDY*
          734          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          735          KM  COMBINE RR-C AND RDR-C
          736          KM  COMBINATION AT SIMMONS ST, 1500 FT SOUTH OF CHEYENNE
          737          HC       2
                       *
```



```
        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          738          KK  RCR-C*
          739          KM   *REF ROUTE FROM VTN STUDY*
          740          KM   *CENTRAL FREEWAY CHANNEL REPORT*
          741          KM  ROUTE CR-C TO CR2-CA
```


REFERENCE MATERIAL

```
742          KM  FACILITY = NORTH LAS VEGAS AIR TERMINAL - SIMMONS
743          KM  FACILITY # = LAAS 0000,0014,0040
744          KM  LINING = RCB
745          RD    4215  0.0112   0.015       0    TRAP      12       0
             *

746          KK  R2-CA*
747          KM   *REF BASIN FROM VTN STUDY*
748          KM   *CENTRAL FREEWAY CHANNEL REPORT*
749          BA   0.447
750          PB    2.77
751          LS       0    91.8
752          UD   0.345
             *

753          KK CR2-CA*
754          KM   *REF POINT FROM VTN STUDY*
755          KM   *CENTRAL FREEWAY CHANNEL REPORT*
756          KM  COMBINE R2-CA AND RCR-C
757          KM  CAREY AND SIMMONS
758          HC       2
             *

759          KK LM02-C*
760          KM   *REF BASIN FROM VTN STUDY*
761          KM   *CENTRAL FREEWAY CHANNEL REPORT*
762          BA   0.293
763          PB    2.77
764          LS       0    85.0
765          UD   0.367
             *

766          KKRLM02-C*
767          KM   *REF ROUTE FROM VTN STUDY*
768          KM   *CENTRAL FREEWAY CHANNEL REPORT*
769          KM  ROUTE LM02-C TO CLM03-C
770          KM  FACILITY = LAS VEGAS WASH - LAKE MEAD
771          KM  FACILITY # = LVLM 0442,0453,0460
772          KM  LINING = RCP
773          RD    2778  0.0205   0.013       0    CIRC     4.5
             *

774          KK LM03-C*
775          KM   *REF BASIN FROM VTN STUDY*
776          KM   *CENTRAL FREEWAY CHANNEL REPORT*
777          BA   0.336
778          PB    2.77
779          LS       0    91.0
780          UD   0.376
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

781          KKCLM03-C*
782          KM   *REF POINT FROM VTN STUDY
783          KM   *CENTRAL FREEWAY CHANNEL REPORT*
784          KM  COMBINE RCLM02-C AND LM03-C
785          KM  MICHAEL AND LAKE MEAD
786          HC       2
             *

787          KKRCLM03-C*
788          KM   *REF ROUTE FROM VTN STUDY*
789          KM   *CENTRAL FREEWAY CHANNEL REPORT*
790          KM  ROUTE CLM03-C TO CLM05-C
791          KM  FACILITY = LAS VEGAS WASH - LAKE MEAD
792          KM  FACILITY # = LVLM 0388,0399,0416
793          KM  LINING = RCP
794          RD    2640    0.01   0.013       0    CIRC       6
             *

795          KK LM05-C*
796          KM   *REF BASIN FROM VTN STUDY*
797          KM   *CENTRAL FREEWAY CHANNEL REPORT*
798          BA   0.368
799          PB    2.77
800          LS       0    88.2
801          UD   0.387
             *

802          KKCLM05-C*
803          KM   *REF POINT FROM VTN STUDY*
804          KM   *CENTRAL FREEWAY CHANNEL REPORT*
805          KM  COMBINE RCLM03-C AND LM05-C
806          KM  DECATUR AND LAKE MEAD
807          HC       2
             *

808          KKOG011AC2*
809          KM   *REF BASIN FROM VTN STUDY*
810          KM   *CENTRAL FREEWAY CHANNEL REPORT*
811          BA   0.120
812          PB    2.77
813          LS       0    92.0
814          UD   0.219
             *

815          KK OG011D*
816          KM   *REF SPLIT FROM VTN STUDY*
817          KM   *CENTRAL FREEWAY CHANNEL REPORT*
818          KM  DIVERT 45 CFS EAST TOWARD RAINBOW IN SD
819          KM  BASED ON FINAL OVERALL PROJECT DRAINAGE DESIGN REPORT
820          KM  FOR US 95 WIDENING BY VTN (MAY 2003)
821          DT OG011AD
822          DI       0      45     100     50099410000
823          DQ       0      45      45      45    4545
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

824          KKROG011D*
825          KM   *REF ROUTE FROM VTN STUDY*
826          KM   *CENTRAL FREEWAY CHANNEL REPORT*
827          KM  ROUTE OG011D TO CVG02-C
```


REFERENCE MATERIAL

```
 828          KM  US95 TO VEGAS DRIVE
 829          RD    5900   0.011   0.016       0    TRAP       0      50
              *

 830          KKOG011A-C*
 831          KM   *REF BASIN FROM VTN STUDY*
 832          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 833          BA   0.313
 834          PB    2.77
 835          LS       0    81.4
 836          UD   0.413
              *

 837          KKROG011A*
 838          KM   *REF ROUTE FROM VTN STUDY*
 839          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 840          KM  ROUTE OG011A-C TO CVG02-C
 841          KM  VEGAS DRIVE
 842          RD    3200  0.0172   0.016       0    TRAP       0      50
              *

 843          KK VG02-C*
 844          KM   *REF BASIN FROM VTN STUDY*
 845          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 846          BA   0.242
 847          PB    2.77
 848          LS       0    83.0
 849          UD   0.383
              *

 850          KKCVG02-C*
 851          KM   *REF POINT FROM VTN STUDY*
 852          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 853          KM  COMBINE ROG011A, RDOG011A, AND VG02-C
 854          KM  TORREY PINES AND VEGAS DRIVE
 855          HC       3
              *

 856          KK RCVG02*
 857          KM   *REF ROUTE FROM VTN STUDY*
 858          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 859          KM  ROUTE CVG02-C TO CVG03-C
 860          KM  FACILITY = OWENS AVENUE SYSTEM
 861          KM  FACILITY # = LVOW 0460
 862          KM  LINING = RCB
 863          RD    2700  0.0148   0.015       0    TRAP       7       0
              *
```

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 864          KK VG03-C*
 865          KM   *REF BASIN FROM VTN STUDY*
 866          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 867          BA   0.279
 868          PB    2.77
 869          LS       0    80.2
 870          UD   0.400
              *

 871          KKCVG03-C*
 872          KM   *REF POINT FROM VTN STUDY*
 873          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 874          KM  COMBINE RCVG02 AND VG03-C
 875          KM  JONES AND VEGAS DRIVE
 876          HC       2
              *

 877          KK RCVG03*
 878          KM   *REF ROUTE FROM VTN STUDY*
 879          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 880          KM  ROUTE CVG03-C TO CVG04-C
 881          KM  FACILITY = OWENS AVENUE SYSTEM
 882          KM  FACILITY # = LVOW 0351,0360
 883          KM  LINING = RCB
 884          RD    5300  0.0148   0.015       0    TRAP       8       0
              *

 885          KK VG04-C*
 886          KM   *REF BASIN FROM VTN STUDY*
 887          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 888          BA   0.305
 889          PB    2.77
 890          LS       0    91.0
 891          UD   0.506
              *

 892          KKCVG04-C*
 893          KM   *REF POINT FROM VTN STUDY*
 894          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 895          KM  COMBINE RCVG03 AND VG04-C
 896          KM  DECATUR AND VEGAS DRIVE
 897          HC       2
              *

 898          KKDCVG04-C*
 899          KM   *REF SPLIT FROM VTN STUDY*
 900          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 901          KM  DIVERT 164 CFS EAST ON VEGAS
 902          KM  REMAINING FLOW CONTINUES NORTH IN LMDE 0000 ON DECATUR
 903          DT  DVG20C
 904          DI       0     164    1000    2000
 905          DQ       0     164     164     164
              *
```

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 906          KKRDCVG04C*
 907          KM   *REF ROUTE FROM VTN STUDY*
 908          KM   *CENTRAL FREEWAY CHANNEL REPORT*
 909          KM  ROUTE DCVG04-C TO CCLM05-C
 910          KM  FACILITY = LAKE MEAD - DECATUR
 911          KM  FACILITY # = LMDE 0000
 912          KM  LINING = RCB
 913          RD    2640   0.009   0.015       0    TRAP      10       0
```


REFERENCE MATERIAL

```
                  *
 914              KKCCLM05-C*
 915              KM   *REF POINT FROM VTN STUDY*
 916              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 917              KM  COMBINE RDCVG04C AND CLM05-C
 918              KM  DECATUR AND LAKE MEAD
 919              HC       2
                  *
 920              KKRCCLM05C*
 921              KM   *REF ROUTE FROM VTN STUDY*
 922              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 923              KM  ROUTE CCLM05-C TO CLM06-C
 924              KM  FACILITY = LAS VEGAS WASH - LAKE MEAD
 925              KM  FACILITY # = LVLM 0337,0356
 926              KM  LINING = RCB
 927              RD    2890  0.0116   0.015       0    TRAP      12       0
                  *
 928              KKLM06B-C*
 929              KM   *REF BASIN FROM VTN STUDY*
 930              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 931              BA   0.355
 932              PB    2.77
 933              LS       0    89.7
 934              UD   0.468
                  *
 935              KKCLM06-C*
 936              KM   *REF POINT FROM VTN STUDY*
 937              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 938              KM  COMBINE RCCLM05C AND LM06B-C
 939              KM  RANCHO AND LAKE MEAD
 940              HC       2
                  *
 941              KK RCLM06*
 942              KM   *REF ROUTE FROM VTN STUDY
 943              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 944              KM  ROUTE CLM06-C TO CLM10-C
 945              KM  FACILITY = LAS VEGAS WASH - LAKE MEAD
 946              KM  FACILITY # = LVLM 0226,0271
 947              KM  LINING = RCB
 948              RD    4114  0.0135   0.015       0    TRAP      12       0
                  *
1                                      HEC-1 INPUT                                      PAGE 24

            LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 949              KK LM10-C*
 950              KM   *REF BASIN FROM VTN STUDY*
 951              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 952              BA   0.409
 953              PB    2.77
 954              LS       0    90.6
 955              UD   0.368
                  *
 956              KKCLM10-C*
 957              KM   *REF POINT FROM VTN STUDY*
 958              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 959              KM  COMBINE RCLM06 AND LM10-C
 960              HC       2
                  *
 961              KKCARYLMIN*
 962              KM   *REF POINT FROM VTN STUDY*
 963              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 964              KM  COMBINE CCB3-1,CR2-CA, AND CLM10-C
 965              KM  CAREY-LAKE MEAD DETENTION BASIN TOTAL INFLOW
 966              HC       3
                  *
 967              KKCARYLMDB*
 968              KM   *REF BASIN FROM VTN STUDY
 969              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 970              KM  CAREY-LAKE MEAD DETENTION BASIN
 971              KM  FACILITY = LAS VEGAS WASH - LAKE MEAD
 972              KM  FACILITY # = LVLM 0228
 973              KM  STORAGE VOLUME = 607 ACRE-FEET
 974              KM  OUTLET = 2-48" RCP
 975              KM  100-YEAR DISCHARGE = 377 CFS
 976              KM  SPILLWAY LENGTH =
 977              KM  SPILLWAY HEIGHT =
 978              KM  SPILLWAY CREST ELEVATION = 2118.5'
 979              KM  SPILLWAY TYPE =
 980              KM  PMF DISCHARGE =
 981              KM  TOP OF EMBANKMENT ELEVATION = 2120.8'
                  * FROM MONTGOMERY WATSON
 982              RS       1    FLOW      -1
 983              SV       0       9      55     150     274     419     541     585     607     629
 984              SE      92      98     102     106     110     114     117     118   118.5     119
 985              SQ       0      60      90     135     150     215     350     375     380    1000
                  *
 986              KK DCAREY*
 987              KM   *REF SPLIT FROM VTN STUDY*
 988              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 989              KM  FLOW SPLIT TO SMOKE RANCH FACILITY
 990              KM  DIBAS IN CWH
 991              DT     DR2
 992              DI       0      41      92     160     206     300     373     500    1000    5000
 993              DQ       0       1       1       1       1      95     168     168     168     168
                  *
1                                      HEC-1 INPUT                                      PAGE 25

            LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 994              KKRDCAREY*
 995              KM   *REF ROUTE FROM VTN STUDY*
 996              KM   *CENTRAL FREEWAY CHANNEL REPORT*
 997              KM  ROUTE DCAREY TO CLM16A-C
 998              KM  FACILITY = LAS VEGAS WASH -  LAKE MEAD
 999              KM  FACILITY # = LVLM 0170,0222
1000              KM  LINING = RCP
```

REFERENCE MATERIAL

```
1001          RD    2921  0.0117   0.013       0    CIRC     6.5
              *

1002          KK  DFLOW*
1003          KM   *REF SPLIT FROM VTN STUDY*
1004          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1005          KM  DIVERT ALL FLOW OUT
1006          KM  FOR STORM CENTERING
1007          DT   DFLOW
1008          DI       0     100     500     994   10000
1009          DQ       0     100     500     994   10000
              *

1010          KKLM16A-C*
1011          KM   *REF BASIN FROM VTN STUDY*
1012          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1013          BA   0.379
1014          PB    2.77
1015          LS       0    90.6
1016          UD   0.383
              *

1017          KKCLM16A-C*
1018          KM   *REF COMBINE FROM VTN STUDY*
1019          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1020          KM  COMBINE RDCAREY AND LM16A-C
1021          KM  TONOPAH AND LAKE MEAD
1022          HC       2
              *

1023          KKRCLM16A*
1024          KM   *REF ROUTE FROM VTN STUDY*
1025          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1026          KM  ROUTE CLM16A-C TO CLM14-C
1027          KM  FACILITY = LAS VEGAS WASH - LAKE MEAD
1028          KM  FACILITY # = LVLM 0060
1029          KM  LINING = RCB
1030          RD    3000  0.0066   0.015       0    TRAP      12       0
              *

1031          KK LM14-C*
1032          KM   *REF BASIN FROM VTN STUDY*
1033          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1034          BA   0.342
1035          PB    2.77
1036          LS       0    85.0
1037          UD   0.392
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1038          KKCLM14-C*
1039          KM   *REF POINT FROM VTN STUDY*
1040          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1041          KM  COMBINE RCLM16A AND LM14-C
1042          KM  MARTIN LUTHER KING AND LAKE MEAD
1043          HC       2
              *

1044          KK  RCLM14
1045          KM   *REF ROUTE FROM VTN STUDY*
1046          KM  ROUTE CLM14-C TO CLM20-C
1047          KM  FACILITY = LAS VEGAS WASH - LAKE MEAD
1048          KM  FACILITY # = LVLM 0060
1049          KM  LINING = RCB
1050          RD    2950  0.0066   0.015       0    TRAP      12       0
              *

1051          KK   LM19*
1052          KM   *REF BASIN FROM VTN STUDY*
1053          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1054          BA   0.256
1055          PB    2.77
1056          LS       0    84.8
1057          UD   0.483
              *

1058          KK   RLM19
1059          KM   *REF ROUTE FROM VTN STUDY*
1060          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1061          KM  ROUTE LM19 TO CLM20-C
1062          KM  BALZAR TO H STREET
1063          RD    4100  0.0054   0.016       0    TRAP       0      50
              *

1064          KK LM20-C*
1065          KM   *REF BASIN FROM VTN STUDY*
1066          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1067          BA   0.383
1068          PB    2.77
1069          LS       0    86.1
1070          UD   0.403
              *

1071          KKCLM20-C*
1072          KM   *REF POINT FROM VTN STUDY*
1073          KM  COMBINE RLM19, RCLM14, AND LM20-C
1074          KM  LAKE MEAD AND H STREET
1075          HC       3
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1076          KK RCLM20*
1077          KM   *REF ROUTE FROM VTN STUDY*
1078          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1079          KM  ROUTE CLM20-C TO CCVG24
1080          KM  FACILITY = LAS VEGAS WASH - LAKE MEAD
1081          KM  FACILITY # = LVLM 0001,0017,0034
1082          KM  LINING = RCB
1083          RD    2998  0.0162   0.015       0    TRAP      12       0
              *

1084          KK DVG20C*
```

PREFERENCE MATERIAL

```
1085          KM   *REF RETRIEVE FROM VTN STUDY*
1086          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1087          KM  RETRIEVE DVG20C
1088          DR  DVG20C
              *

1089          KKRDVG20C*
1090          KM   *REF ROUTE FROM VTN STUDY*
1091          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1092          KM  ROUTE DVG20C TO CVG20-C
1093          KM  FACILITY = OWENS AVENUE SYSTEM
1094          KM  FACILITY # = LVOW 0241
1095          KM  LINING = RCP
1096          RD    5800   0.014   0.013       0    CIRC     5.5
              *

1097          KK VG20-C*
1098          KM   *REF BASIN FROM VTN STUDY*
1099          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1100          BA   0.305
1101          PB    2.77
1102          LS       0    86.8
1103          UD   0.469
              *

1104          KKCVG20-C*
1105          KM   *REF COMBINE FROM VTN STUDY*
1106          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1107          KM  COMBINE RDVG20C AND VG20-C
1108          KM  RANCHO AND VEGAS DRIVE
1109          HC       2
              *

1110          KK LM09-C*
1111          KM   *REF BASIN FROM VTN STUDY*
1112          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1113          BA   0.455
1114          PB    2.77
1115          LS       0    90.9
1116          UD   0.317
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1117          KKDLM09-C*
1118          KM   *REF SPLIT FROM VTN STUDY*
1119          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1120          KM  SAME AS DVG21 FROM CWH
1121          KM  DIVERSION AT RANCHO AND HOLLY
1122          KM  FLOW IS DIVERTED ACROSS RANCHO TO HOLLY
1123          KM  REMAINING FLOW CONTINUES SOUTHEAST IN RANCHO TO CVG20-C
1124          DT  DHOLLY
1125          DI       0      51     201     300     400     500     600     800    1000
1126          DQ       0       1       1     100     200     300     350     450     550
              *

1127          KKRDLM09-C*
1128          KM   *REF ROUTE FROM VTN STUDY*
1129          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1130          KM  ROUTE DLM09-C TO CCVG20-C
1131          KM  RANCHO
1132          RD    2200  0.0136   0.016       0    TRAP       0      50
              *

1133          KKCCVG20-C*
1134          KM   *REF POINT FROM VTN STUDY*
1135          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1136          KM  COMBINE RDLM09-C AND CVG20-C
1137          KM  RANCHO AND VEGAS DRIVE
1138          HC       2
              *

1139          KKDCVG20-C*
1140          KM   *REF SPLIT FROM VTN STUDY*
1141          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1142          KM  CAPACITY OF PIPE IN VEGAS = 570 CFS
1143          DT    LV15
1144          DI       0     570    1000    2000
1145          DQ       0       0     430    1430
              *

1146          KKRDCVG20C*
1147          KM   *REF ROUTE FROM VTN STUDY*
1148          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1149          KM  ROUTE DCVG20-C TO CLM16B-C
1150          KM  FACILITY = OWENS AVENUE SYSTEM
1151          KM  FACILITY # = LVOW 0003, 0146
1152          KM  LINING = RCP
1153          RD    7450   0.009   0.013       0    CIRC       7
              *

1154          KK DHOLLY*
1155          KM   *REF RETRIEVE FROM VTN STUDY*
1156          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1157          KM  RETRIEVE DHOLLY
1158          DR  DHOLLY
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1159          KKRDHOLLY*
1160          KM   *REF ROUTE FROM VTN STUDY*
1161          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1162          KM  ROUTE DHOLLY TO CLM16B-C
1163          KM  THIS FLOW WILL COMBINE IN LVOW 0146 NEAR FERRELL ST
1164          RD    9600  0.0054   0.016       0    TRAP       0      50
              *

1165          KKLM16B-C*
1166          KM   *REF BASIN FROM VTN STUDY*
1167          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1168          BA   0.378
1169          PB    2.77
1170          LS       0    88.8
```


REFERENCE MATERIAL

```
1171          UD   0.602
              *

1172          KKCLM16B-C*
1173          KM   *REF POINT FROM VTN STUDY*
1174          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1175          KM  COMBINE RDCVG20C, RDHOLLY, AND LM16B-C
1176          KM  MARTIN LUTHER KING AND VEGAS DRIVE
1177          HC       3
              *

1178          KKRCLM16B*
1179          KM   *REF ROUTE FROM VTN STUDY*
1180          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1181          KM  ROUTE CLM16B-C TO CVG10-C
1182          KM  FACILITY = OWENS AVENUE SYSTEM
1183          KM  FACILITY # = LVOW 0000,0003
1184          KM  LINING = RCP
1185          RD    4995   0.007   0.013       0    CIRC       8
              *

1186          KKOG011AD*
1187          KM   *REF RETRIEVE FROM VTN STUDY*
1188          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1189          KM  RETRIEVE OG011AD
1190          DR OG011AD
              *

1191          KKROG011AD*
1192          KM   *REF ROUTE FROM VTN STUDY*
1193          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1194          KM  ROUTE OG011AD TO CWA01-C
1195          KM  WASHINGTON
1196          RD    3200  0.0171   0.016       0    TRAP       0      50
              *
1                                      HEC-1 INPUT                                          PAGE 30

          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1197          KK WA01-C*
1198          KM   *REF BASIN FROM VTN STUDY*
1199          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1200          BA   0.195
1201          PB    2.77
1202          LS       0    88.7
1203          UD   0.249
              *

1204          KKCWA01-C*
1205          KM   *REF POINT FROM VTN STUDY*
1206          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1207          KM  COMBINE ROG011AD AMD WA01-C
1208          KM  TORREY PINES AND WASHINGTON
1209          HC       2
              *

1210          KK  RWA01*
1211          KM   *REF ROUTE FROM VTN STUDY*
1212          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1213          KM  ROUTE WA01-C TO CWA04-C
1214          KM  WASHINGTON
1215          RD    5300  0.0142   0.016       0    TRAP       0      50
              *

1216          KK WA04-C*
1217          KM   *REF BASIN FROM VTN STUDY*
1218          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1219          BA   0.197
1220          PB    2.77
1221          LS       0    87.7
1222          UD   0.474
              *

1223          KKCWA04-C*
1224          KM   *REF POINT FROM VTN STUDY*
1225          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1226          KM  COMBINE RWA01 AND WA04-C
1227          KM  MICHAEL AND WASHINGTON
1228          HC       2
              *

1229          KK RCWA04*
1230          KM   *REF ROUTE FROM VTN STUDY*
1231          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1232          KM  ROUTE CWA04-C TO CWA09-C
1233          KM  FACILITY = FREEWAY CHANNEL
1234          KM  FACILITY # = LV15 0602
1235          KM  LINING = RCP
1236          RD    5980  0.0159   0.013       0    CIRC       8
              *
1                                      HEC-1 INPUT                                          PAGE 31

          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1237          KK WA09-C*
1238          KM   *REF BASIN FROM VTN STUDY*
1239          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1240          BA   0.101
1241          PB    2.77
1242          LS       0    91.3
1243          UD   0.363
              *

1244          KKCWA09-C*
1245          KM   *REF POINT FROM VTN STUDY*
1246          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1247          KM  COMBINE RCWA04 AND WA09-C
1248          KM  VALLEY VIEW AND WASHINGTON
1249          HC       2
              *

1250          KK RCWA09*
1251          KM   *REF ROUTE FROM VTN STUDY*
1252          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1253          KM  ROUTE CWA09-C TO CWA10NW
1254          KM  FACILITY = FREEWAY CHANNEL
```

REFERENCE MATERIAL

```
1255          KM  FACILITY # = LV15 0528
1256          KM  LINING = RCB
1257          RD     700  0.0119   0.015       0    TRAP       8
              *

1258          KK WA10-C*
1259          KM   *REF BASIN FROM VTN STUDY*
1260          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1261          BA   0.447
1262          PB    2.77
1263          LS       0    87.8
1264          UD   0.367
              *

1265          KK  WA10D*
1266          KM   *REF SPLIT FROM VTN STUDY*
1267          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1268          KM  FLOW SPLIT TO SOUTHWEST CENTRAL BASIN
1269          KM  OPPOSITE SPLIT OF WA10NW IN SOUTHWEST CENTRAL BASIN FLOW
1270          KM  FROM FINAL OVERALL PROJECT DRAINAGE DESIGN REPORT BY VTN (MAY 2003)
1271          KM  CAPACITY OF CHANNEL = 250 CFS IS DIVERTED
1272          KM  EXCESS FLOW CONTINUES DOWN WASHINGTON
1273          DT  WA10SE
1274          DI       0      10     250     275     300     800    1000    3000
1275          DQ       0      10     250     250     250     250     250     250
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1276          KKCWA10NW*
1277          KM   *REF COMBINE FROM VTN STUDY*
1278          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1279          KM  COMBINE RCWA09 AND WA10D
1280          KM  VALLEY VIEW AND WASHINGTON
1281          HC       2
              *

1282          KKRCWA10NW*
1283          KM   *REF ROUTE FROM VTN STUDY*
1284          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1285          KM  ROUTE CWA10NW TO CWA13-C
1286          KM  FACILITY = FREEWAY CHANNEL
1287          KM  FACILITY # = LV15 0528
1288          KM  LINING = RCB
1289          RD    4420  0.0119   0.015       0    TRAP       8       0
              *

1290          KK WA13-C*
1291          KM   *REF BASIN FROM VTN STUDY*
1292          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1293          BA   0.333
1294          PB    2.77
1295          LS       0    89.8
1296          UD   0.264
              *

1297          KKCWA13-C*
1298          KM   *REF POINT FROM VTN STUDY*
1299          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1300          KM  COMBINE RCWA10NW AND WA13-C
1301          KM  RANCHO DRIVE AND WASHINGTON
1302          HC       2
              *

1303          KK DCWA13*
1304          KM   *REF SPLIT FROM VTN STUDY*
1305          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1306          KM  FLOW SPLIT TO SOUTHWEST CENTRAL BASIN
1307          KM  RANCHO AND WASHINGTON
1308          KM  REFERENCED FROM US-95 WIDENING PROJECT
1309          KM  FINAL OVERALL PROJECT DRAINAGE DESIGN REPORT BY VTN (MAY 2003)
1310          DT  WA13SE
1311          DI       0     500     812    1000    1200
1312          DQ       0     303     490     609     727
              *

1313          KK   LV15*
1314          KM   *REF RETRIEVE FROM VTN STUDY*
1315          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1316          KM  RETRIEVE LV15
1317          DR    LV15
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1318          KK  RLV15*
1319          KM   *REF ROUTE FROM VTN STUDY*
1320          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1321          KM  ROUTE LV15 TO CCWA13-C
1322          KM  RANCHO
1323          RD    3300  0.0045   0.016       0    TRAP       0      50
              *

1324          KKCCWA13-C*
1325          KM   *REF POINT FROM VTN STUDY*
1326          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1327          KM  COMBINE RLV15 AND DCWA13
1328          KM  TONOPAH AND WASHINGTON
1329          HC       2
              *

1330          KK RCWA13*
1331          KM   *REF ROUTE FROM VTN STUDY*
1332          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1333          KM  ROUTE CCWA13-C TO CWA15-C
1334          KM  FACILITY = FREEWAY CHANNEL
1335          KM  FACILITY # = LV15 0424,0474
1336          KM  LINING = RCB
1337          RD    5380  0.0073   0.015       0    TRAP       8       0
              *

1338          KKWA15A-C*
1339          KM   *REF BASIN FROM VTN STUDY*
1340          KM   *CENTRAL FREEWAY CHANNEL REPORT*
```

REFERENCE MATERIAL

```
1341          BA   0.374
1342          PB    2.77
1343          LS       0    88.2
1344          UD   0.589
              *

1345          KKCWA15A-C*
1346          KM   *REF POINT FROM VTN STUDY*
1347          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1348          KM  COMBINE RCWA13 AND WA15A-C
1349          KM  MARTIN LUTHER KING AND WASHINGTON
1350          HC       2
              *

1351          KK   VG07*
1352          KM   *REF BASIN FROM VTN STUDY*
1353          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1354          BA   0.261
1355          PB    2.77
1356          LS       0    81.4
1357          UD   0.472
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1358          KK  RVG07*
1359          KM   *REF ROUTE FROM VTN STUDY*
1360          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1361          KM  ROUTE VG07 TO CVG07
1362          KM  MARTIN LUTHER KING
1363          RD    1320   0.005   0.016       0    TRAP       0      50
              *

1364          KK  CVG07*
1365          KM   *REF POINT FROM VTN STUDY*
1366          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1367          KM  COMBINE RVG07 AND CWA15A-C
1368          KM  MARTIN LUTHER KING AND WASHINGTON
1369          HC       2
              *

1370          KK RCVG07*
1371          KM   *REF ROUTE FROM VTN STUDY*
1372          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1373          KM  ROUTE CVG07 TO CWA20-C
1374          KM  FACILITY = FREEWAY CHANNEL
1375          KM  FACILITY # = LV15 0316,0372,0409
1376          KM  LINING = RCB
1377          RD    5100  0.0066   0.015       0    TRAP       9       0
              *

1378          KK WA20-C*
1379          KM   *REF BASIN FROM VTN STUDY*
1380          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1381          BA   0.527
1382          PB    2.77
1383          LS       0    88.9
1384          UD   0.628
              *

1385          KKCWA20-C*
1386          KM   *REF POINT FROM VTN STUDY*
1387          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1388          KM  COMBINE RCVG07 AND WA20-C
1389          KM  FREEWAY CHANNEL AND WASHINGTON
1390          HC       2
              *

1391          KKRCWA20-C*
1392          KM   *REF ROUTE FROM VTN STUDY*
1393          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1394          KM  ROUTE CWA20-C TO CCVG10
1395          KM  FACILITY = FREEWAY CHANNEL
1396          KM  FACILITY # = LV15 0284,0316
1397          KM  LINING = RCB
1398          RD    2490   0.005   0.015       0    TRAP      14       0
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1399          KK VG10-C*
1400          KM   *REF BASIN FROM VTN STUDY*
1401          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1402          BA   0.388
1403          PB    2.77
1404          LS       0    87.2
1405          UD   0.517
              *

1406          KKCVG10-C*
1407          KM   *REF POINT FROM VTN STUDY*
1408          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1409          KM  COMBINE VG10-C AND RCWA20
1410          HC       2
              *

1411          KK CCVG10*
1412          KM   *REF POINT FROM VTN STUDY*
1413          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1414          KM  COMBINE CVG10-C AND RCLM16B
1415          KM  FREEWAY CHANNEL AND OWENS
1416          HC       2
              *

1417          KKDCCVG10*
1418          KM   *REF SPLIT FROM VTN STUDY*
1419          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1420          KM  DIVERT FLOW TO FREEWAY CHANNEL ALONG RAILROAD
1421          KM  VIA 50% SPLITTER STRUCTURE
1422          KM  BASED ON CENTRAL FREEWAY CHANNEL PROJECT BY VTN
1423          DT DRAILRD
1424          DI       0    1000    2040   10000
1425          DQ       0     500    1020    5000
              *
```

REFERENCE MATERIAL

```
1426          KKRDCCVG10*
1427          KM   *REF ROUTE FROM VTN STUDY*
1428          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1429          KM  ROUTE DCCVG10 TO CVG24
1430          KM  FACILITY = LAS VEGAS WASH - COMMERCE STREET
1431          KM  FACILITY # = LVCS 0000, 0015
1432          KM  LINING = RCB
1433          RD    3125  0.0097   0.015       0    TRAP      12       0
              *

1434          KK VG24-C*
1435          KM   *REF BASIN FROM VTN STUDY*
1436          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1437          BA   0.481
1438          PB    2.77
1439          LS       0    89.6
1440          UD   0.491
              *
1                                        HEC-1 INPUT                                                    PAGE 36

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1441          KK  CVG24*
1442          KM   *REF POINT FROM VTN STUDY*
1443          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1444          KM  COMBINE VG24-C AND RDCCVG10
1445          KM  FREEWAY CHANNEL AND LAKE MEAD
1446          HC       2
              *

1447          KKDRAILRD*
1448          KM   *REF RETRIEVE FROM VTN STUDY*
1449          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1450          KM  RETRIEVE DRAILRD
1451          DR DRAILRD
              *

1452          KKRDRAILRD
1453          KM   *REF ROUTE FROM VTN STUDY*
1454          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1455          KM  ROUTE DRAILRD TO CCVG24
1456          KM  FACILITY = FREEWAY CHANNEL
1457          KM  FACILITY # = LV15 0231, 0248, 0255, 0280
1458          KM  LINING = CONCRETE
1459          RD    2780    0.02   0.015       0    TRAP       8       0
              *

1460          KK CCVG24*
1461          KM   *REF POINT FROM VTN STUDY*
1462          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1463          KM  COMBINE CVG24, RDRAILRD, AND RCLM20
1464          KM  FREEWAY CHANNEL AND LAKE MEAD
1465          HC       3
              *

1466          KKRCCVG24*
1467          KM   *REF ROUTE FROM VTN STUDY*
1468          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1469          KM  ROUTE CCVG24 TO CW1C2
1470          KM  FACILITY = FREEWAY CHANNEL
1471          KM  FACILITY # = LV15 0210
1472          KM  LINING = RCB
1473          RD     900  0.0018   0.015       0    TRAP      36       0
              *

1474          KK    DR2*
1475          KM   *REF RETRIEVE FROM VTN STUDY*
1476          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1477          KM  RETRIEVE DR2
1478          DR     DR2
              *
1                                        HEC-1 INPUT                                                    PAGE 37

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1479          KK  DFLOW*
1480          KM   *REF SPLIT FROM VTN STUDY*
1481          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1482          KM  DIVERT ALL FLOW OUT
1483          KM  FOR STORM CENTERING
1484          DT   DFLOW
1485          DI       0     100     500     994   10000
1486          DQ       0     100     500     994   10000
              *

1487          KK   RDR2*
1488          KM   *REF ROUTE FROM VTN STUDY*
1489          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1490          KM  ROUTE DR2 TO CR2-C
1491          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
1492          KM  FACILITY # = LVSR 0198,0209 AND LVLM 0221
1493          KM  LINING = RCB
1494          RD    2911  0.0141   0.015       0    TRAP       7       0
              *

1495          KK   R2-C*
1496          KM   *REF BASIN FROM VTN STUDY*
1497          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1498          BA   0.380
1499          PB    2.77
1500          LS       0    92.4
1501          UD   0.319
              *

1502          KK  CR2-C*
1503          KM   *REF POINT FROM VTN STUDY*
1504          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1505          KM  COMBINE RDR2 AND R2-C
1506          KM  CLAYTON AND CAREY
1507          HC       2
              *

1508          KK RCR2-C*
1509          KM   *REF ROUTE FROM VTN STUDY*
1510          KM   *CENTRAL FREEWAY CHANNEL REPORT*
```

PREFERENCE MATERIAL

```
1511          KM  ROUTE CR2-C TO CS
1512          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
1513          KM  FACILITY # = LVSR 0149
1514          KM  LINING = RCB
1515          RD    2100  0.0058   0.015       0    TRAP      11       0
              *

1516          KK      S*
1517          KM   *REF BASIN FROM VTN STUDY*
1518          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1519          BA   0.569
1520          PB    2.77
1521          LS       0    89.9
1522          UD   0.395
              *
1                                       HEC-1 INPUT                                                PAGE 38

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1523          KK     CS*
1524          KM   *REF POINT FROM VTN STUDY*
1525          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1526          KM  COMBINE S AND RCR2-C
1527          KM  NEAR MARTIN LUTHER KING AND CAREY
1528          HC       2
              *

1529          KK    RCS*
1530          KM   *REF ROUTE FROM VTN STUDY*
1531          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1532          KM  ROUTE CS TO CS1-C
1533          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
1534          KM  FACILITY # = LVSR 0046,0071,0149
1535          KM  LINING = RCB
1536          RD    5785  0.0073   0.015       0    TRAP      10       0
              *

1537          KK   S1-C*
1538          KM   *REF BASIN FROM VTN STUDY*
1539          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1540          BA   0.470
1541          PB    2.77
1542          LS       0    87.8
1543          UD   0.498
              *

1544          KK  CS1-C*
1545          KM   *REF POINT FROM VTN STUDY*
1546          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1547          KM  COMBINE RCS AND S1-C
1548          KM  COMMERCE AND CAREY
1549          HC       2
              *

1550          KK RCS1-C*
1551          KM   *REF ROUTE FROM VTN STUDY*
1552          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1553          KM  ROUTE DS1-C TO CW1C2
1554          KM  FACILITY = LAS VEGAS WASH - SMOKE RANCH
1555          KM  FACILITY # = LVSR 0000,0001,0002,0010,0021
1556          KM  LINING = RCB
1557          RD    2619  0.0232   0.015       0    TRAP      10       0
              *

1558          KK   W1C2*
1559          KM   *REF BASIN FROM VTN STUDY*
1560          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1561          BA   0.359
1562          PB    2.77
1563          LS       0    90.7
1564          UD   0.297
              *
              *
1                                       HEC-1 INPUT                                                PAGE 39

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1565          KK  CW1C2*
1566          KM   *REF POINT FROM VTN STUDY*
1567          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1568          KM  COMBINE W1C2, RCS1-C, AND RCCVG24
1569          KM  SMOKE RANCH FACILITY AND FREEWAY CHANNEL
1570          HC       3
              *

1571          KK RCW1C2*
1572          KM   *REF ROUTE FROM VTN STUDY*
1573          KM   *CENTRAL FREEWAY CHANNEL REPORT*
1574          KM  ROUTE CW1C2 TO NORTHERN WATERSHED
1575          KM  FACILITY = FREEWAY CHANNEL
1576          KM  FACILITY # = LV15 0080,0190,0191,0193
1577          KM  LINING = CONCRETE
1578          RD    2100  0.0018   0.015       0    TRAP      20       1
1579          KM    **SECTION OF OFF-SITE BASINS ADDED BY MWH**
1580          KM    **SMALL AREA BETWEEN THE VTN FW CHANNEL STUDY AND THE N 5TH ST STUDY**
              *

1581          KK   OFF-7
1582          KM   BASIN DELIN. BY MWH
1583          KM    RUNOFF PRODUCED BY OFF7
1584          BA  0.0452
1585          LS       0    94.0
1586          UD   0.149
              *

1587          KK   ROFF7
1588          KM   ROUTE BY MWH
1589          KM    ROUTE OFF3 IN ROADWAY
1590          RD    6914 0.01780   0.016       0    TRAP      50       2
              *

1591          KK  OFF6UL
1592          KM   BASIN DELIN. BY MWH
1593          KM    RUNOFF PRODUCED BY OFF6UL
1594          BA  0.1260
1595          LS       0    85.6
```

REFERENCE MATERIAL

```
1596          UD   0.358
              *

1597          KK  CP2OFF
1598          KM   *POINT BY MWH
1599          KM     COMBINE SUB-BASINS OFF7 AND OFF6UL
1600          HC       2
              *

1601          KK RCP2OFF
1602          KM   *ROUTE BY MWH
1603          KM    ROUTE CP2OFF IN ROADWAY
1604          RD    3000 0.01930   0.016       0    TRAP      50       2
              *
1                                        HEC-1 INPUT                                                    PAGE 40

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1605          KK   OFF-2
1606          KM   BASIN DELIN. BY MWH
1607          KM    RUNOFF PRODUCED BY OFF2
1608          BA  0.0076
1609          LS       0   94.00
1610          UD   0.072
              *

1611          KK   ROFF2
1612          KM   ROUTE BY MWH
1613          KM    ROUTE OFF2 OVER NATURAL GROUND
1614          KM    THEN IN ROADWAY
1615          RD     979 0.00950   0.060       0    TRAP      50       2
1616          RD    1036 0.01350   0.016       0    TRAP      50       2
              *

1617          KK  OFF3UL
1618          KM   BASIN DELIN. BY MWH
1619          KM    RUNOFF PRODUCED BY OFF3UL
1620          BA  0.0529
1621          LS       0    90.4
1622          UD   0.158
              *

1623          KK  ROF3UL
1624          KM   *ROUTE BY MWH
1625          KM    ROUTE OFF3UL IN ROADWAY
1626          RD     263 0.00950   0.016       0    TRAP      50       2
              *

1627          KK  OFF5UL
1628          KM   BASIN DELIN. BY MWH
1629          KM    RUNOFF PRODUCED BY OFF5UL
1630          BA  0.0064
1631          LS       0    94.0
1632          UD   0.114
              *

1633          KK  CP1OFF
1634          KM   *POINT BY MWH
1635          KM     COMBINE SUB-BASINS OFF2, OFF3UL, OFF5UL, AND CP2OFF
1636          HC       4
              *

1637          KK RCP1OFF
1638          KM   *ROUTE BY MWH
1639          KM  ROUTE OFF SITE CP-1 AND THE NORTHERN WATERSHED TO CPFWC1
1640          KM  FACILITY = FREEWAY CHANNEL
1641          KM  FACILITY # = LV15 0080,0190,0191,0193
1642          KM  LINING = CONCRETE
1643          RD    2100  0.0018   0.015       0    TRAP      20       1
              *
1                                        HEC-1 INPUT                                                    PAGE 41

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1644          KK  CPFWC1
1645          KM   *POINT BY MWH
1646          KM     COMBINE SUB-BASIN CP1OFF AND CW1C2
1647          HC       2
              *

1648          KK RCPFWC1
1649          KM   *ROUTE BY MWH
1650          KM    ROUTE CPFWC1 DOWN THE FW CHANNEL
1651          RD    2515  0.0010   0.013       0    TRAP      15     1.5
              *

1652          KK   OFF-4
1653          KM   BASIN DELIN. BY MWH
1654          KM    RUNOFF PRODUCED BY OFF4
1655          BA  0.0183
1656          LS       0    93.8
1657          UD   0.174
              *

1658          KK   ROFF4
1659          KM   *ROUTE BY MWH
1660          KM    ROUTE OFF-4 THROUGH EX EARTHEN DITCH ADJACENT TO RR
1661          KM    THEN THROUGH 3X30" CULVERT,
1662          KM    THEN DOWN THE FW CHANNEL
1663          RD    1980   0.010   0.060       0    TRAP       0       2
1664          RD      90   0.010   0.024       0    CIRC    4.33       0
              *
1665          KM    **START N 5TH ST BASINS**
              *

1666          KK LOSE1**
1667          KM   **REF BASIN FROM N 5TH STUDY**
1668          KM   **BY LBG**
1669          KM   Losee Basin LOSE1
1670          BA  0.0314
1671          LS    0.00    89.6
1672          UD   0.134
              *

1673          KKR-LOSE1**
1674          KM   **REF BASIN FROM N 5TH STUDY**
```

REFERENCE MATERIAL

```
1675          KM   **BY LBG**
1676          KM   Route LOSE1 to LOSE2
1677          RD    4100 0.02098   0.016       0    TRAP      50
              *

1678          KK LOSE2**
1679          KM   **REF BASIN FROM N 5TH STUDY**
1680          KM   **BY LBG**
1681          KM   Losee Basin LOSE2
1682          BA   0.134
1683          LS    0.00    90.3
1684          UD   0.192
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1685          KK LOSE3**
1686          KM   **REF BASIN FROM N 5TH STUDY**
1687          KM   **BY LBG**
1688          BA  0.0193
1689          LS    0.00    94.0
1690          UD  0.0500
              *

1691          KK LOSE4**
1692          KM   **REF BASIN FROM N 5TH STUDY**
1693          KM   **BY LBG**
1694          KM   Losee Basin LOSE4
1695          KM   Flows to 10' x 3' Concrete Channel
1696          BA   0.057
1697          LS    0.00    94.4
1698          UD   0.170
              *

1699          KKC3-LOSE**
1700          KM   **REF POINT FROM N 5TH STUDY**
1701          KM   **BY LBG**
1702          KM   Combine LOSE1 TRHOUGH LOSE4
1703          HC       4
              *

1704          KKRC3-LOSE**
1705          KM   **REF ROUTE FROM N 5TH STUDY**
1706          KM   **BY LBG**
1707          KM   Route C3-LOSE THROUGH 10' X 3' CHANNEL
1708          RD     455  0.0264   0.013       0    TRAP      10       0
              *

1709          KK UPRR1**
1710          KM   **REF BASIN FROM N 5TH STUDY**
1711          KM   **BY LBG**
1712          KM   FLOWS TO UPRR TRACKS
1713          BA   0.010
1714          LS    0.00    94.0
1715          UD   0.066
              *

1716          KK UPRR2**
1717          KM   **REF BASIN FROM N 5TH STUDY**
1718          KM   **BY LBG**
1719          KM   FLOWS TO UPRR TRACKS
1720          BA   0.006
1721          LS    0.00    94.0
1722          UD   0.052
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1723          KK  EPC1**
1724          KM   **REF BASIN FROM N 5TH STUDY**
1725          KM   **BY LBG**
1726          KM   COMBINES C3-LOSE, UPRR1, AND UPRR2
1727          KM   FLOWS NORTH ALONG UPRR TRACKS TO CULVERT AND INTO FREEWAY CHANNEL
1728          HC       3
              *

1729          KK   RECP1
1730          KM   *BY MWH
1731          KM    ROUTE EPC1 OVER NATURAL GROUN,
1732          RD     532   0.011   0.035       0    TRAP       5       2
              *
1733          KM    **END N 5TH ST BASINS**
              *

1734          KK    RR-7
1735          KM   *DELIN BY MWH
1736          KM   FLOWS TO FREEWAY CHANNEL
1737          BA  0.0192
1738          LS    0.00    92.5
1739          UD   0.216
              *

1740          KK  CPFWC2
1741          KO       1
1742          KM   *POINT BY MWH
1743          KM     COMBINE SUB-BASIN OFF4, CP-1, ECP2, AND RR-7
1744          HC       4
              *
1745          KM    **REFERENCED BROOKS CHANN STUDY BY MWH**
1746          KM    **REF BASIN FROM 5TH STRT TDS BY LBG**
              *

1747          KKPMAYF1**
1748          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1749          BA  0.3263
1750          PB    2.77
1751          LS    0.00    92.7
1752          UD   0.385
              *

1753          KKRMAYF1-3**
1754          KM   **REF ROUTE FROM 5TH STRT TDS BY LBG**
1755          KM   Route MAYF1 to MAYF3
1756          RD  1405.0 0.01281   0.016       0    TRAP      50
```


REFERENCE MATERIAL

```
                *
1757            KKPMAYF3**
1758            KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1759            BA   0.026
1760            LS    0.00    94.2
1761            UD   0.101
                *
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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1762            KKCPMAYF3**
1763            KM   **REF POINT FROM 5TH STRT TDS BY LBG**
1764            KM   COMBINE MAYF1, MAYF3
1765            HC       2
                *

1766            KKRCPMAYF3**
1767            KM   ROUTE CPMAYF3 TO CPMAY4
1768            RD    1275 0.04235   0.016       0    TRAP      50
                *

1769            KKPMAYF2**
1770            KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1771            BA   0.060
1772            LS    0.00    90.2
1773            UD   0.107
                *

1774            KKRMAYF2-4**
1775            KM   **REF ROUTE FROM 5TH STRT TDS BY LBG**
1776            KM   Route PMAYF2 to PMAYF4A
1777            RD    2016 0.02480   0.016       0    TRAP      50
                *

1778            KKMAYF4A**
1779            KM   DEVELOPED BASIN
1780            KM   BASIN DELIN. BY MWH
1781            BA  0.0764
1782            LS    0.00    94.5
1783            UD   0.139
                *

1784            KK  CP1A**
1785            KM   **REF POINT FROM BROOKS CHANN STUDY BY MWH**
1786            KM   COMBINE CPMAYF3, PMAYF2, MAYF4A
1787            HC       3
                *

1788            KK RCP1A**
1789            KM   **REF POINT FROM BROOKS CHANN STUDY BY MWH**
1790            KM   ROUTE CP1A THROUGH BROOKS CHAN
1791            RD     676 0.03700   0.035       3    TRAP       5
                *

1792            KKPMAY4B**
1793            KM   **REF BASIN FROM BROOKS CHANN STUDY BY MWH**
1794            KM   BASIN PMAY4B
1795            KM   BASIN DELIN. BY MWH
1796            BA  0.0078
1797            LS    0.00    93.9
1798            UD   0.052
                *
1                                       HEC-1 INPUT                                             PAGE 45

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1799            KKC4BMAYF**
1800            KM   **REF POINT FROM 5TH STRT TDS BY LBG**
1801            KM   COMBINE CP1A, PMAY4B, PMAY4C
1802            HC       2
                *

1803            KKPMAYF6**
1804            KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1805            BA   0.027
1806            LS    0.00    94.7
1807            UD   0.081
                *

1808            KKPMAYF7**
1809            KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1810            BA  0.0027
1811            LS    0.00    98.0
1812            UD   0.050
                *

1813            KKCPMAY7**
1814            KM   **REF POINT FROM 5TH STRT TDS BY LBG**
1815            KM   COMBINE FLOWS AT DROP INLET NEAR CONCRETE DRAINAGE
1816            HC       2
                *

1817            KKRCPMAY7**
1818            KM   **REF FROM 5TH STRT TDS BY LBG**
1819            KM   ROUTE TO BROOKS CHANNEL IN 36" STORM DRAIN
1820            RD     540   0.006   0.013       0    CIRC       3
                *

1821            KKCRCPAY7**
1822            KM   **REF POINT FROM 5TH STRT TDS BY LBG
1823            KM   COMBINE FLOWS AT 12'X4' RCB
1824            HC       2
                *

1825            KK PMAY5**
1826            KM   **REF BASIN FROM BROOKS CHANN STUDY BY MWH**
1827            KM   BASIN DELIN. BY MWH
1828            BA  0.0186
1829            LS    0.00    94.6
1830            UD   0.069
                *

1831            KKPMAYF8**
1832            KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
```

REFERENCE MATERIAL

```
1833          BA  0.0027
1834          LS    0.00    94.0
1835          UD   0.050
              *
1                                        HEC-1 INPUT                                                PAGE 46

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1836          KKCPMAYF8**
1837          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
1838          KM   COMBINE FLOWS IN DROP INLET
1839          HC       2
              *

1840          KK PCP3A**
1841          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
1842          KM   Combine FLOWS IN 12'X4' RCB
1843          KM   Flows to 12'x 4' RCB, then to concrete channel
1844          HC       2
              *

1845          KKPMAYF9**
1846          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1847          BA  0.0027
1848          LS    0.00    98.0
1849          UD   0.095
              *

1850          KKPMAYF10**
1851          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1852          BA  0.0006
1853          LS    0.00    98.0
1854          UD   0.068
              *

1855          KKCPMAYF10**
1856          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
1857          KM   COMBINE FLOWS AT DROP INLET IN SAG
1858          HC       2
              *

1859          KK PCP3B**
1860          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
1861          KM   COMBINE FLOWS IN DROP INLET
1862          HC       2
              *

1863          KKPBRKS1**
1864          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1865          KM   BASIN PBRKS1
1866          BA   0.048
1867          LS    0.00    82.3
1868          UD   0.115
              *

1869          KKPBRKS2**
1870          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1871          KM   BASIN PBRKS2
1872          BA   0.016
1873          LS    0.00    82.4
1874          UD   0.101
              *
1                                        HEC-1 INPUT                                                PAGE 47

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1875          KKCPBRKS2**
1876          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
1877          KM   COMBINE BRKS1 & BRKS2, EAST OF N5TH STRT
1878          HC       2
              *

1879          KKPBRKS3**
1880          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
1881          KM   BASIN PBRKS3
1882          BA  0.0011
1883          LS    0.00    98.0
1884          UD   0.053
              *

1885          KKCPBRKS3**
1886          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
1887          KM   COMBINE CPBRKS2, PBRKS3
1888          HC       2
              *

1889          KKRCPBRK3**
1890          KM   **REF ROUTE FROM BROOKS CHANN STUDY BY MWH**
1891          KM   CPBRKS3 ROUTE THROUGH BROOKS AVE
1892          RD    1063  0.0141   0.016       0    TRAP      40       6
              *

1893          KK POFF1**
1894          KM   **REF BASIN FROM BROOKS CHANN STUDY BY MWH**
1895          KM   BASIN POFF1
1896          KM   BASIN DELIN. BY MWH
1897          BA  0.0617
1898          LS    0.00    94.6
1899          UD   0.241
              *

1900          KK   CP5**
1901          KM   **REF POINT FROM BROOKS CHANN STUDY BY MWH**
1902          KM   COMBINE CPBRK3, OFF1
1903          HC       2
              *

1904          KK  RCP5**
1905          KM   **REF ROUTE FROM BROOKS CHANN STUDY BY MWH**
1906          KM   CP5 ROUTE THROUGH LOSSEE AVE
1907          RD     791  0.0050   0.016       0    TRAP      80       6
              *

1908          KK POFF2**
1909          KM   **REF BASIN FROM BROOKS CHANN STUDY BY MWH**
1910          KM   BASIN POFF2
```

REFERENCE MATERIAL

```
1911          KM   BASIN DELIN. BY MWH
1912          BA  0.0455
1913          LS    0.00    94.5
1914          UD   0.166
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1915          KK POFF3**
1916          KM   **REF BASIN FROM BROOKS CHANN STUDY BY MWH**
1917          KM   BASIN POFF3
1918          KM   BASIN DELIN. BY MWH
1919          BA  0.0159
1920          LS    0.00    94.4
1921          UD   0.180
              *

1922          KK   CP6**
1923          KM   **REF POINT FROM BROOKS CHANN STUDY BY MWH**
1924          KM   COMBINE ECP3B, CP5, OFF2, OFF3
1925          HC       4
              *

1926          KK  LOS1**
1927          KM   **REF BASIN FROM BROOKS CHANN STUDY BY MWH**
1928          KM   LOSSEE STRT BASIN
1929          KM   BASIN DELIN. BY MWH
1930          BA  0.0021
1931          LS    0.00    98.0
1932          UD   0.094
              *

1933          KK  LOS2**
1934          KM   **REF BASIN FROM BROOKS CHANN STUDY BY MWH**
1935          KM   LOSSEE STRT BASIN
1936          KM   BASIN DELIN. BY MWH
1937          BA  0.0040
1938          LS    0.00    98.0
1939          UD   0.226
              *

1940          KK  CP6A**
1941          KM   **REF POINT FROM BROOKS CHANN STUDY BY MWH**
1942          KM   COMBINE CP6, LOS1, LOS2
1943          HC       3
              *

1944          KK RCP6A**
1945          KM   **REF ROUTE FROM BROOKS CHANN STUDY BY MWH**
1946          KM   ROUTE CP6A THROUGH BROOKS CHAN
1947          RD     600 0.01667   0.025       0    TRAP      20       3
              *

1948          KK  OFF4**
1949          KM   **REF BASIN FROM BROOKS CHANN STUDY BY MWH**
1950          KM   BASIN OFF4
1951          KM   BASIN DELIN. BY MWH
1952          BA  0.0427
1953          LS    0.00    92.5
1954          UD   0.224
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1955          KK  OFF5**
1956          KM   **REF BASIN FROM BROOKS CHANN STUDY BY MWH**
1957          KM   BASIN OFF5
1958          KM   BASIN DELIN. BY MWH
1959          BA  0.0365
1960          LS    0.00    93.0
1961          UD   0.163
              *

1962          KK   CP7**
1963          KM   **REF POINT FROM BROOKS CHANN STUDY BY MWH**
1964          KM   COMBINE CP6A, OFF4, OFF5
1965          HC       3
              *
1966          KM    **END OF THE BROOKS STUDY**
              *

1967          KK    RR-6
1968          KM   *BY MWH
1969          KM    BASIN RR-6 BETWEEN I15 AND UPRR
1970          KM    DELIN BY MWH
1971          BA  0.0134
1972          LS    0.00    92.5
1973          UD   0.191
              *

1974          KK  CPFWC3
1975          KM   *BY MWH
1976          KM     COMBINE CPFWC2, BROOKS CP-7, AND RR-6
1977          HC       3
              *

1978          KK    RR-5
1979          KM   *BY MWH
1980          KM    BASIN RR-5 BETWEEN I15 AND UPRR
1981          KM    DELIN BY MWH
1982          BA  0.0145
1983          LS    0.00    92.5
1984          UD   0.197
              *

1985          KK  CPFWC4
1986          KM   *BY MWH
1987          KM     COMBINE CPFWC3 AND RR-5
1988          HC       2
              *

1989          KK    RR-4
1990          KM   *BY MWH
1991          KM    BASIN RR-4 BETWEEN I15 AND UPRR
```

REFERENCE MATERIAL

```
1992          KM    DELIN BY MWH
1993          BA  0.0151
1994          LS    0.00    92.7
1995          UD   0.136
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1996          KK  CPFWC5
1997          KO       1
1998          KM   *BY MWH
1999          KM   COMBINE CPFWC4 & RR-4
2000          HC       2
              *
2001          KM    **COLTON BASINS**
              *

2002          KKULT-1A**
2003          KM   *REF BASIN FROM COLTON AVE STUDY*
2004          KM   "BY CNLV, CN MODIFIED BY MWH*
2005          KM    RUNOFF PRODUCED BY ULT-1A
2006          BA  0.0626
2007          LS       0   88.90       0
2008          UD   0.191
              *

2009          KKRULT-1A**
2010          KM   *REF BASIN FROM COLTON AVE STUDY*
2011          KM   *BY CNLV*
2012          KM    ROUTE ULT-1A IN ROADWAY THEN THROUGH NATURAL GROUND
2013          KM    A COMPOSIT SLOPE AND MANNINGS NUMBER WERE CALCULATED
2014          KM    2590 FT W/ 0.0177 SLOPE AND 0.016 MANNINGS IN ROADWAY
2015          KM    1386 FT W/ 0.0177 SLOPE AND 0.060 MANNINGS OVER NATURAL GROUND
2016          RD    3976  0.0177   0.031       0    TRAP      50       2
              *

2017          KKULT-1B**
2018          KM   *REF BASIN FROM COLTON AVE STUDY*
2019          KM   "BY CNLV, CN MODIFIED BY MWH*
2020          KM    RUNOFF PRODUCED BY ULT-1B
2021          BA  0.1278
2022          LS       0   90.90
2023          UD   0.341
              *

2024          KKULT-1C**
2025          KM   *REF BASIN FROM COLTON AVE STUDY*
2026          KM   "BY CNLV, CN MODIFIED BY MWH*
2027          KM    RUNOFF PRODUCED BY ULT-1C
2028          BA  0.1208
2029          LS       0   92.20
2030          UD   0.222
              *

2031          KKRULT-1C**
2032          KM   *REF ROUTE FROM COLTON AVE STUDY*
2033          KM   *BY CNLV*
2034          KM    ROUTE ULT-1C IN ROADWAY
2035          RD    3248 0.00169   0.016       0    TRAP      50       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2036          KKULT-1D**
2037          KM   *REF BASIN FROM COLTON AVE STUDY*
2038          KM   *BY CNLV, CN MODIFIED BY MWH*
2039          KM    RUNOFF PRODUCED BY ULT-1D
2040          BA  0.1160
2041          LS       0   91.80
2042          UD   0.238
              *

2043          KKULT-1F**
2044          KM   *REF BASIN FROM COLTON AVE STUDY*
2045          KM   *BY CNLV, BASIN ADDED BY MWH*
2046          KM    RUNOFF PRODUCED BY ULT-1F
2047          BA  0.0136
2048          LS       0   89.20
2049          UD   0.122
              *

2050          KKRULT-1F*
2051          KM   *REF ROUTE FROM COLTON AVE STUDY*
2052          KM   *BY CNLV, ROUTE ADDED BY MWH*
2053          KM    ROUTE EX-1F IN ROADWAY AND OVER NATURAL GROUND
2054          KM    A COMPOSITE SLOPE AND MANNINGS NUMBER WERE CALCULATED
2055          KM    1220 FT W/ 0.00820 SLOPE AND 0.016 MANNINGS IN ROADWAY
2056          KM    2850 FT W/ 0.03070 SLOPE AND 0.060 MANNINGS OVER NATURAL GROUND
2057          RD    4070 0.02395   0.047       0    TRAP      50       2
              *

2058          KK  CP-1**
2059          KM   *REF POINT FROM COLTON AVE STUDY*
2060          KM   "BY CNLV, MODIFIED BY MWH*
2061          KM     COMBINE SUB-BASINS ULT-1A, ULT-1B, ULT-1C, ULT-1D, AND ULT-1F
2062          HC       5
              *

2063          KK RCP-1**
2064          KM   *REF ROUTE FROM COLTON AVE STUDY*
2065          KM   *BY CNLV, MODIFIED BY MWH*
2066          KM    ROUTE CP-1 OVER NATURAL GROUND
2067          RD    1600 0.02188   0.060       0    TRAP      50       2
              *

2068          KKULT-2D**
2069          KM   *REF BASIN FROM COLTON AVE STUDY*
2070          KM   *BY CNLV, CN MODIFIED BY MWH*
2071          KM    RUNOFF PRODUCED BY ULT-2D
2072          BA  0.0313
2073          LS       0   90.00
2074          UD   0.133
              *
```


REFERENCE MATERIAL

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2075          KKULT-2E**
2076          KM   *REF BASIN FROM COLTON AVE STUDY*
2077          KM   *BY CNLV, CN MODIFIED BY MWH*
2078          KM    RUNOFF PRODUCED BY ULT-2E
2079          BA  0.0547
2080          LS       0   90.30
2081          UD   0.307
              *

2082          KK  CP-2**
2083          KM   *REF POINT FROM COLTON AVE STUDY*
2084          KM   *BY CNLV*
2085          KM    COMBINE SUB-BASINS EX-1F, EX-2D, AND CP-1
2086          HC       3
              *

2087          KK  RCP-2*
2088          KM   *REF ROUTE FROM COLTON AVE STUDY*
2089          KM   *BY CNLV*
2090          KM    ROUTE CP-2 TO CP-2A
2091          KM    THRU 2-60" RCP
2092          RD    1000   0.010   0.013       2    CIRC       5       0
              *

2093          KKULT-2A**
2094          KM   *REF BASIN FROM COLTON AVE STUDY*
2095          KM   *BY CNLV, CN MODIFIED BY MWH*
2096          KM    RUNOFF PRODUCED BY ULT-2A
2097          BA  0.0276
2098          LS       0   91.50
2099          UD   0.151
              *

2100          KK RULT-2A
2101          KM   *REF ROUTE FROM COLTON AVE STUDY*
2102          KM   *BY CNLV*
2103          KM    ROUTE ULT-2A IN ROADWAY
2104          RD     900 0.04118   0.016       0    TRAP      50       2
              *

2105          KKULT-2B**
2106          KM   *REF BASIN FROM COLTON AVE STUDY*
2107          KM   *BY CNLV, CN MODIFIED BY MWH*
2108          KM    RUNOFF PRODUCED BY ULT-2B
2109          BA  0.0133
2110          LS       0   91.80
2111          UD   0.132
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2112          KK  CP-3**
2113          KM   *REF POINT FROM COLTON AVE STUDY*
2114          KM   *BY CNLV*
2115          KM    COMBINE SUB-BASINS EX-2A AND EX-2B
2116          HC       2
              *

2117          KK   RCP-3
2118          KM   *REF ROUTE FROM COLTON AVE STUDY*
2119          KM   *BY CNLV*
2120          KM    ROUTE CP-3 IN ROADWAY
2121          RD     690 0.01449   0.016       0    TRAP      50       2
              *

2122          KKULT-2C**
2123          KM   *REF BASIN FROM COLTON AVE STUDY*
2124          KM   *BY CNLV, CN MODIFIED BY MWH*
2125          KM    RUNOFF PRODUCED BY ULT-2C
2126          BA  0.0320
2127          LS       0   92.20
2128          UD   0.150
              *

2129          KKULT-2G**
2130          KM   *REF BASIN FROM COLTON AVE STUDY*
2131          KM   *BY CNLV, CN MODIFIED BY MWH*
2132          KM    RUNOFF PRODUCED BY ULT-2G
2133          BA  0.0708
2134          LS       0   90.20
2135          UD   0.163
              *

2136          KKULT-1E**
2137          KM   *REF BASIN FROM COLTON AVE STUDY*
2138          KM   *BY CNLV, AREA & CN MODIFIED BY MWH*
2139          KM    RUNOFF PRODUCED BY ULT-1E
2140          BA  0.0345
2141          LS       0   93.60
2142          UD   0.297
              *

2143          KK RULT-1E
2144          KM   *REF ROUTE FROM COLTON AVE STUDY*
2145          KM   *BY CNLV*
2146          KM    ROUTE ULT-1E IN ROADWAY
2147          RD    2625 0.01442   0.016       0    TRAP      50       2
              *

2148          KKULT-2F**
2149          KM   *REF BASIN FROM COLTON AVE STUDY*
2150          KM   *BY CNLV, AREA & CN MOD MODIFIED BY MWH*
2151          KM    RUNOFF PRODUCED BY ULT-2F
2152          BA  0.0255
2153          LS       0   90.00
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2154          UD   0.193
              *
```

REFERENCE MATERIAL

```
2155          KK RULT-2F
2156          KM   *REF ROUTE FROM COLTON AVE STUDY*
2157          KM   *BY CNLV*
2158          KM    ROUTE ULT-2F IN ROADWAY
2159          RD    2600 0.01442   0.016       0    TRAP      50       2
              *

2160          KK   CP-4C
2161          KM     COMBINE SUB-BASINS ULT-1E AND ULT-2F
2162          HC       2
              *

2163          KKULT-2H**
2164          KM   *REF BASIN FROM COLTON AVE STUDY*
2165          KM   *BY CNLV, AREA & CN MOD MODIFIED BY MWH*
2166          KM    RUNOFF PRODUCED BY ULT-2H
2167          BA  0.0089
2168          LS       0   75.50
2169          UD   0.145
              *

2170          KKULT-2I**
2171          KM   *NEW BASIN DELINEATED BY MWH*
2172          KM   *FOR COLTON TDS*
2173          KM    RUNOFF PRODUCED BY ULT-2I
2174          BA  0.0052
2175          LS       0   69.00
2176          UD   0.074
              *

2177          KK   CP-4B
2178          KM   *BY MWH
2179          KM     COMBINE CP-4C, ULT-2H, ULT-2I
2180          HC       3
              *

2181          KK  RCP-4B
2182          KM   *REF ROUTE FROM COLTON AVE STUDY*
2183          KM   *BY CNLV*
2184          KM    ROUTE ULT-2H IN RCP
2185          RD    1338   0.030   0.013       0    CIRC       3       0
              *

2186          KK   CP-4A
2187          KM   *BY MWH
2188          KM     COMBINE ULT-2C, ULT-2G, CP-2, CP-4A, CP-3
2189          HC       5
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2190          KK  RCP-4A
2191          KM   *BY MWH
2192          KM    ROUTE CP-4A IN COLTON AVE STORM DRAIN SYSTEM
2193          KM    TO BUCYRES-STREET
2194          RD    1174  0.0229   0.013       0    TRAP       6       0
              *

2195          KKULT-3A**
2196          KM   *REF BASIN FROM COLTON AVE STUDY*
2197          KM   *BY CNLV, CN MOD MODIFIED BY MWH*
2198          KM    RUNOFF PRODUCED BY EX-3A
2199          BA  0.0184
2200          LS       0   94.30
2201          UD   0.115
              *

2202          KK RULT-3A
2203          KM   *BY MWH
2204          KM    ROUTE ULT-3A IN ROADWAY
2205          RD     773   0.008   0.016       0    TRAP      50       2
              *

2206          KKULT-3B**
2207          KM   *REF BASIN FROM COLTON AVE STUDY*
2208          KM   *BY CNLV, CN MODIFIED BY MWH*
2209          KM    RUNOFF PRODUCED BY ULT-3B
2210          BA  0.0270
2211          LS       0   94.30
2212          UD   0.156
              *

2213          KK    CPD1
2214          KM   COMBINE ULT-3A & ULT-3B
2215          KM   DUMMY COMBINATION POINT FOR INLET SIZING
2216          HC       2
              *

2217          KKULT-3C**
2218          KM   *REF BASIN FROM COLTON AVE STUDY*
2219          KM   *BY CNLV, CN MODIFIED BY MWH*
2220          KM    RUNOFF PRODUCED BY ULT-3C
2221          BA  0.0072
2222          LS       0   92.20
2223          UD   0.110
              *

2224          KK RULT-3C
2225          KM   *REF ROUTE FROM COLTON AVE STUDY*
2226          KM   *BY CNLV, MODIFIED BY MWH*
2227          KM    ROUTE ULT-3C IN ROADWAY
2228          RD     514   0.009   0.016       0    TRAP      50       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2229          KKULT-3D**
2230          KM   *REF BASIN FROM COLTON AVE STUDY*
2231          KM   *BY CNLV, CN MODIFIED BY MWH*
2232          KM    RUNOFF PRODUCED BY ULT-3D
2233          BA  0.0138
2234          LS       0   95.00
2235          UD   0.114
              *
```

REFERENCE MATERIAL

```
2236          KK RULT-3D
2237          KM   *BY MWH
2238          KM    ROUTE ULT-3D IN ROADWAY
2239          RD     594   0.030   0.016       0    TRAP      50       2
              *

2240          KKULT-3E**
2241          KM   *REF BASIN FROM COLTON AVE STUDY*
2242          KM   *BY CNLV, CN MODIFIED BY MWH*
2243          KM    RUNOFF PRODUCED BY ULT-3E
2244          BA  0.0106
2245          LS       0   94.60
2246          UD   0.120
              *

2247          KK    CP-5
2248          KM   *BY MWH
2249          KM    COMBINE CP-4A, CPD1, ULT-3C, ULT-3D, ULT-3E
2250          HC       5
              *

2251          KK   RCP-5
2252          KM   *BY MWH
2253          KM    ROUTE CP-5 IN COLTON AVE STORM DRAIN SYSTEM
2254          KM    TO LOSEE ROAD
2255          KM    VIA 7X6 RCB TRANS TO 9X6 RCB, USE AVE WIDTH = 8 FT
2256          KM    @ AVG SLOPE = 0.0168 FT/FT, LENGTH = 1687.09 FT
2257          RD    1687  0.0168   0.013       0    TRAP       8       0
              *

2258          KKULT-3F**
2259          KM   *REF BASIN FROM COLTON AVE STUDY*
2260          KM   *BY CNLV, CN MODIFIED BY MWH*
2261          KM    RUNOFF PRODUCED BY ULT-3F
2262          BA  0.0220
2263          LS       0   94.00
2264          UD   0.171
              *

2265          KKULT-3G**
2266          KM   *REF BASIN FROM COLTON AVE STUDY*
2267          KM   *BY CNLV, CN MODIFIED BY MWH*
2268          KM    RUNOFF PRODUCED BY ULT-3G
2269          BA  0.0073
2270          LS       0   94.00
1                                        HEC-1 INPUT                                                PAGE 57

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2271          UD   0.115
              *

2272          KK   CP-6A
2273          KM   *DUMMY COMBINE POINT BY MWH
2274          KM    COMBINE SUB-BASINS ULT-3F, ULT-3G
2275          HC       2
              *

2276          KKULT-3H**
2277          KM   *REF BASIN FROM COLTON AVE STUDY*
2278          KM   *BY CNLV, CN MODIFIED BY MWH*
2279          KM    RUNOFF PRODUCED BY ULT-3H
2280          BA  0.0040
2281          LS       0   91.00
2282          UD   0.103
              *

2283          KKULT-3J**
2284          KM   *REF BASIN FROM COLTON AVE STUDY*
2285          KM   *BY CNLV, CN MODIFIED BY MWH*
2286          KM    RUNOFF PRODUCED BY ULT-3J
2287          BA  0.0233
2288          LS       0   89.90
2289          UD   0.152
              *

2290          KK RULT-3J
2291          KM   *REF ROUTE FROM COLTON AVE STUDY*
2292          KM    ROUTE ULT-3J IN ROADWAY
2293          RD     817   0.008   0.016       0    TRAP      50       2
              *

2294          KKULT-3K**
2295          KM   *REF BASIN FROM COLTON AVE STUDY*
2296          KM   *BY CNLV, CN MODIFIED BY MWH*
2297          KM    RUNOFF PRODUCED BY ULT-3K
2298          BA  0.0162
2299          LS       0   90.30
2300          UD   0.141
              *

2301          KK RULT-3K
2302          KM   *REF ROUTE FROM COLTON AVE STUDY*
2303          KM    ROUTE ULT-3K IN ROADWAY
2304          RD     318   0.004   0.016       0    TRAP      50       2
              *

2305          KK    CP-6
2306          KM   *BY MWH
2307          KM    COMBINE: CP-5, CP-6A, ULT-3H, ULT-3J, ULT-3K
2308          HC       5
              *
1                                        HEC-1 INPUT                                                PAGE 58

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2309          KK   RCP-6
2310          KM   *BY MWH
2311          KM    ROUTE CP-6 IN COLTON AVE STORM DRAIN SYSTEM
2312          KM    TO FREEWAY CHANNEL PARALLEL TO I-15
2313          KM    VIA 9X6 RCB TRANS TO 102" PIPE, USE AVG WIDTH = 9 FT
2314          KM    @ AVG SLOPE = 0.0073 FT/FT, LENGTH = 816.61 FT
2315          RD     817  0.0073   0.013       0    TRAP       9       1
              *

2316          KKULT-3L**
```

REFERENCE MATERIAL

```
          2317           KM   *REF BASIN FROM COLTON AVE STUDY*
          2318           KM   *BY CNLV, CN MODIFIED BY MWH*
          2319           KM    RUNOFF PRODUCED BY ULT-3L
          2320           BA  0.0280
          2321           LS       0   90.10
          2322           UD   0.209
                         *

          2323           KK  CP-7**
          2324           KM   *REF POINT FROM COLTON AVE STUDY*
          2325           KM    COMBINE ULT-3L AND CP-6
          2326           HC       2
                         *
          2327           KM    **END OF COLTON STUDY**
                         *

          2328           KK    RR-3
          2329           KM   *BY MWH
          2330           KM    BASIN RR-3 BETWEEN I15 AND UPRR
          2331           KM    DELIN BY MWH
          2332           BA  0.0084
          2333           LS    0.00    94.5
          2334           UD   0.153
                         *

          2335           KK  CPFWC6
          2336           KO       1
          2337           KM   *BY MWH
          2338           KM    COMBINE COMBINES COLTON CP-7, RR-3, AND CPFWC5
          2339           HC       3
                         *

          2340           KK    RR-2
          2341           KM   *BY MWH
          2342           KM    BASIN RR-2 BETWEEN I15 AND UPRR
          2343           KM    DELIN BY MWH
          2344           BA  0.0037
          2345           LS    0.00    94.5
          2346           UD   0.088
                         *
1                                                HEC-1 INPUT                                                PAGE 59

          LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

          2347           KK   OFF-1
          2348           KM   DELIN. BY MWH
          2349           KM    RUNOFF PRODUCED BY OFF1
          2350           BA  0.0090
          2351           LS       0   98.00
          2352           UD   0.088
                         *

          2353           KK   ROFF1
          2354           KM   ROUTE BY MWH
          2355           KM    ROUTE OFF-1 IN ROADWAY THEN THROUGH NATURAL GROUND
          2356           KM    A COMPOSIT SLOPE AND MANNINGS NUMBER WERE CALCULATED
          2357           KM    2590 FT W/ 0.00177 SLOPE AND 0.016 MANNINGS IN ROADWAY
          2358           KM    1386 FT W/ 0.00177 SLOPE AND 0.060 MANNINGS OVER NATURAL GROUND
          2359           RD    3976 0.00177   0.031       0    TRAP      50       2
                         *

          2360           KK  CPFWC7
          2361           KO       1
          2362           KM   POINT BY MWH
          2363           KM    COMBINE COMBINES COLTON OFF1, RR-2, AND CPFWC6
          2364           HC       3
                         *

          2365           KK    RR-1
          2366           KM   BASIN DELIN. MWH
          2367           KM    BASIN RR-1 BETWEEN I15 AND UPRR
          2368           KM    DELIN BY MWH
          2369           BA  0.0149
          2370           LS    0.00    94.5
          2371           UD   0.191
                         *

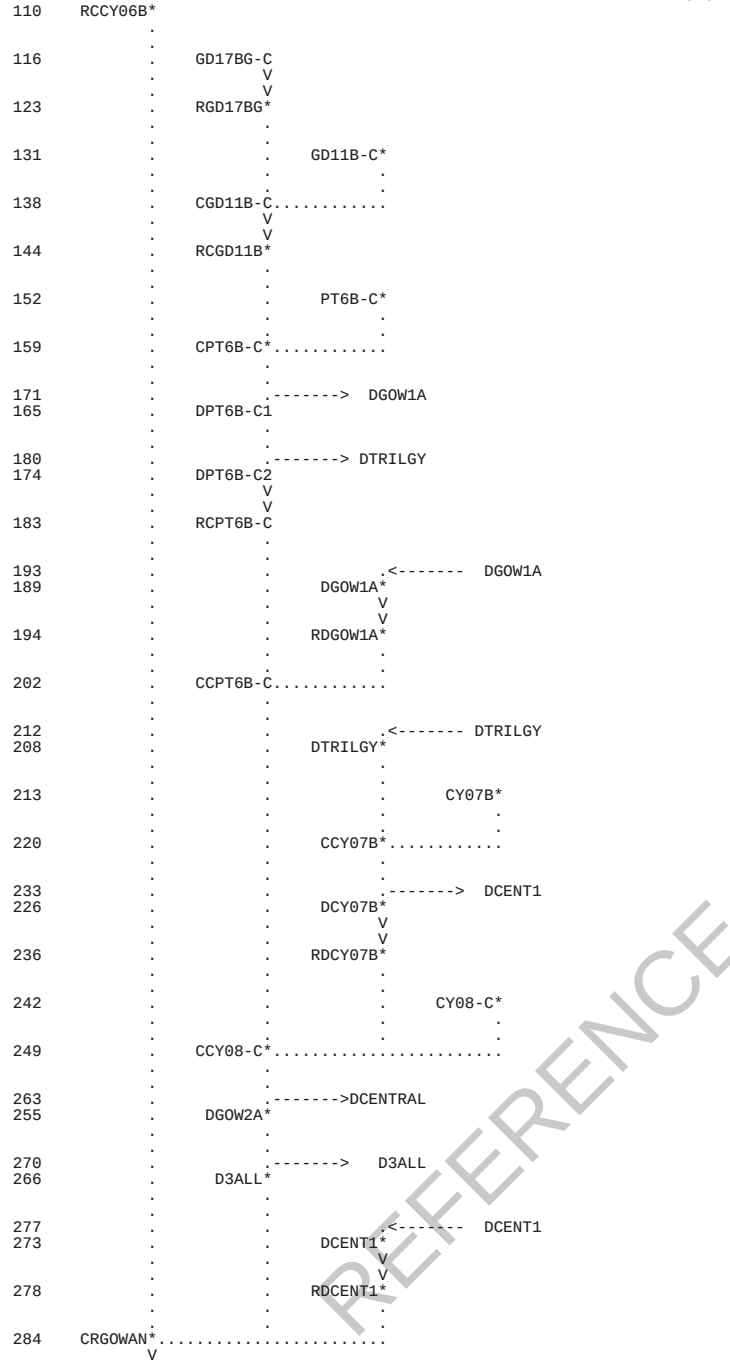
          2372           KK  CPFWC8
          2373           KM   *BY MWH
          2374           KM    COMBINE COMBINES COLTON RR-1 AND CPFWC7 AT THE CONFLUENCE
          2375           HC       2
                         *
          2376           KM    **END OF COLTON BASIN**
                         *
          2377           ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK

 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     49     OG04-C*
                .
                .
     69         .-------->   DPD01
     64    DOG04-C*
                V
                V
     72    RDOG04-C
                .
                .
     78         .     OG05-C*
                .          .
                .          .
     85    COG05-C*.........
                V
                V
     91    RCOG05-C
                .
                .
     97         .    CY06B-C*
                .          .
                .          .
    104    CCY06B-C.........
                V
                V
```

REFERENCE MATERIAL



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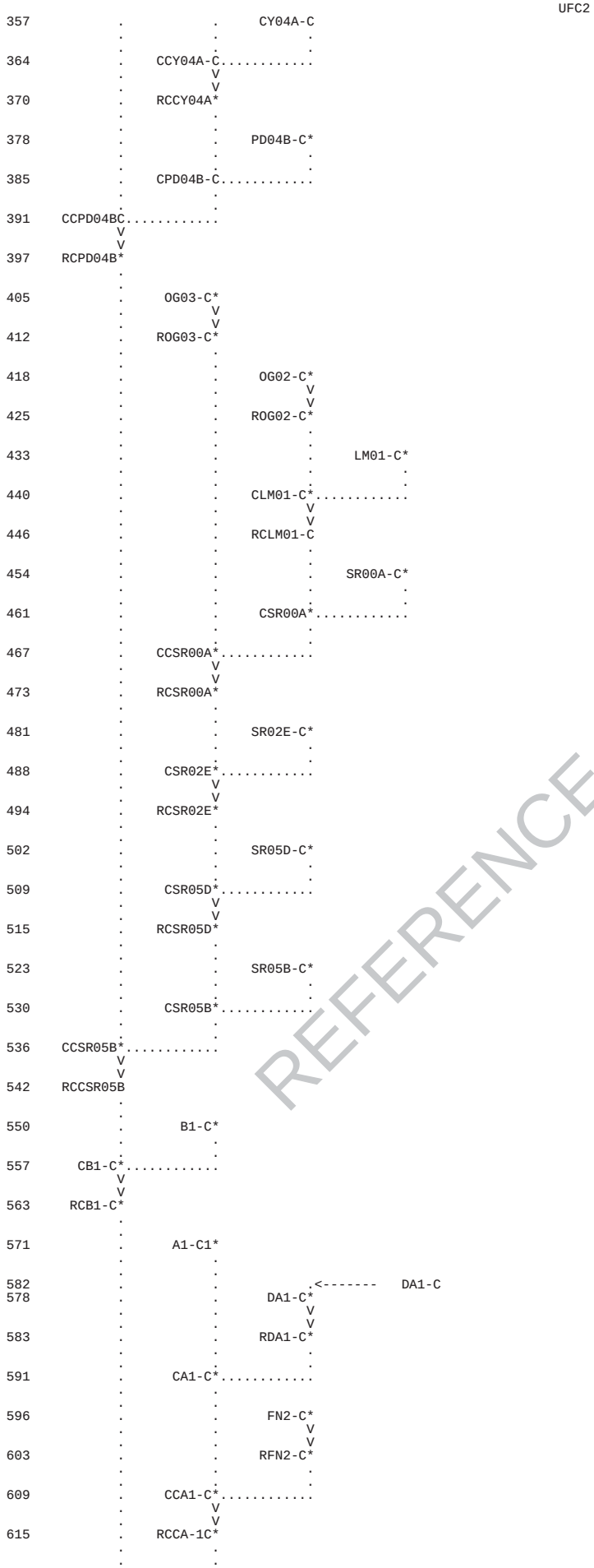

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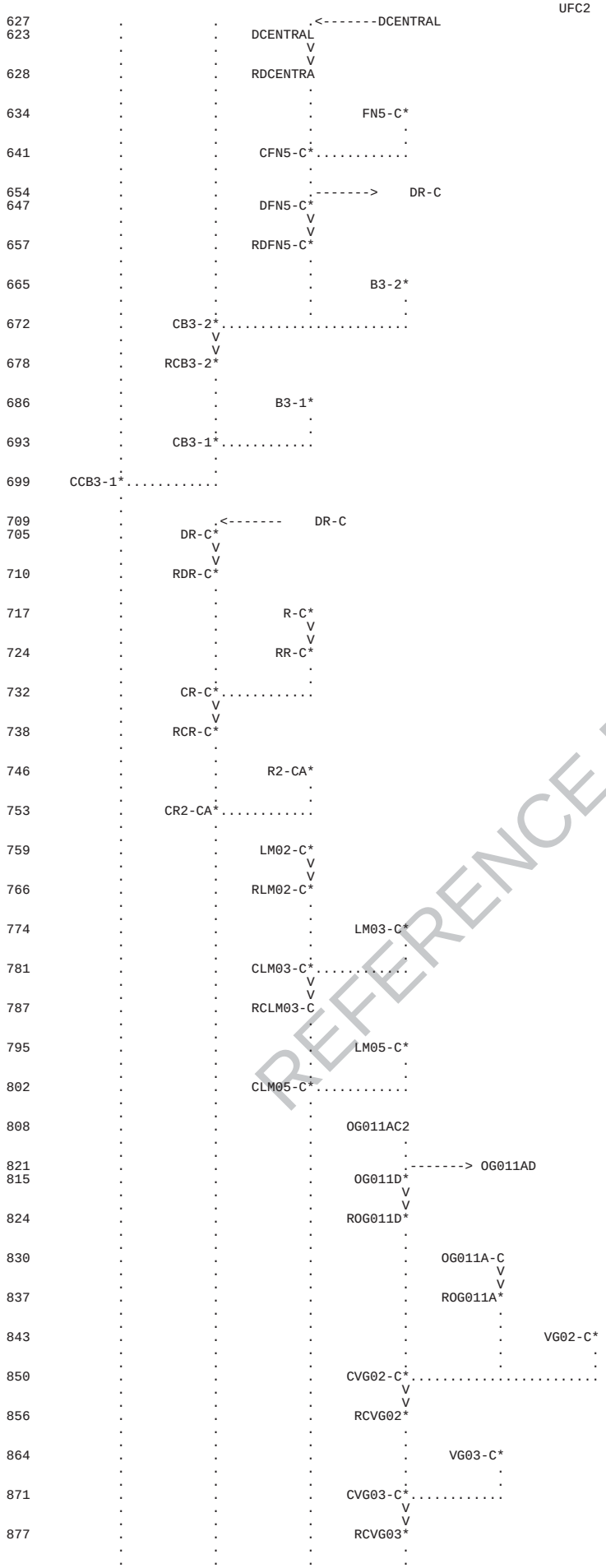

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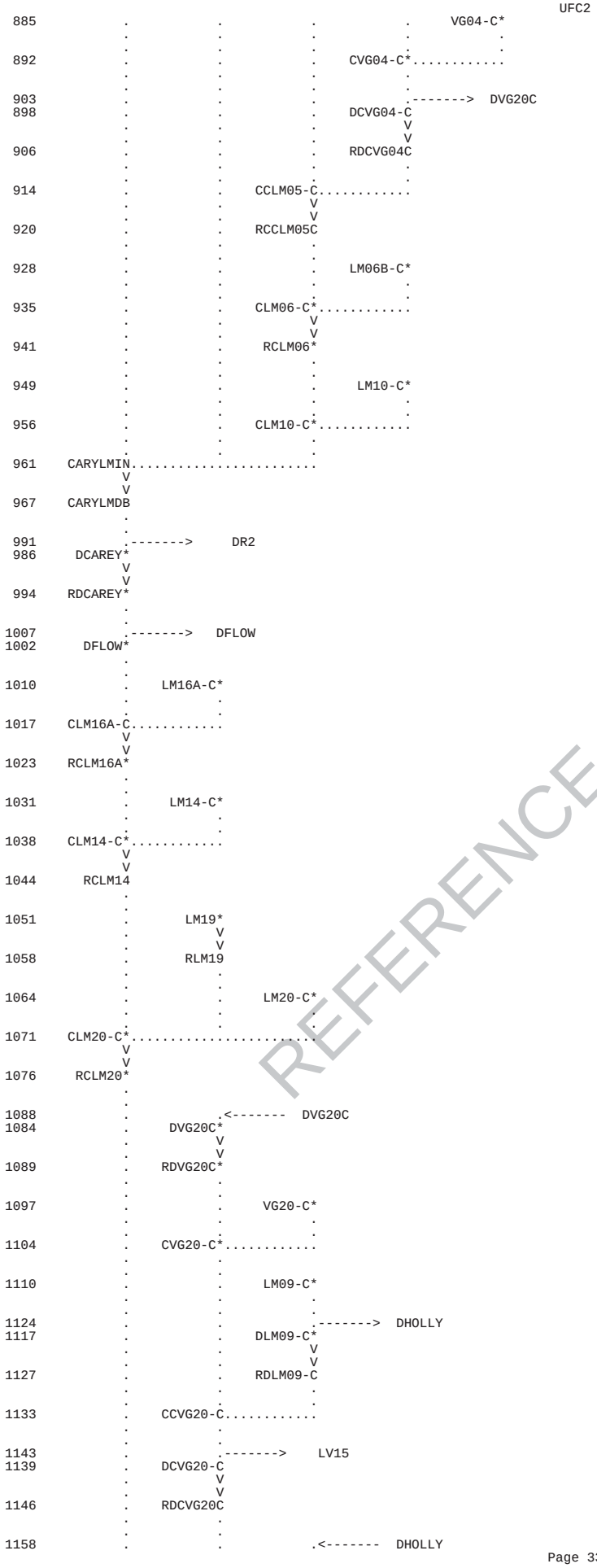

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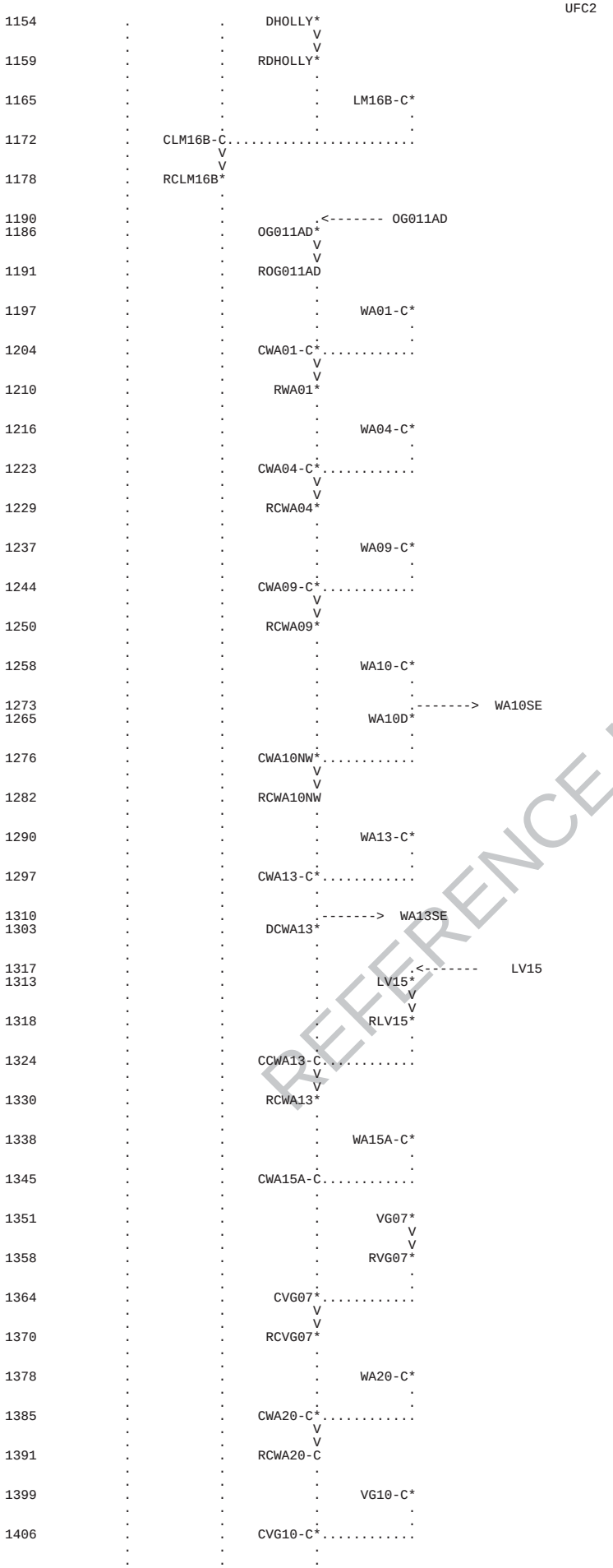

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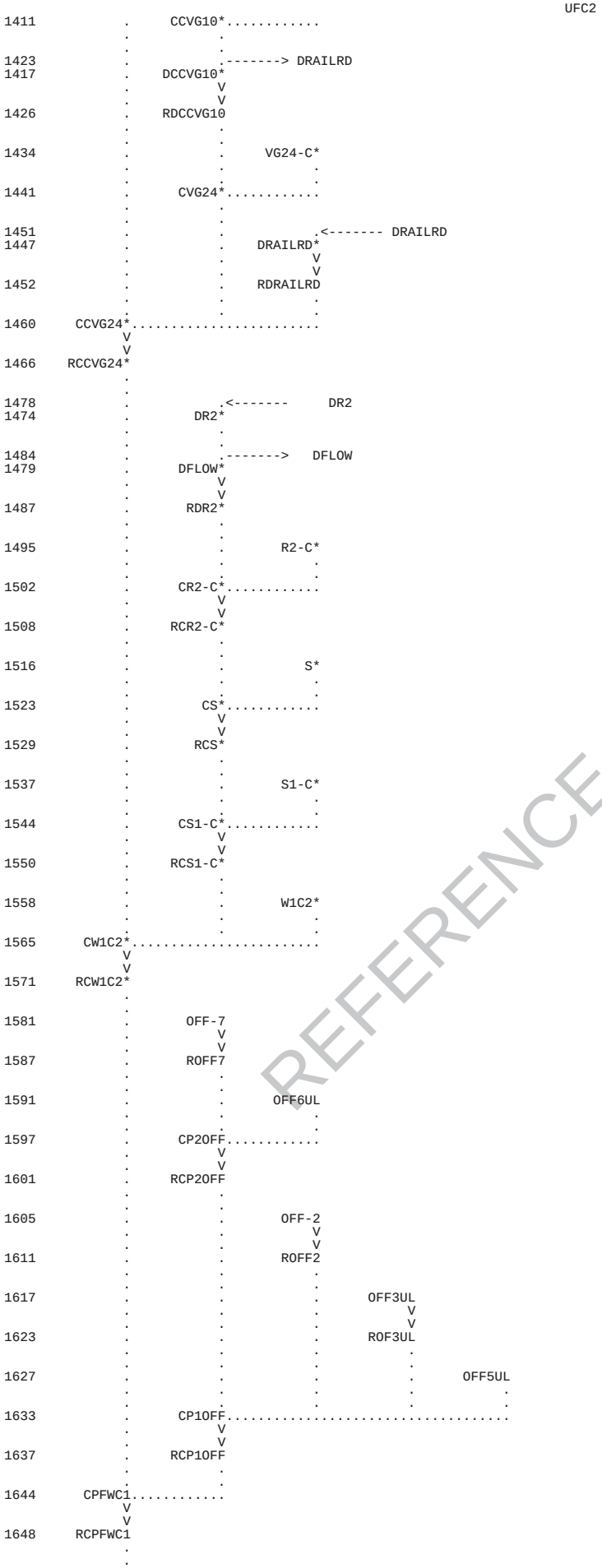

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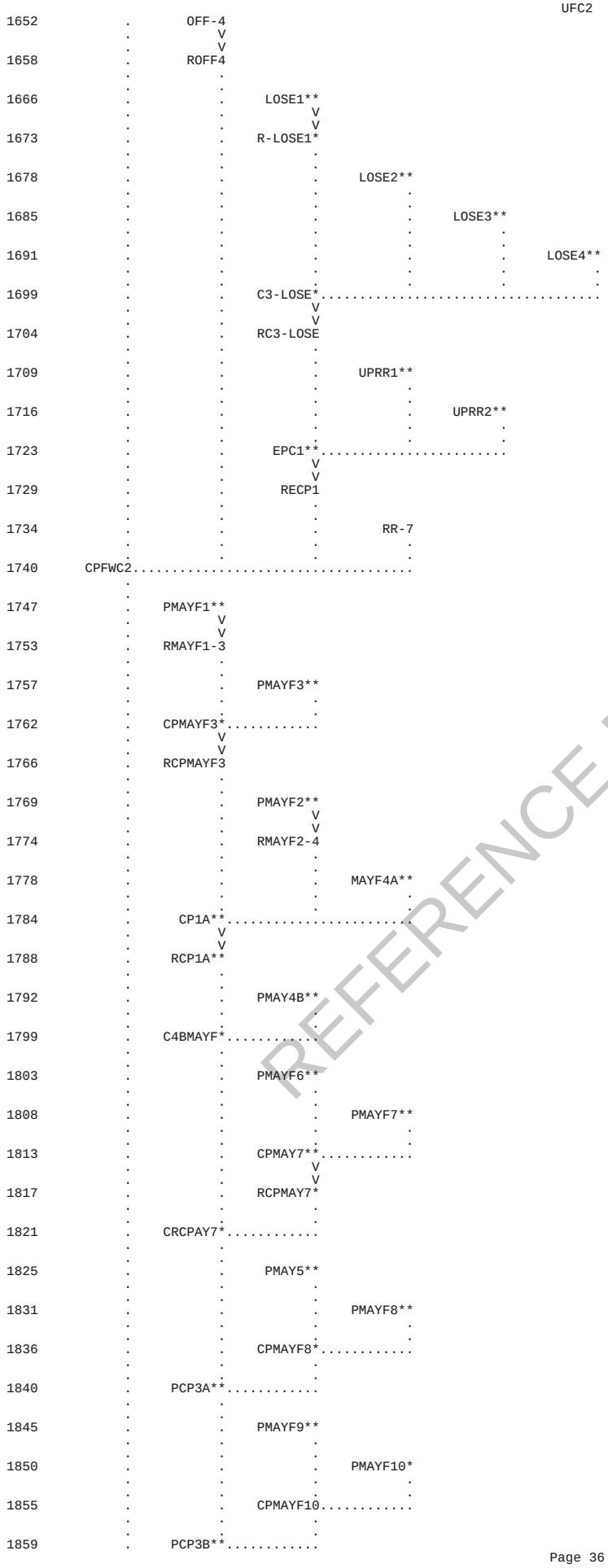

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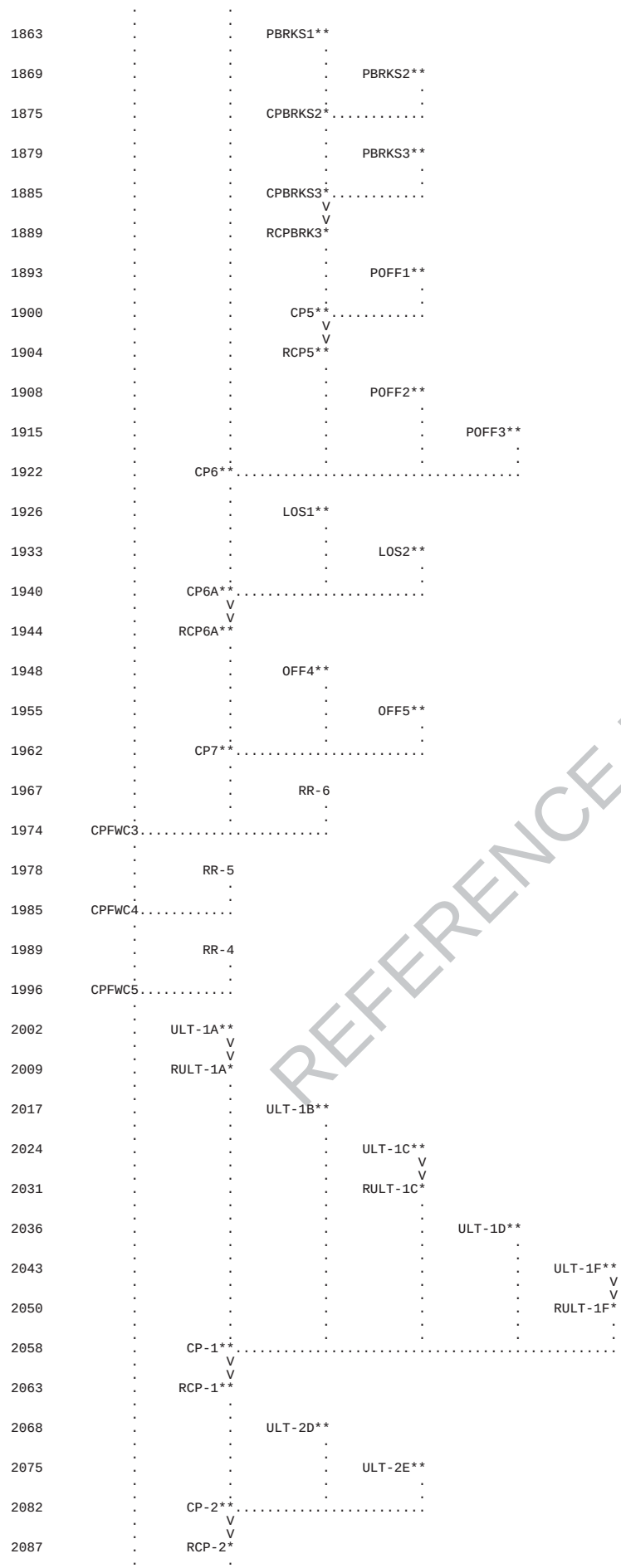

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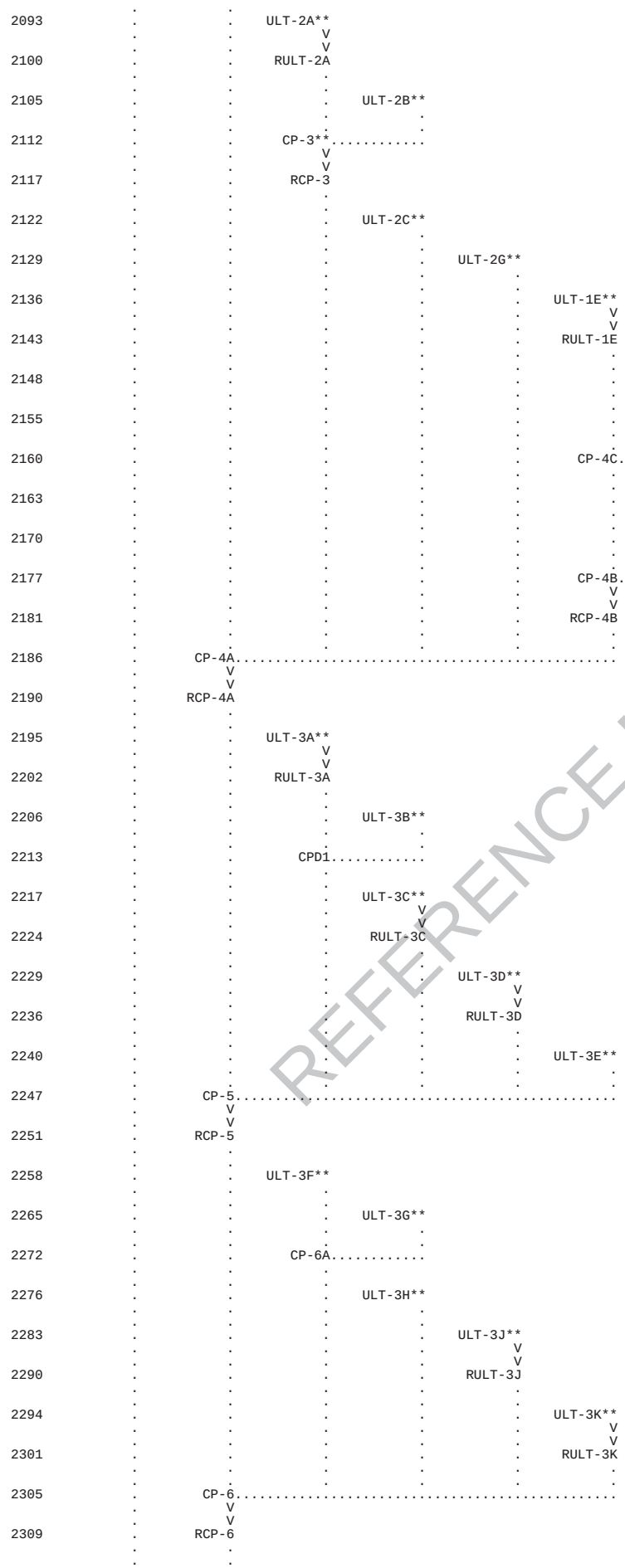

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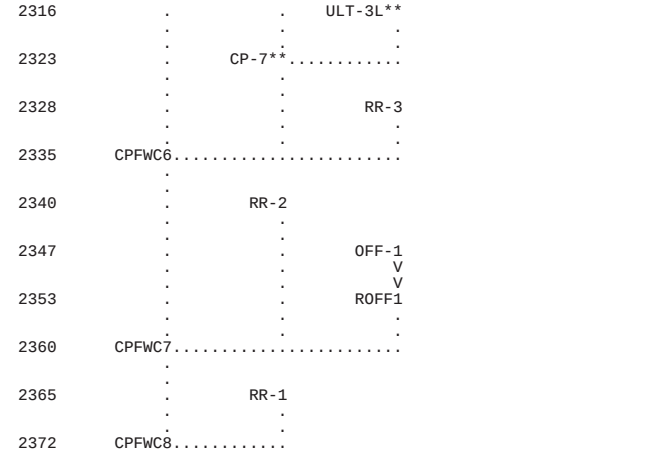

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*               JUN   1998              *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   17FEB14  TIME  14:35:42   *
*                                       *
*****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS     *
*    HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET          *
*       DAVIS, CALIFORNIA 95616       *
*            (916) 756-1104           *
*                                   *
*************************************
```

FREEWAY CHANNEL ANALYSIS FROM CAREY AVE. TO LAS VEGAS WASH CONFLUENCE
ULTIMATE CONDITIONS
INPUT FILE = UFC2.DAT
INPUT FILE DATE = NOVEMBER 2013 (VERSION 2 WITH CCRFCD COMMENTS INCORPORATED
MODELED BY MWH

```
   ******************************
   *                            *
   *  SDN4 STORM DISTRIBUTION   *
   *                            *
   ******************************
```

REFERENCED HYDROLOGIC MODELS:

*CENTRAL FREEWAY CHANNEL, OWENS AVE. TO MILLER AVE. (VTN NOV 2009)

*BROOKS CHANNEL FLOOD CONTROL PROJECT (MWH 2012)

*90% TECHNICAL DRAINAGE STUDY FOR NORTH 5TH STREET IMPROVEMENTS
LOSEE ROAD TO CHEYENNE AVE (LBG 2012)

*DRAFT DRAINAGE STUDY FOR COLTON AVE FLOOD CONTROL IMPROVEMENTS
 5TH STREET TO I-15 CHANNEL(CNLV 2009)

VEGAS DRIVE IMPROVEMENTS PDR, SHADOW MOUNTAIN PLACE TO RANCHO DRIVE (LBG JUL

JD CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

DARF VALUES USED : CCRFCD HCDDM

AREA SQ.MI.	DARF
8-9	0.875
9-10	0.865
10-11	0.857
11-12	0.850

```
  46 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2    0  ENDING DATE
                     NDTIME        0055  ENDING TIME
                     ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                       TOTAL TIME BASE   24.92 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

     JP          MULTI-PLAN OPTION
                      NPLAN           1  NUMBER OF PLANS
```

REFERENCE MATERIAL

```
     JR          MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                     .88       .87       .86       .85


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


               **************
               *            *
1740 KK        *    CPFWC2  *
               *            *
               **************

1741 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          1  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                           *POINT BY MWH
                            COMBINE SUB-BASIN OFF4, CP-1, ECP2, AND RR-7
                           **REFERENCED BROOKS CHANN STUDY BY MWH**
                           **REF BASIN FROM 5TH STRT TDS BY LBG**

1744 HC          HYDROGRAPH COMBINATION
                       ICOMP          4  NUMBER OF HYDROGRAPHS TO COMBINE

                                                 ***
```

****

HYDROGRAPH AT STATION CPFWC2
SUM OF 4 HYDROGRAPHS
PLAN 1, RATIO = .88

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	493.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	431.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	378.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	330.	1		1245	154	0.	1		1900	229	0.
1		0020	5	2.	1		0635	80	287.	1		1250	155	0.	1		1905	230	0.
1		0025	6	7.	1		0640	81	248.	1		1255	156	0.	1		1910	231	0.
1		0030	7	13.	1		0645	82	212.	1		1300	157	0.	1		1915	232	0.
1		0035	8	17.	1		0650	83	179.	1		1305	158	0.	1		1920	233	0.
1		0040	9	20.	1		0655	84	149.	1		1310	159	0.	1		1925	234	0.
1		0045	10	24.	1		0700	85	123.	1		1315	160	0.	1		1930	235	0.
1		0050	11	29.	1		0705	86	100.	1		1320	161	0.	1		1935	236	0.
1		0055	12	36.	1		0710	87	82.	1		1325	162	0.	1		1940	237	0.
1		0100	13	44.	1		0715	88	66.	1		1330	163	0.	1		1945	238	0.
1		0105	14	53.	1		0720	89	54.	1		1335	164	0.	1		1950	239	0.
1		0110	15	62.	1		0725	90	43.	1		1340	165	0.	1		1955	240	0.
1		0115	16	70.	1		0730	91	35.	1		1345	166	0.	1		2000	241	0.
1		0120	17	77.	1		0735	92	28.	1		1350	167	0.	1		2005	242	0.
1		0125	18	85.	1		0740	93	22.	1		1355	168	0.	1		2010	243	0.
1		0130	19	94.	1		0745	94	18.	1		1400	169	0.	1		2015	244	0.
1		0135	20	104.	1		0750	95	14.	1		1405	170	0.	1		2020	245	0.
1		0140	21	116.	1		0755	96	11.	1		1410	171	0.	1		2025	246	0.
1		0145	22	129.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	145.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	165.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	188.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	213.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	239.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	265.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	287.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	305.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	319.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	332.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	345.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	360.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	376.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	392.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	412.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	443.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	493.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	574.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	708.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	931.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	1295.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	1800.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	2411.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	3034.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	3546.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	3867.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	3978.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	3911.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	3715.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	3453.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3187.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	2925.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	2657.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2397.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2181.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	2032.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	1952.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	1926.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	1930.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	1939.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	1931.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	1888.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	1806.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	1689.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	1546.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	1392.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	1240.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	1097.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	967.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	849.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	743.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	647.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	564.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

****

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

REFERENCE MATERIAL

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DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	482.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	423.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	370.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	323.	1		1245	154	0.	1		1900	229	0.
1		0020	5	2.	1		0635	80	281.	1		1250	155	0.	1		1905	230	0.
1		0025	6	6.	1		0640	81	243.	1		1255	156	0.	1		1910	231	0.
1		0030	7	12.	1		0645	82	208.	1		1300	157	0.	1		1915	232	0.
1		0035	8	15.	1		0650	83	175.	1		1305	158	0.	1		1920	233	0.
1		0040	9	18.	1		0655	84	146.	1		1310	159	0.	1		1925	234	0.
1		0045	10	21.	1		0700	85	120.	1		1315	160	0.	1		1930	235	0.
1		0050	11	26.	1		0705	86	99.	1		1320	161	0.	1		1935	236	0.
1		0055	12	32.	1		0710	87	80.	1		1325	162	0.	1		1940	237	0.
1		0100	13	40.	1		0715	88	65.	1		1330	163	0.	1		1945	238	0.
1		0105	14	48.	1		0720	89	53.	1		1335	164	0.	1		1950	239	0.
1		0110	15	56.	1		0725	90	42.	1		1340	165	0.	1		1955	240	0.
1		0115	16	63.	1		0730	91	34.	1		1345	166	0.	1		2000	241	0.
1		0120	17	70.	1		0735	92	27.	1		1350	167	0.	1		2005	242	0.
1		0125	18	78.	1		0740	93	22.	1		1355	168	0.	1		2010	243	0.
1		0130	19	86.	1		0745	94	17.	1		1400	169	0.	1		2015	244	0.
1		0135	20	96.	1		0750	95	14.	1		1405	170	0.	1		2020	245	0.
1		0140	21	108.	1		0755	96	11.	1		1410	171	0.	1		2025	246	0.
1		0145	22	121.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	135.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	154.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	176.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	200.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	225.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	249.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	271.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	289.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	303.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	314.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	328.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	342.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	357.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	373.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	393.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	422.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	470.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	548.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	678.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	894.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	1243.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	1720.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	2313.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	2925.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	3435.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	3751.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	3861.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	3798.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	3612.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	3359.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3095.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	2838.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	2581.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2333.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2125.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	1980.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	1904.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	1879.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	1881.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	1890.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	1883.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	1844.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	1766.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	1652.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	1513.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	1363.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	1215.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	1075.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	947.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	832.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	727.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	633.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	552.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)			
+ 3861.	4.00	1100.	277.	267.	267.
		(INCHES) .514	.518	.518	.518
		(AC-FT) 546.	550.	550.	550.

CUMULATIVE AREA = 19.90 SQ MI

HYDROGRAPH AT STATION CPFWC2
SUM OF 4 HYDROGRAPHS
PLAN 1, RATIO = .85

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	478.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	419.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	367.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	321.	1		1245	154	0.	1		1900	229	0.
1		0020	5	2.	1		0635	80	279.	1		1250	155	0.	1		1905	230	0.
1		0025	6	6.	1		0640	81	242.	1		1255	156	0.	1		1910	231	0.
1		0030	7	11.	1		0645	82	207.	1		1300	157	0.	1		1915	232	0.
1		0035	8	15.	1		0650	83	174.	1		1305	158	0.	1		1920	233	0.
1		0040	9	18.	1		0655	84	145.	1		1310	159	0.	1		1925	234	0.
1		0045	10	21.	1		0700	85	120.	1		1315	160	0.	1		1930	235	0.
1		0050	11	25.	1		0705	86	98.	1		1320	161	0.	1		1935	236	0.
1		0055	12	31.	1		0710	87	80.	1		1325	162	0.	1		1940	237	0.
1		0100	13	38.	1		0715	88	65.	1		1330	163	0.	1		1945	238	0.
1		0105	14	46.	1		0720	89	52.	1		1335	164	0.	1		1950	239	0.
1		0110	15	53.	1		0725	90	42.	1		1340	165	0.	1		1955	240	0.
1		0115	16	61.	1		0730	91	34.	1		1345	166	0.	1		2000	241	0.
1		0120	17	68.	1		0735	92	27.	1		1350	167	0.	1		2005	242	0.
1		0125	18	75.	1		0740	93	22.	1		1355	168	0.	1		2010	243	0.

REFERENCE MATERIAL

1	0130	19	83.	*	1	0745	94	17.	*	1	1400	169	0.	*	1	2015	244	0.	
1	0135	20	93.	*	1	0750	95	14.	*	1	1405	170	0.	*	1	2020	245	0.	
1	0140	21	104.	*	1	0755	96	11.	*	1	1410	171	0.	*	1	2025	246	0.	
1	0145	22	117.	*	1	0800	97	9.	*	1	1415	172	0.	*	1	2030	247	0.	
1	0150	23	132.	*	1	0805	98	7.	*	1	1420	173	0.	*	1	2035	248	0.	
1	0155	24	150.	*	1	0810	99	5.	*	1	1425	174	0.	*	1	2040	249	0.	
1	0200	25	172.	*	1	0815	100	4.	*	1	1430	175	0.	*	1	2045	250	0.	
1	0205	26	195.	*	1	0820	101	3.	*	1	1435	176	0.	*	1	2050	251	0.	
1	0210	27	219.	*	1	0825	102	2.	*	1	1440	177	0.	*	1	2055	252	0.	
1	0215	28	243.	*	1	0830	103	2.	*	1	1445	178	0.	*	1	2100	253	0.	
1	0220	29	265.	*	1	0835	104	1.	*	1	1450	179	0.	*	1	2105	254	0.	
1	0225	30	282.	*	1	0840	105	1.	*	1	1455	180	0.	*	1	2110	255	0.	
1	0230	31	296.	*	1	0845	106	1.	*	1	1500	181	0.	*	1	2115	256	0.	
1	0235	32	308.	*	1	0850	107	1.	*	1	1505	182	0.	*	1	2120	257	0.	
1	0240	33	321.	*	1	0855	108	0.	*	1	1510	183	0.	*	1	2125	258	0.	
1	0245	34	335.	*	1	0900	109	0.	*	1	1515	184	0.	*	1	2130	259	0.	
1	0250	35	350.	*	1	0905	110	0.	*	1	1520	185	0.	*	1	2135	260	0.	
1	0255	36	366.	*	1	0910	111	0.	*	1	1525	186	0.	*	1	2140	261	0.	
1	0300	37	385.	*	1	0915	112	0.	*	1	1530	187	0.	*	1	2145	262	0.	
1	0305	38	415.	*	1	0920	113	0.	*	1	1535	188	0.	*	1	2150	263	0.	
1	0310	39	462.	*	1	0925	114	0.	*	1	1540	189	0.	*	1	2155	264	0.	
1	0315	40	537.	*	1	0930	115	0.	*	1	1545	190	0.	*	1	2200	265	0.	
1	0320	41	664.	*	1	0935	116	0.	*	1	1550	191	0.	*	1	2205	266	0.	
1	0325	42	872.	*	1	0940	117	0.	*	1	1555	192	0.	*	1	2210	267	0.	
1	0330	43	1218.	*	1	0945	118	0.	*	1	1600	193	0.	*	1	2215	268	0.	
1	0335	44	1696.	*	1	0950	119	0.	*	1	1605	194	0.	*	1	2220	269	0.	
1	0340	45	2278.	*	1	0955	120	0.	*	1	1610	195	0.	*	1	2225	270	0.	
1	0345	46	2882.	*	1	1000	121	0.	*	1	1615	196	0.	*	1	2230	271	0.	
1	0350	47	3385.	*	1	1005	122	0.	*	1	1620	197	0.	*	1	2235	272	0.	
1	0355	48	3711.	*	1	1010	123	0.	*	1	1625	198	0.	*	1	2240	273	0.	
1	0400	49	3827.	*	1	1015	124	0.	*	1	1630	199	0.	*	1	2245	274	0.	
1	0405	50	3760.	*	1	1020	125	0.	*	1	1635	200	0.	*	1	2250	275	0.	
1	0410	51	3572.	*	1	1025	126	0.	*	1	1640	201	0.	*	1	2255	276	0.	
1	0415	52	3321.	*	1	1030	127	0.	*	1	1645	202	0.	*	1	2300	277	0.	
1	0420	53	3058.	*	1	1035	128	0.	*	1	1650	203	0.	*	1	2305	278	0.	
1	0425	54	2804.	*	1	1040	129	0.	*	1	1655	204	0.	*	1	2310	279	0.	
1	0430	55	2552.	*	1	1045	130	0.	*	1	1700	205	0.	*	1	2315	280	0.	
1	0435	56	2304.	*	1	1050	131	0.	*	1	1705	206	0.	*	1	2320	281	0.	
1	0440	57	2100.	*	1	1055	132	0.	*	1	1710	207	0.	*	1	2325	282	0.	
1	0445	58	1961.	*	1	1100	133	0.	*	1	1715	208	0.	*	1	2330	283	0.	
1	0450	59	1888.	*	1	1105	134	0.	*	1	1720	209	0.	*	1	2335	284	0.	
1	0455	60	1862.	*	1	1110	135	0.	*	1	1725	210	0.	*	1	2340	285	0.	
1	0500	61	1863.	*	1	1115	136	0.	*	1	1730	211	0.	*	1	2345	286	0.	
1	0505	62	1872.	*	1	1120	137	0.	*	1	1735	212	0.	*	1	2350	287	0.	
1	0510	63	1867.	*	1	1125	138	0.	*	1	1740	213	0.	*	1	2355	288	0.	
1	0515	64	1827.	*	1	1130	139	0.	*	1	1745	214	0.	*	2	0000	289	0.	
1	0520	65	1748.	*	1	1135	140	0.	*	1	1750	215	0.	*	2	0005	290	0.	
1	0525	66	1636.	*	1	1140	141	0.	*	1	1755	216	0.	*	2	0010	291	0.	
1	0530	67	1500.	*	1	1145	142	0.	*	1	1800	217	0.	*	2	0015	292	0.	
1	0535	68	1352.	*	1	1150	143	0.	*	1	1805	218	0.	*	2	0020	293	0.	
1	0540	69	1204.	*	1	1155	144	0.	*	1	1810	219	0.	*	2	0025	294	0.	
1	0545	70	1066.	*	1	1200	145	0.	*	1	1815	220	0.	*	2	0030	295	0.	
1	0550	71	940.	*	1	1205	146	0.	*	1	1820	221	0.	*	2	0035	296	0.	
1	0555	72	825.	*	1	1210	147	0.	*	1	1825	222	0.	*	2	0040	297	0.	
1	0600	73	721.	*	1	1215	148	0.	*	1	1830	223	0.	*	2	0045	298	0.	
1	0605	74	629.	*	1	1220	149	0.	*	1	1835	224	0.	*	2	0050	299	0.	
1	0610	75	548.	*	1	1225	150	0.	*	1	1840	225	0.	*	2	0055	300	0.	

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
	(CFS)				
+ 3827.	4.00	1087.	274.	264.	264.
	(INCHES)	.508	.512	.512	.512
	(AC-FT)	539.	543.	543.	543.

CUMULATIVE AREA = 19.90 SQ MI

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          *            *
1996 KK   *    CPFWC5  *
          *            *
          **************

1997 KO         OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                        *BY MWH
                        COMBINE CPFWC4 & RR-4
                         **COLTON BASINS**

2000 HC         HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                        ***
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HYDROGRAPH AT STATION CPFWC5
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .88

DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	*	1		0615	76	511.	*	1		1230	151	0.	*	1		1845	226	0.
1		0005	2	0.	*	1		0620	77	446.	*	1		1235	152	0.	*	1		1850	227	0.
1		0010	3	1.	*	1		0625	78	389.	*	1		1240	153	0.	*	1		1855	228	0.
1		0015	4	3.	*	1		0630	79	339.	*	1		1245	154	0.	*	1		1900	229	0.
1		0020	5	11.	*	1		0635	80	294.	*	1		1250	155	0.	*	1		1905	230	0.
1		0025	6	28.	*	1		0640	81	253.	*	1		1255	156	0.	*	1		1910	231	0.
1		0030	7	46.	*	1		0645	82	216.	*	1		1300	157	0.	*	1		1915	232	0.
1		0035	8	56.	*	1		0650	83	182.	*	1		1305	158	0.	*	1		1920	233	0.
1		0040	9	59.	*	1		0655	84	151.	*	1		1310	159	0.	*	1		1925	234	0.
1		0045	10	60.	*	1		0700	85	124.	*	1		1315	160	0.	*	1		1930	235	0.
1		0050	11	63.	*	1		0705	86	101.	*	1		1320	161	0.	*	1		1935	236	0.
1		0055	12	68.	*	1		0710	87	83.	*	1		1325	162	0.	*	1		1940	237	0.
1		0100	13	74.	*	1		0715	88	67.	*	1		1330	163	0.	*	1		1945	238	0.

REFERENCE MATERIAL

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0105	14	80.	1		0720	89	54.	1		1335	164	0.	1		1950	239	0.
1		0110	15	89.	1		0725	90	43.	1		1340	165	0.	1		1955	240	0.
1		0115	16	98.	1		0730	91	35.	1		1345	166	0.	1		2000	241	0.
1		0120	17	106.	1		0735	92	28.	1		1350	167	0.	1		2005	242	0.
1		0125	18	117.	1		0740	93	22.	1		1355	168	0.	1		2010	243	0.
1		0130	19	134.	1		0745	94	18.	1		1400	169	0.	1		2015	244	0.
1		0135	20	153.	1		0750	95	14.	1		1405	170	0.	1		2020	245	0.
1		0140	21	172.	1		0755	96	11.	1		1410	171	0.	1		2025	246	0.
1		0145	22	190.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	207.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	227.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	251.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	276.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	303.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	330.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	355.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	375.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	387.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	397.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	411.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	431.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	453.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	475.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	509.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	563.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	655.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	802.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	1033.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	1387.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	1915.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	2515.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	3105.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	3661.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	4107.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	4364.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	4408.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	4274.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	4014.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	3703.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3400.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	3116.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	2845.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2601.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2405.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	2271.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	2205.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	2181.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	2165.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	2143.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	2103.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	2032.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	1924.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	1787.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	1628.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	1460.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	1295.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	1144.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	1009.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	886.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	775.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	675.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	587.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)				
		(CFS)			
4408.	4.00	1286.	325.	313.	313.
		(INCHES) .576	.582	.582	.582
		(AC-FT) 638.	644.	644.	644.

CUMULATIVE AREA = 20.76 SQ MI

HYDROGRAPH AT STATION CPFWC5
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .87

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	505.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	441.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	384.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	335.	1		1245	154	0.	1		1900	229	0.
1		0020	5	10.	1		0635	80	291.	1		1250	155	0.	1		1905	230	0.
1		0025	6	26.	1		0640	81	251.	1		1255	156	0.	1		1910	231	0.
1		0030	7	44.	1		0645	82	214.	1		1300	157	0.	1		1915	232	0.
1		0035	8	54.	1		0650	83	180.	1		1305	158	0.	1		1920	233	0.
1		0040	9	57.	1		0655	84	149.	1		1310	159	0.	1		1925	234	0.
1		0045	10	58.	1		0700	85	123.	1		1315	160	0.	1		1930	235	0.
1		0050	11	60.	1		0705	86	100.	1		1320	161	0.	1		1935	236	0.
1		0055	12	65.	1		0710	87	82.	1		1325	162	0.	1		1940	237	0.
1		0100	13	70.	1		0715	88	66.	1		1330	163	0.	1		1945	238	0.
1		0105	14	76.	1		0720	89	54.	1		1335	164	0.	1		1950	239	0.
1		0110	15	85.	1		0725	90	43.	1		1340	165	0.	1		1955	240	0.
1		0115	16	93.	1		0730	91	35.	1		1345	166	0.	1		2000	241	0.
1		0120	17	101.	1		0735	92	28.	1		1350	167	0.	1		2005	242	0.
1		0125	18	113.	1		0740	93	22.	1		1355	168	0.	1		2010	243	0.
1		0130	19	129.	1		0745	94	18.	1		1400	169	0.	1		2015	244	0.
1		0135	20	148.	1		0750	95	14.	1		1405	170	0.	1		2020	245	0.
1		0140	21	166.	1		0755	96	11.	1		1410	171	0.	1		2025	246	0.
1		0145	22	184.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	200.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	219.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	243.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	267.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	293.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	321.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	345.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	364.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	377.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	386.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.

REFERENCE MATERIAL

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0240	33	400.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	420.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	441.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	463.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	496.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	549.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	639.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	781.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	1010.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	1362.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	1884.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	2468.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	3043.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	3602.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	4055.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	4304.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	4339.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	4204.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	3952.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	3648.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3347.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	3067.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	2802.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2563.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2372.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	2242.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	2179.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	2153.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	2136.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	2115.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	2076.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	2006.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	1900.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	1765.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	1608.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	1443.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	1280.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	1131.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	997.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	876.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	766.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	667.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	580.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)				
		(CFS)			
4339.	4.00	1266.	320.	308.	308.
		(INCHES) .567	.573	.573	.573
		(AC-FT) 628.	634.	634.	634.

CUMULATIVE AREA = 20.76 SQ MI

HYDROGRAPH AT STATION CPFWC5
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .86

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	501.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	437.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	381.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	332.	1		1245	154	0.	1		1900	229	0.
1		0020	5	10.	1		0635	80	288.	1		1250	155	0.	1		1905	230	0.
1		0025	6	26.	1		0640	81	248.	1		1255	156	0.	1		1910	231	0.
1		0030	7	43.	1		0645	82	212.	1		1300	157	0.	1		1915	232	0.
1		0035	8	52.	1		0650	83	178.	1		1305	158	0.	1		1920	233	0.
1		0040	9	56.	1		0655	84	148.	1		1310	159	0.	1		1925	234	0.
1		0045	10	56.	1		0700	85	122.	1		1315	160	0.	1		1930	235	0.
1		0050	11	58.	1		0705	86	100.	1		1320	161	0.	1		1935	236	0.
1		0055	12	62.	1		0710	87	81.	1		1325	162	0.	1		1940	237	0.
1		0100	13	67.	1		0715	88	66.	1		1330	163	0.	1		1945	238	0.
1		0105	14	73.	1		0720	89	53.	1		1335	164	0.	1		1950	239	0.
1		0110	15	81.	1		0725	90	43.	1		1340	165	0.	1		1955	240	0.
1		0115	16	90.	1		0730	91	34.	1		1345	166	0.	1		2000	241	0.
1		0120	17	98.	1		0735	92	28.	1		1350	167	0.	1		2005	242	0.
1		0125	18	109.	1		0740	93	22.	1		1355	168	0.	1		2010	243	0.
1		0130	19	125.	1		0745	94	17.	1		1400	169	0.	1		2015	244	0.
1		0135	20	144.	1		0750	95	14.	1		1405	170	0.	1		2020	245	0.
1		0140	21	162.	1		0755	96	11.	1		1410	171	0.	1		2025	246	0.
1		0145	22	179.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	195.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	214.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	236.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	261.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	286.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	313.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	337.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	356.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	368.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	377.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	391.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	411.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	432.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	454.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	486.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	539.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	627.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	768.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	993.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	1337.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	1846.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	2417.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	2990.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	3537.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	3981.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	4236.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	4280.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	4152.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	3905.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.

REFERENCE MATERIAL

DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW
1		0415	52	3603.	*	1		1030	127	0.	*	1		1645	202	0.	*	1		2300	277	0.
1		0420	53	3303.	*	1		1035	128	0.	*	1		1650	203	0.	*	1		2305	278	0.
1		0425	54	3024.	*	1		1040	129	0.	*	1		1655	204	0.	*	1		2310	279	0.
1		0430	55	2765.	*	1		1045	130	0.	*	1		1700	205	0.	*	1		2315	280	0.
1		0435	56	2533.	*	1		1050	131	0.	*	1		1705	206	0.	*	1		2320	281	0.
1		0440	57	2344.	*	1		1055	132	0.	*	1		1710	207	0.	*	1		2325	282	0.
1		0445	58	2213.	*	1		1100	133	0.	*	1		1715	208	0.	*	1		2330	283	0.
1		0450	59	2151.	*	1		1105	134	0.	*	1		1720	209	0.	*	1		2335	284	0.
1		0455	60	2128.	*	1		1110	135	0.	*	1		1725	210	0.	*	1		2340	285	0.
1		0500	61	2112.	*	1		1115	136	0.	*	1		1730	211	0.	*	1		2345	286	0.
1		0505	62	2090.	*	1		1120	137	0.	*	1		1735	212	0.	*	1		2350	287	0.
1		0510	63	2051.	*	1		1125	138	0.	*	1		1740	213	0.	*	1		2355	288	0.
1		0515	64	1984.	*	1		1130	139	0.	*	1		1745	214	0.	*	2		0000	289	0.
1		0520	65	1881.	*	1		1135	140	0.	*	1		1750	215	0.	*	2		0005	290	0.
1		0525	66	1749.	*	1		1140	141	0.	*	1		1755	216	0.	*	2		0010	291	0.
1		0530	67	1593.	*	1		1145	142	0.	*	1		1800	217	0.	*	2		0015	292	0.
1		0535	68	1429.	*	1		1150	143	0.	*	1		1805	218	0.	*	2		0020	293	0.
1		0540	69	1269.	*	1		1155	144	0.	*	1		1810	219	0.	*	2		0025	294	0.
1		0545	70	1121.	*	1		1200	145	0.	*	1		1815	220	0.	*	2		0030	295	0.
1		0550	71	989.	*	1		1205	146	0.	*	1		1820	221	0.	*	2		0035	296	0.
1		0555	72	868.	*	1		1210	147	0.	*	1		1825	222	0.	*	2		0040	297	0.
1		0600	73	758.	*	1		1215	148	0.	*	1		1830	223	0.	*	2		0045	298	0.
1		0605	74	660.	*	1		1220	149	0.	*	1		1835	224	0.	*	2		0050	299	0.
1		0610	75	574.	*	1		1225	150	0.	*	1		1840	225	0.	*	2		0055	300	0.
					*						*						*					

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4280.	4.00	1248.	315.	304.	304.
		(INCHES) .559	.564	.564	.564
		(AC-FT) 619.	625.	625.	625.

CUMULATIVE AREA = 20.76 SQ MI

HYDROGRAPH AT STATION CPFWC5
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .85

DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW		DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	*	1		0615	76	496.	*	1		1230	151	0.	*	1		1845	226	0.
1		0005	2	0.	*	1		0620	77	433.	*	1		1235	152	0.	*	1		1850	227	0.
1		0010	3	0.	*	1		0625	78	378.	*	1		1240	153	0.	*	1		1855	228	0.
1		0015	4	3.	*	1		0630	79	329.	*	1		1245	154	0.	*	1		1900	229	0.
1		0020	5	9.	*	1		0635	80	286.	*	1		1250	155	0.	*	1		1905	230	0.
1		0025	6	25.	*	1		0640	81	246.	*	1		1255	156	0.	*	1		1910	231	0.
1		0030	7	42.	*	1		0645	82	210.	*	1		1300	157	0.	*	1		1915	232	0.
1		0035	8	51.	*	1		0650	83	177.	*	1		1305	158	0.	*	1		1920	233	0.
1		0040	9	54.	*	1		0655	84	147.	*	1		1310	159	0.	*	1		1925	234	0.
1		0045	10	55.	*	1		0700	85	121.	*	1		1315	160	0.	*	1		1930	235	0.
1		0050	11	56.	*	1		0705	86	99.	*	1		1320	161	0.	*	1		1935	236	0.
1		0055	12	60.	*	1		0710	87	81.	*	1		1325	162	0.	*	1		1940	237	0.
1		0100	13	65.	*	1		0715	88	65.	*	1		1330	163	0.	*	1		1945	238	0.
1		0105	14	71.	*	1		0720	89	53.	*	1		1335	164	0.	*	1		1950	239	0.
1		0110	15	79.	*	1		0725	90	43.	*	1		1340	165	0.	*	1		1955	240	0.
1		0115	16	87.	*	1		0730	91	34.	*	1		1345	166	0.	*	1		2000	241	0.
1		0120	17	95.	*	1		0735	92	27.	*	1		1350	167	0.	*	1		2005	242	0.
1		0125	18	105.	*	1		0740	93	22.	*	1		1355	168	0.	*	1		2010	243	0.
1		0130	19	121.	*	1		0745	94	17.	*	1		1400	169	0.	*	1		2015	244	0.
1		0135	20	140.	*	1		0750	95	14.	*	1		1405	170	0.	*	1		2020	245	0.
1		0140	21	158.	*	1		0755	96	11.	*	1		1410	171	0.	*	1		2025	246	0.
1		0145	22	175.	*	1		0800	97	9.	*	1		1415	172	0.	*	1		2030	247	0.
1		0150	23	191.	*	1		0805	98	7.	*	1		1420	173	0.	*	1		2035	248	0.
1		0155	24	209.	*	1		0810	99	5.	*	1		1425	174	0.	*	1		2040	249	0.
1		0200	25	231.	*	1		0815	100	4.	*	1		1430	175	0.	*	1		2045	250	0.
1		0205	26	255.	*	1		0820	101	3.	*	1		1435	176	0.	*	1		2050	251	0.
1		0210	27	279.	*	1		0825	102	2.	*	1		1440	177	0.	*	1		2055	252	0.
1		0215	28	306.	*	1		0830	103	2.	*	1		1445	178	0.	*	1		2100	253	0.
1		0220	29	330.	*	1		0835	104	1.	*	1		1450	179	0.	*	1		2105	254	0.
1		0225	30	349.	*	1		0840	105	1.	*	1		1455	180	0.	*	1		2110	255	0.
1		0230	31	361.	*	1		0845	106	1.	*	1		1500	181	0.	*	1		2115	256	0.
1		0235	32	370.	*	1		0850	107	1.	*	1		1505	182	0.	*	1		2120	257	0.
1		0240	33	384.	*	1		0855	108	0.	*	1		1510	183	0.	*	1		2125	258	0.
1		0245	34	403.	*	1		0900	109	0.	*	1		1515	184	0.	*	1		2130	259	0.
1		0250	35	424.	*	1		0905	110	0.	*	1		1520	185	0.	*	1		2135	260	0.
1		0255	36	445.	*	1		0910	111	0.	*	1		1525	186	0.	*	1		2140	261	0.
1		0300	37	477.	*	1		0915	112	0.	*	1		1530	187	0.	*	1		2145	262	0.
1		0305	38	530.	*	1		0920	113	0.	*	1		1535	188	0.	*	1		2150	263	0.
1		0310	39	617.	*	1		0925	114	0.	*	1		1540	189	0.	*	1		2155	264	0.
1		0315	40	756.	*	1		0930	115	0.	*	1		1545	190	0.	*	1		2200	265	0.
1		0320	41	976.	*	1		0935	116	0.	*	1		1550	191	0.	*	1		2205	266	0.
1		0325	42	1310.	*	1		0940	117	0.	*	1		1555	192	0.	*	1		2210	267	0.
1		0330	43	1814.	*	1		0945	118	0.	*	1		1600	193	0.	*	1		2215	268	0.
1		0335	44	2384.	*	1		0950	119	0.	*	1		1605	194	0.	*	1		2220	269	0.
1		0340	45	2947.	*	1		0955	120	0.	*	1		1610	195	0.	*	1		2225	270	0.
1		0345	46	3487.	*	1		1000	121	0.	*	1		1615	196	0.	*	1		2230	271	0.
1		0350	47	3927.	*	1		1005	122	0.	*	1		1620	197	0.	*	1		2235	272	0.
1		0355	48	4190.	*	1		1010	123	0.	*	1		1625	198	0.	*	1		2240	273	0.
1		0400	49	4242.	*	1		1015	124	0.	*	1		1630	199	0.	*	1		2245	274	0.
1		0405	50	4110.	*	1		1020	125	0.	*	1		1635	200	0.	*	1		2250	275	0.
1		0410	51	3862.	*	1		1025	126	0.	*	1		1640	201	0.	*	1		2255	276	0.
1		0415	52	3562.	*	1		1030	127	0.	*	1		1645	202	0.	*	1		2300	277	0.
1		0420	53	3264.	*	1		1035	128	0.	*	1		1650	203	0.	*	1		2305	278	0.
1		0425	54	2989.	*	1		1040	129	0.	*	1		1655	204	0.	*	1		2310	279	0.
1		0430	55	2734.	*	1		1045	130	0.	*	1		1700	205	0.	*	1		2315	280	0.
1		0435	56	2502.	*	1		1050	131	0.	*	1		1705	206	0.	*	1		2320	281	0.
1		0440	57	2317.	*	1		1055	132	0.	*	1		1710	207	0.	*	1		2325	282	0.
1		0445	58	2192.	*	1		1100	133	0.	*	1		1715	208	0.	*	1		2330	283	0.
1		0450	59	2133.	*	1		1105	134	0.	*	1		1720	209	0.	*	1		2335	284	0.
1		0455	60	2109.	*	1		1110	135	0.	*	1		1725	210	0.	*	1		2340	285	0.
1		0500	61	2091.	*	1		1115	136	0.	*	1		1730	211	0.	*	1		2345	286	0.
1		0505	62	2070.	*	1		1120	137	0.	*	1		1735	212	0.	*	1		2350	287	0.
1		0510	63	2034.	*	1		1125	138	0.	*	1		1740	213	0.	*	1		2355	288	0.
1		0515	64	1966.	*	1		1130	139	0.	*	1		1745	214	0.	*	2		0000	289	0.
1		0520	65	1863.	*	1		1135	140	0.	*	1		1750	215	0.	*	2		0005	290	0.
1		0525	66	1731.	*	1		1140	141	0.	*	1		1755	216	0.	*	2		0010	291	0.
1		0530	67	1579.	*	1		1145	142	0.	*	1		1800	217	0.	*	2		0015	292	0.
1		0535	68	1417.	*	1		1150	143	0.	*	1		1805	218	0.	*	2		0020	293	0.
1		0540	69	1258.	*	1		1155	144	0.	*	1		1810	219	0.	*	2		0025	294	0.
1		0545	70	1112.	*	1		1200	145	0.	*	1		1815	220	0.	*	2		0030	295	0.

REFERENCE MATERIAL

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0550	71	981.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	861.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	753.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	656.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	570.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)	(CFS)			
4242.	4.00	1233.	311.	300.	300.
		(INCHES) .552	.558	.558	.558
		(AC-FT) 612.	618.	618.	618.

CUMULATIVE AREA = 20.76 SQ MI

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2335 KK     **************
            *            *
            *    CPFWC6  *
            *            *
            **************

2336 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          1  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                          *BY MWH
                           COMBINE COMBINES COLTON CP-7, RR-3, AND CPFWC5

2339 HC          HYDROGRAPH COMBINATION
                      ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***
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HYDROGRAPH AT STATION CPFWC6
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .88

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	539.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	469.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	408.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	355.	1		1245	154	0.	1		1900	229	0.
1		0020	5	12.	1		0635	80	307.	1		1250	155	0.	1		1905	230	0.
1		0025	6	32.	1		0640	81	264.	1		1255	156	0.	1		1910	231	0.
1		0030	7	56.	1		0645	82	225.	1		1300	157	0.	1		1915	232	0.
1		0035	8	72.	1		0650	83	189.	1		1305	158	0.	1		1920	233	0.
1		0040	9	79.	1		0655	84	157.	1		1310	159	0.	1		1925	234	0.
1		0045	10	80.	1		0700	85	129.	1		1315	160	0.	1		1930	235	0.
1		0050	11	83.	1		0705	86	105.	1		1320	161	0.	1		1935	236	0.
1		0055	12	87.	1		0710	87	86.	1		1325	162	0.	1		1940	237	0.
1		0100	13	92.	1		0715	88	69.	1		1330	163	0.	1		1945	238	0.
1		0105	14	98.	1		0720	89	56.	1		1335	164	0.	1		1950	239	0.
1		0110	15	108.	1		0725	90	45.	1		1340	165	0.	1		1955	240	0.
1		0115	16	118.	1		0730	91	36.	1		1345	166	0.	1		2000	241	0.
1		0120	17	129.	1		0735	92	29.	1		1350	167	0.	1		2005	242	0.
1		0125	18	142.	1		0740	93	23.	1		1355	168	0.	1		2010	243	0.
1		0130	19	163.	1		0745	94	18.	1		1400	169	0.	1		2015	244	0.
1		0135	20	188.	1		0750	95	14.	1		1405	170	0.	1		2020	245	0.
1		0140	21	213.	1		0755	96	11.	1		1410	171	0.	1		2025	246	0.
1		0145	22	235.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	255.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	275.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	300.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	327.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	355.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	386.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	415.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	437.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	451.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	459.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	472.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	495.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	521.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	548.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	589.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	659.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	779.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	970.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	1270.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	1725.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	2390.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	3117.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	3757.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	4313.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	4740.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	4955.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	4935.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	4727.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	4394.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	4018.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3666.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	3346.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	3056.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2811.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2625.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	2499.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	2442.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	2426.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	2404.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	2365.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	2305.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	2213.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	2083.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	1924.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.

REFERENCE MATERIAL

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0530	67	1747.	1		1145	142	0.	1		1800	217	0.
1		0535	68	1561.	1		1150	143	0.	1		1805	218	0.
1		0540	69	1380.	1		1155	144	0.	1		1810	219	0.
1		0545	70	1216.	1		1200	145	0.	1		1815	220	0.
1		0550	71	1071.	1		1205	146	0.	1		1820	221	0.
1		0555	72	940.	1		1210	147	0.	1		1825	222	0.
1		0600	73	822.	1		1215	148	0.	1		1830	223	0.
1		0605	74	715.	1		1220	149	0.	1		1835	224	0.
1		0610	75	621.	1		1225	150	0.	1		1840	225	0.

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
2		0015	292	0.	2		0845	106	0.	2		1515	184	0.
2		0020	293	0.	2		0850	107	0.	2		1520	185	0.
2		0025	294	0.	2		0855	108	0.	2		1525	186	0.
2		0030	295	0.	2		0900	109	0.	2		1530	187	0.
2		0035	296	0.	2		0905	110	0.	2		1535	188	0.
2		0040	297	0.	2		0910	111	0.	2		1540	189	0.
2		0045	298	0.	2		0915	112	0.	2		1545	190	0.
2		0050	299	0.	2		0920	113	0.	2		1550	191	0.
2		0055	300	0.	2		0925	114	0.	2		1555	192	0.
							0930	115	0.			1600	193	0.
							0935	116	0.			1605	194	0.
							0940	117	0.			1610	195	0.
							0945	118	0.			1615	196	0.
							0950	119	0.			1620	197	0.
							0955	120	0.			1625	198	0.
							1000	121	0.			1630	199	0.
							1005	122	0.			1635	200	0.
							1010	123	0.			1640	201	0.
							1015	124	0.			1645	202	0.
							1020	125	0.			1650	203	0.
							1025	126	0.			1655	204	0.
							1030	127	0.			1700	205	0.
							1035	128	0.			1705	206	0.
							1040	129	0.			1710	207	0.
							1045	130	0.			1715	208	0.
							1050	131	0.			1720	209	0.
							1055	132	0.			1725	210	0.
							1100	133	0.			1730	211	0.
							1105	134	0.			1735	212	0.
							1110	135	0.			1740	213	0.
							1115	136	0.			1745	214	0.
							1120	137	0.			1750	215	0.
							1125	138	0.			1755	216	0.
							1130	139	0.			1800	217	0.
							1135	140	0.			1805	218	0.
							1140	141	0.			1810	219	0.
							1145	142	0.			1815	220	0.
							1150	143	0.			1820	221	0.
							1155	144	0.			1825	222	0.
							1200	145	0.			1830	223	0.
							1205	146	0.			1835	224	0.
							1210	147	0.			1840	225	0.
							1215	148	0.			1845	226	0.
							1220	149	0.			1850	227	0.
							1225	150	0.			1855	228	0.
												1900	229	0.
												1905	230	0.
												1910	231	0.
												1915	232	0.
												1920	233	0.
												1925	234	0.
												1930	235	0.
												1935	236	0.
												1940	237	0.
												1945	238	0.
												1950	239	0.
												1955	240	0.
												2000	241	0.
												2005	242	0.
												2010	243	0.
												2015	244	0.
												2020	245	0.
												2025	246	0.
												2030	247	0.
												2035	248	0.
												2040	249	0.
												2045	250	0.
												2050	251	0.
												2055	252	0.
												2100	253	0.
												2105	254	0.
												2110	255	0.
												2115	256	0.
												2120	257	0.
												2125	258	0.
												2130	259	0.
												2135	260	0.
												2140	261	0.
												2145	262	0.
												2150	263	0.
												2155	264	0.
												2200	265	0.
												2205	266	0.
												2210	267	0.
												2215	268	0.
												2220	269	0.
												2225	270	0.
												2230	271	0.
												2235	272	0.
												2240	273	0.
												2245	274	0.
												2250	275	0.
												2255	276	0.
												2300	277	0.
												2305	278	0.
												2310	279	0.
												2315	280	0.
												2320	281	0.
												2325	282	0.
												2330	283	0.
												2335	284	0.
												2340	285	0.
												2345	286	0.
												2350	287	0.
												2355	288	0.
										2		0000	289	0.
										2		0005	290	0.
										2		0010	291	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)				
4955.	3.92	(CFS) 1440.	364.	351.	351.
		(INCHES) .617	.624	.624	.624
		(AC-FT) 714.	722.	722.	722.

CUMULATIVE AREA = 21.70 SQ MI

HYDROGRAPH AT STATION CPFWC6
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .87

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)				
4890.	3.92	(CFS) 1418.	358.	345.	345.
		(INCHES) .608	.614	.614	.614
		(AC-FT) 703.	711.	711.	711.

REFERENCE MATERIAL

CUMULATIVE AREA = 21.70 SQ MI

HYDROGRAPH AT STATION CPFWC6
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .86

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	528.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	460.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	400.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	347.	1		1245	154	0.	1		1900	229	0.
1		0020	5	11.	1		0635	80	301.	1		1250	155	0.	1		1905	230	0.
1		0025	6	30.	1		0640	81	259.	1		1255	156	0.	1		1910	231	0.
1		0030	7	53.	1		0645	82	221.	1		1300	157	0.	1		1915	232	0.
1		0035	8	67.	1		0650	83	185.	1		1305	158	0.	1		1920	233	0.
1		0040	9	74.	1		0655	84	154.	1		1310	159	0.	1		1925	234	0.
1		0045	10	75.	1		0700	85	127.	1		1315	160	0.	1		1930	235	0.
1		0050	11	76.	1		0705	86	104.	1		1320	161	0.	1		1935	236	0.
1		0055	12	80.	1		0710	87	84.	1		1325	162	0.	1		1940	237	0.
1		0100	13	85.	1		0715	88	68.	1		1330	163	0.	1		1945	238	0.
1		0105	14	90.	1		0720	89	55.	1		1335	164	0.	1		1950	239	0.
1		0110	15	99.	1		0725	90	44.	1		1340	165	0.	1		1955	240	0.
1		0115	16	109.	1		0730	91	35.	1		1345	166	0.	1		2000	241	0.
1		0120	17	119.	1		0735	92	28.	1		1350	167	0.	1		2005	242	0.
1		0125	18	132.	1		0740	93	23.	1		1355	168	0.	1		2010	243	0.
1		0130	19	152.	1		0745	94	18.	1		1400	169	0.	1		2015	244	0.
1		0135	20	177.	1		0750	95	14.	1		1405	170	0.	1		2020	245	0.
1		0140	21	200.	1		0755	96	11.	1		1410	171	0.	1		2025	246	0.
1		0145	22	222.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	240.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	260.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	284.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	310.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	336.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	366.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	394.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	416.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	430.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	437.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	451.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	472.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	497.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	524.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	564.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	631.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	746.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	930.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	1220.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	1661.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	2302.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	2996.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	3621.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	4173.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	4604.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	4818.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	4797.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	4595.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	4277.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	3910.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3561.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	3249.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	2970.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2737.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2557.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	2435.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	2382.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	2366.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	2344.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	2307.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	2250.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	2162.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	2037.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	1883.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	1709.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	1528.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	1352.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	1191.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	1049.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	920.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	804.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	700.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	608.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4818.	3.92	1398.	353.	340.	340.
		(INCHES) .599	.605	.605	.605
		(AC-FT) 693.	701.	701.	701.

CUMULATIVE AREA = 21.70 SQ MI

HYDROGRAPH AT STATION CPFWC6
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .85

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	524.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	456.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	396.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	345.	1		1245	154	0.	1		1900	229	0.
1		0020	5	11.	1		0635	80	298.	1		1250	155	0.	1		1905	230	0.

REFERENCE MATERIAL

1	0025	6	29.	*	1	0640	81	257.	*	1	1255	156	0.	*	1	1910	231	0.
1	0030	7	51.	*	1	0645	82	219.	*	1	1300	157	0.	*	1	1915	232	0.
1	0035	8	66.	*	1	0650	83	184.	*	1	1305	158	0.	*	1	1920	233	0.
1	0040	9	72.	*	1	0655	84	153.	*	1	1310	159	0.	*	1	1925	234	0.
1	0045	10	72.	*	1	0700	85	126.	*	1	1315	160	0.	*	1	1930	235	0.
1	0050	11	74.	*	1	0705	86	103.	*	1	1320	161	0.	*	1	1935	236	0.
1	0055	12	78.	*	1	0710	87	84.	*	1	1325	162	0.	*	1	1940	237	0.
1	0100	13	82.	*	1	0715	88	68.	*	1	1330	163	0.	*	1	1945	238	0.
1	0105	14	87.	*	1	0720	89	55.	*	1	1335	164	0.	*	1	1950	239	0.
1	0110	15	96.	*	1	0725	90	44.	*	1	1340	165	0.	*	1	1955	240	0.
1	0115	16	106.	*	1	0730	91	35.	*	1	1345	166	0.	*	1	2000	241	0.
1	0120	17	115.	*	1	0735	92	28.	*	1	1350	167	0.	*	1	2005	242	0.
1	0125	18	128.	*	1	0740	93	23.	*	1	1355	168	0.	*	1	2010	243	0.
1	0130	19	148.	*	1	0745	94	18.	*	1	1400	169	0.	*	1	2015	244	0.
1	0135	20	172.	*	1	0750	95	14.	*	1	1405	170	0.	*	1	2020	245	0.
1	0140	21	195.	*	1	0755	96	11.	*	1	1410	171	0.	*	1	2025	246	0.
1	0145	22	217.	*	1	0800	97	9.	*	1	1415	172	0.	*	1	2030	247	0.
1	0150	23	235.	*	1	0805	98	7.	*	1	1420	173	0.	*	1	2035	248	0.
1	0155	24	254.	*	1	0810	99	5.	*	1	1425	174	0.	*	1	2040	249	0.
1	0200	25	278.	*	1	0815	100	4.	*	1	1430	175	0.	*	1	2045	250	0.
1	0205	26	303.	*	1	0820	101	3.	*	1	1435	176	0.	*	1	2050	251	0.
1	0210	27	329.	*	1	0825	102	2.	*	1	1440	177	0.	*	1	2055	252	0.
1	0215	28	358.	*	1	0830	103	2.	*	1	1445	178	0.	*	1	2100	253	0.
1	0220	29	386.	*	1	0835	104	1.	*	1	1450	179	0.	*	1	2105	254	0.
1	0225	30	408.	*	1	0840	105	1.	*	1	1455	180	0.	*	1	2110	255	0.
1	0230	31	421.	*	1	0845	106	1.	*	1	1500	181	0.	*	1	2115	256	0.
1	0235	32	429.	*	1	0850	107	1.	*	1	1505	182	0.	*	1	2120	257	0.
1	0240	33	442.	*	1	0855	108	0.	*	1	1510	183	0.	*	1	2125	258	0.
1	0245	34	464.	*	1	0900	109	0.	*	1	1515	184	0.	*	1	2130	259	0.
1	0250	35	488.	*	1	0905	110	0.	*	1	1520	185	0.	*	1	2135	260	0.
1	0255	36	514.	*	1	0910	111	0.	*	1	1525	186	0.	*	1	2140	261	0.
1	0300	37	554.	*	1	0915	112	0.	*	1	1530	187	0.	*	1	2145	262	0.
1	0305	38	621.	*	1	0920	113	0.	*	1	1535	188	0.	*	1	2150	263	0.
1	0310	39	734.	*	1	0925	114	0.	*	1	1540	189	0.	*	1	2155	264	0.
1	0315	40	915.	*	1	0930	115	0.	*	1	1545	190	0.	*	1	2200	265	0.
1	0320	41	1200.	*	1	0935	116	0.	*	1	1550	191	0.	*	1	2205	266	0.
1	0325	42	1630.	*	1	0940	117	0.	*	1	1555	192	0.	*	1	2210	267	0.
1	0330	43	2263.	*	1	0945	118	0.	*	1	1600	193	0.	*	1	2215	268	0.
1	0335	44	2955.	*	1	0950	119	0.	*	1	1605	194	0.	*	1	2220	269	0.
1	0340	45	3570.	*	1	0955	120	0.	*	1	1610	195	0.	*	1	2225	270	0.
1	0345	46	4115.	*	1	1000	121	0.	*	1	1615	196	0.	*	1	2230	271	0.
1	0350	47	4542.	*	1	1005	122	0.	*	1	1620	197	0.	*	1	2235	272	0.
1	0355	48	4765.	*	1	1010	123	0.	*	1	1625	198	0.	*	1	2240	273	0.
1	0400	49	4753.	*	1	1015	124	0.	*	1	1630	199	0.	*	1	2245	274	0.
1	0405	50	4549.	*	1	1020	125	0.	*	1	1635	200	0.	*	1	2250	275	0.
1	0410	51	4230.	*	1	1025	126	0.	*	1	1640	201	0.	*	1	2255	276	0.
1	0415	52	3867.	*	1	1030	127	0.	*	1	1645	202	0.	*	1	2300	277	0.
1	0420	53	3520.	*	1	1035	128	0.	*	1	1650	203	0.	*	1	2305	278	0.
1	0425	54	3211.	*	1	1040	129	0.	*	1	1655	204	0.	*	1	2310	279	0.
1	0430	55	2937.	*	1	1045	130	0.	*	1	1700	205	0.	*	1	2315	280	0.
1	0435	56	2704.	*	1	1050	131	0.	*	1	1705	206	0.	*	1	2320	281	0.
1	0440	57	2529.	*	1	1055	132	0.	*	1	1710	207	0.	*	1	2325	282	0.
1	0445	58	2411.	*	1	1100	133	0.	*	1	1715	208	0.	*	1	2330	283	0.
1	0450	59	2362.	*	1	1105	134	0.	*	1	1720	209	0.	*	1	2335	284	0.
1	0455	60	2345.	*	1	1110	135	0.	*	1	1725	210	0.	*	1	2340	285	0.
1	0500	61	2321.	*	1	1115	136	0.	*	1	1730	211	0.	*	1	2345	286	0.
1	0505	62	2285.	*	1	1120	137	0.	*	1	1735	212	0.	*	1	2350	287	0.
1	0510	63	2231.	*	1	1125	138	0.	*	1	1740	213	0.	*	1	2355	288	0.
1	0515	64	2143.	*	1	1130	139	0.	*	1	1745	214	0.	*	2	0000	289	0.
1	0520	65	2017.	*	1	1135	140	0.	*	1	1750	215	0.	*	2	0005	290	0.
1	0525	66	1864.	*	1	1140	141	0.	*	1	1755	216	0.	*	2	0010	291	0.
1	0530	67	1694.	*	1	1145	142	0.	*	1	1800	217	0.	*	2	0015	292	0.
1	0535	68	1515.	*	1	1150	143	0.	*	1	1805	218	0.	*	2	0020	293	0.
1	0540	69	1341.	*	1	1155	144	0.	*	1	1810	219	0.	*	2	0025	294	0.
1	0545	70	1181.	*	1	1200	145	0.	*	1	1815	220	0.	*	2	0030	295	0.
1	0550	71	1040.	*	1	1205	146	0.	*	1	1820	221	0.	*	2	0035	296	0.
1	0555	72	913.	*	1	1210	147	0.	*	1	1825	222	0.	*	2	0040	297	0.
1	0600	73	798.	*	1	1215	148	0.	*	1	1830	223	0.	*	2	0045	298	0.
1	0605	74	695.	*	1	1220	149	0.	*	1	1835	224	0.	*	2	0050	299	0.
1	0610	75	603.	*	1	1225	150	0.	*	1	1840	225	0.	*	2	0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
	(CFS)				
+ 4765.	3.92	1381.	349.	336.	336.
	(INCHES)	.592	.598	.598	.598
	(AC-FT)	685.	692.	692.	692.

CUMULATIVE AREA = 21.70 SQ MI

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 2360 KK          **************
                  *            *
                  *    CPFWC7  *
                  *            *
                  **************

 2361 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          1  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                            POINT BY MWH
                             COMBINE COMBINES COLTON OFF1, RR-2, AND CPFWC6

 2364 HC          HYDROGRAPH COMBINATION
                        ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION CPFWC7
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .88

DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW
1 0000	1	0.	1 0615	76	542.	1 1230	151	0.	1 1845	226	0.

REFERENCE MATERIAL

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0005	2	0.	1		0620	77	472.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	410.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	357.	1		1245	154	0.	1		1900	229	0.
1		0020	5	12.	1		0635	80	309.	1		1250	155	0.	1		1905	230	0.
1		0025	6	33.	1		0640	81	266.	1		1255	156	0.	1		1910	231	0.
1		0030	7	57.	1		0645	82	226.	1		1300	157	0.	1		1915	232	0.
1		0035	8	73.	1		0650	83	190.	1		1305	158	0.	1		1920	233	0.
1		0040	9	79.	1		0655	84	158.	1		1310	159	0.	1		1925	234	0.
1		0045	10	80.	1		0700	85	130.	1		1315	160	0.	1		1930	235	0.
1		0050	11	83.	1		0705	86	106.	1		1320	161	0.	1		1935	236	0.
1		0055	12	87.	1		0710	87	86.	1		1325	162	0.	1		1940	237	0.
1		0100	13	92.	1		0715	88	70.	1		1330	163	0.	1		1945	238	0.
1		0105	14	98.	1		0720	89	56.	1		1335	164	0.	1		1950	239	0.
1		0110	15	108.	1		0725	90	45.	1		1340	165	0.	1		1955	240	0.
1		0115	16	119.	1		0730	91	36.	1		1345	166	0.	1		2000	241	0.
1		0120	17	129.	1		0735	92	29.	1		1350	167	0.	1		2005	242	0.
1		0125	18	143.	1		0740	93	23.	1		1355	168	0.	1		2010	243	0.
1		0130	19	163.	1		0745	94	18.	1		1400	169	0.	1		2015	244	0.
1		0135	20	189.	1		0750	95	15.	1		1405	170	0.	1		2020	245	0.
1		0140	21	213.	1		0755	96	12.	1		1410	171	0.	1		2025	246	0.
1		0145	22	236.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	255.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	277.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	302.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	329.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	358.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	388.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	416.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	439.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	452.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	460.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	473.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	496.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	522.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	549.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	591.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	661.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	781.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	973.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	1275.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	1731.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	2396.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	3122.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	3760.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	4316.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	4742.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	4957.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	4937.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	4729.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	4396.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	4020.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3673.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	3357.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	3066.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2821.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2633.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	2506.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	2449.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	2432.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	2409.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	2369.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	2309.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	2216.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	2086.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	1927.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	1749.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	1563.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	1382.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	1217.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	1072.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	942.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	825.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	718.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	624.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)	(CFS)			
+ 4957.	3.92	1443.	365.	351.	351.
		(INCHES) .618	.625	.625	.625
		(AC-FT) 716.	723.	723.	723.

CUMULATIVE AREA = 21.71 SQ MI

HYDROGRAPH AT STATION CPFWC7
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .87

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	536.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	466.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	406.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	352.	1		1245	154	0.	1		1900	229	0.
1		0020	5	12.	1		0635	80	305.	1		1250	155	0.	1		1905	230	0.
1		0025	6	31.	1		0640	81	263.	1		1255	156	0.	1		1910	231	0.
1		0030	7	55.	1		0645	82	224.	1		1300	157	0.	1		1915	232	0.
1		0035	8	70.	1		0650	83	188.	1		1305	158	0.	1		1920	233	0.
1		0040	9	76.	1		0655	84	156.	1		1310	159	0.	1		1925	234	0.
1		0045	10	77.	1		0700	85	128.	1		1315	160	0.	1		1930	235	0.
1		0050	11	79.	1		0705	86	105.	1		1320	161	0.	1		1935	236	0.
1		0055	12	83.	1		0710	87	85.	1		1325	162	0.	1		1940	237	0.
1		0100	13	88.	1		0715	88	69.	1		1330	163	0.	1		1945	238	0.
1		0105	14	94.	1		0720	89	56.	1		1335	164	0.	1		1950	239	0.
1		0110	15	103.	1		0725	90	45.	1		1340	165	0.	1		1955	240	0.
1		0115	16	113.	1		0730	91	36.	1		1345	166	0.	1		2000	241	0.
1		0120	17	123.	1		0735	92	29.	1		1350	167	0.	1		2005	242	0.
1		0125	18	137.	1		0740	93	23.	1		1355	168	0.	1		2010	243	0.
1		0130	19	157.	1		0745	94	18.	1		1400	169	0.	1		2015	244	0.
1		0135	20	182.	1		0750	95	15.	1		1405	170	0.	1		2020	245	0.

REFERENCE MATERIAL

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0140	21	206.	1		0755	96	12.	1		1410	171	0.	1		2025	246	0.
1		0145	22	228.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	247.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	268.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	293.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	320.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	347.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	377.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	405.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	427.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	440.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	448.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	461.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	483.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	509.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	535.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	576.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	645.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	762.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	949.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	1246.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	1697.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	2355.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	3063.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	3687.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	4248.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	4685.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	4892.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	4862.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	4653.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	4329.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	3961.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3616.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	3304.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	3019.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2779.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2596.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	2473.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	2419.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	2400.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	2376.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	2338.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	2280.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	2189.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	2060.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	1903.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	1727.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	1545.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	1366.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	1203.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	1060.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	931.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	815.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	710.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	617.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)				
		(CFS)			
4892.	3.92	1420.	359.	346.	346.
		(INCHES) .608	.615	.615	.615
		(AC-FT) 704.	712.	712.	712.

CUMULATIVE AREA = 21.71 SQ MI

HYDROGRAPH AT STATION CPFWC7
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .86

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	531.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	462.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	402.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	349.	1		1245	154	0.	1		1900	229	0.
1		0020	5	11.	1		0635	80	302.	1		1250	155	0.	1		1905	230	0.
1		0025	6	30.	1		0640	81	260.	1		1255	156	0.	1		1910	231	0.
1		0030	7	53.	1		0645	82	222.	1		1300	157	0.	1		1915	232	0.
1		0035	8	68.	1		0650	83	187.	1		1305	158	0.	1		1920	233	0.
1		0040	9	74.	1		0655	84	155.	1		1310	159	0.	1		1925	234	0.
1		0045	10	75.	1		0700	85	127.	1		1315	160	0.	1		1930	235	0.
1		0050	11	77.	1		0705	86	104.	1		1320	161	0.	1		1935	236	0.
1		0055	12	80.	1		0710	87	85.	1		1325	162	0.	1		1940	237	0.
1		0100	13	85.	1		0715	88	69.	1		1330	163	0.	1		1945	238	0.
1		0105	14	90.	1		0720	89	55.	1		1335	164	0.	1		1950	239	0.
1		0110	15	99.	1		0725	90	44.	1		1340	165	0.	1		1955	240	0.
1		0115	16	109.	1		0730	91	36.	1		1345	166	0.	1		2000	241	0.
1		0120	17	119.	1		0735	92	29.	1		1350	167	0.	1		2005	242	0.
1		0125	18	133.	1		0740	93	23.	1		1355	168	0.	1		2010	243	0.
1		0130	19	153.	1		0745	94	18.	1		1400	169	0.	1		2015	244	0.
1		0135	20	177.	1		0750	95	14.	1		1405	170	0.	1		2020	245	0.
1		0140	21	200.	1		0755	96	11.	1		1410	171	0.	1		2025	246	0.
1		0145	22	222.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	241.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	261.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	286.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	312.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	339.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	368.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	396.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	418.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	431.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	439.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	452.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	473.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	498.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	525.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	565.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	633.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	748.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.

REFERENCE MATERIAL

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0315	40	933.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	1224.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	1666.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	2308.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	3002.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	3625.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	4176.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	4607.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	4820.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	4799.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	4597.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	4278.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	3912.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3568.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	3259.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	2980.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2746.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2565.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	2442.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.
1		0450	59	2389.	1		1105	134	0.	1		1720	209	0.	1		2335	284	0.
1		0455	60	2372.	1		1110	135	0.	1		1725	210	0.	1		2340	285	0.
1		0500	61	2349.	1		1115	136	0.	1		1730	211	0.	1		2345	286	0.
1		0505	62	2311.	1		1120	137	0.	1		1735	212	0.	1		2350	287	0.
1		0510	63	2254.	1		1125	138	0.	1		1740	213	0.	1		2355	288	0.
1		0515	64	2165.	1		1130	139	0.	1		1745	214	0.	2		0000	289	0.
1		0520	65	2040.	1		1135	140	0.	1		1750	215	0.	2		0005	290	0.
1		0525	66	1885.	1		1140	141	0.	1		1755	216	0.	2		0010	291	0.
1		0530	67	1711.	1		1145	142	0.	1		1800	217	0.	2		0015	292	0.
1		0535	68	1530.	1		1150	143	0.	1		1805	218	0.	2		0020	293	0.
1		0540	69	1354.	1		1155	144	0.	1		1810	219	0.	2		0025	294	0.
1		0545	70	1193.	1		1200	145	0.	1		1815	220	0.	2		0030	295	0.
1		0550	71	1050.	1		1205	146	0.	1		1820	221	0.	2		0035	296	0.
1		0555	72	922.	1		1210	147	0.	1		1825	222	0.	2		0040	297	0.
1		0600	73	807.	1		1215	148	0.	1		1830	223	0.	2		0045	298	0.
1		0605	74	703.	1		1220	149	0.	1		1835	224	0.	2		0050	299	0.
1		0610	75	611.	1		1225	150	0.	1		1840	225	0.	2		0055	300	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4820.	3.92	1401.	354.	341.	341.
		(INCHES) .600	.606	.606	.606
		(AC-FT) 695.	702.	702.	702.

CUMULATIVE AREA = 21.71 SQ MI

HYDROGRAPH AT STATION CPFWC7
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .85

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	527.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	458.	1		1235	152	0.	1		1850	227	0.
1		0010	3	1.	1		0625	78	399.	1		1240	153	0.	1		1855	228	0.
1		0015	4	3.	1		0630	79	347.	1		1245	154	0.	1		1900	229	0.
1		0020	5	11.	1		0635	80	300.	1		1250	155	0.	1		1905	230	0.
1		0025	6	30.	1		0640	81	258.	1		1255	156	0.	1		1910	231	0.
1		0030	7	52.	1		0645	82	220.	1		1300	157	0.	1		1915	232	0.
1		0035	8	66.	1		0650	83	185.	1		1305	158	0.	1		1920	233	0.
1		0040	9	72.	1		0655	84	154.	1		1310	159	0.	1		1925	234	0.
1		0045	10	73.	1		0700	85	127.	1		1315	160	0.	1		1930	235	0.
1		0050	11	74.	1		0705	86	103.	1		1320	161	0.	1		1935	236	0.
1		0055	12	78.	1		0710	87	84.	1		1325	162	0.	1		1940	237	0.
1		0100	13	82.	1		0715	88	68.	1		1330	163	0.	1		1945	238	0.
1		0105	14	88.	1		0720	89	55.	1		1335	164	0.	1		1950	239	0.
1		0110	15	96.	1		0725	90	44.	1		1340	165	0.	1		1955	240	0.
1		0115	16	106.	1		0730	91	36.	1		1345	166	0.	1		2000	241	0.
1		0120	17	115.	1		0735	92	28.	1		1350	167	0.	1		2005	242	0.
1		0125	18	129.	1		0740	93	23.	1		1355	168	0.	1		2010	243	0.
1		0130	19	149.	1		0745	94	18.	1		1400	169	0.	1		2015	244	0.
1		0135	20	173.	1		0750	95	14.	1		1405	170	0.	1		2020	245	0.
1		0140	21	196.	1		0755	96	11.	1		1410	171	0.	1		2025	246	0.
1		0145	22	217.	1		0800	97	9.	1		1415	172	0.	1		2030	247	0.
1		0150	23	235.	1		0805	98	7.	1		1420	173	0.	1		2035	248	0.
1		0155	24	255.	1		0810	99	5.	1		1425	174	0.	1		2040	249	0.
1		0200	25	279.	1		0815	100	4.	1		1430	175	0.	1		2045	250	0.
1		0205	26	305.	1		0820	101	3.	1		1435	176	0.	1		2050	251	0.
1		0210	27	331.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	360.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	388.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	409.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	423.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	430.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	443.	1		0855	108	0.	1		1510	183	0.	1		2125	258	0.
1		0245	34	465.	1		0900	109	0.	1		1515	184	0.	1		2130	259	0.
1		0250	35	489.	1		0905	110	0.	1		1520	185	0.	1		2135	260	0.
1		0255	36	515.	1		0910	111	0.	1		1525	186	0.	1		2140	261	0.
1		0300	37	555.	1		0915	112	0.	1		1530	187	0.	1		2145	262	0.
1		0305	38	623.	1		0920	113	0.	1		1535	188	0.	1		2150	263	0.
1		0310	39	737.	1		0925	114	0.	1		1540	189	0.	1		2155	264	0.
1		0315	40	918.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	1204.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	1635.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	2270.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	2961.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.
1		0340	45	3573.	1		0955	120	0.	1		1610	195	0.	1		2225	270	0.
1		0345	46	4118.	1		1000	121	0.	1		1615	196	0.	1		2230	271	0.
1		0350	47	4544.	1		1005	122	0.	1		1620	197	0.	1		2235	272	0.
1		0355	48	4768.	1		1010	123	0.	1		1625	198	0.	1		2240	273	0.
1		0400	49	4755.	1		1015	124	0.	1		1630	199	0.	1		2245	274	0.
1		0405	50	4551.	1		1020	125	0.	1		1635	200	0.	1		2250	275	0.
1		0410	51	4231.	1		1025	126	0.	1		1640	201	0.	1		2255	276	0.
1		0415	52	3869.	1		1030	127	0.	1		1645	202	0.	1		2300	277	0.
1		0420	53	3527.	1		1035	128	0.	1		1650	203	0.	1		2305	278	0.
1		0425	54	3221.	1		1040	129	0.	1		1655	204	0.	1		2310	279	0.
1		0430	55	2947.	1		1045	130	0.	1		1700	205	0.	1		2315	280	0.
1		0435	56	2713.	1		1050	131	0.	1		1705	206	0.	1		2320	281	0.
1		0440	57	2537.	1		1055	132	0.	1		1710	207	0.	1		2325	282	0.
1		0445	58	2418.	1		1100	133	0.	1		1715	208	0.	1		2330	283	0.

REFERENCE MATERIAL

1	0450	59	2368.	*	1	1105	134	0.	*	1	1720	209	0.	*	1	2335	284	0.
1	0455	60	2351.	*	1	1110	135	0.	*	1	1725	210	0.	*	1	2340	285	0.
1	0500	61	2326.	*	1	1115	136	0.	*	1	1730	211	0.	*	1	2345	286	0.
1	0505	62	2289.	*	1	1120	137	0.	*	1	1735	212	0.	*	1	2350	287	0.
1	0510	63	2234.	*	1	1125	138	0.	*	1	1740	213	0.	*	1	2355	288	0.
1	0515	64	2146.	*	1	1130	139	0.	*	1	1745	214	0.	*	2	0000	289	0.
1	0520	65	2020.	*	1	1135	140	0.	*	1	1750	215	0.	*	2	0005	290	0.
1	0525	66	1867.	*	1	1140	141	0.	*	1	1755	216	0.	*	2	0010	291	0.
1	0530	67	1696.	*	1	1145	142	0.	*	1	1800	217	0.	*	2	0015	292	0.
1	0535	68	1518.	*	1	1150	143	0.	*	1	1805	218	0.	*	2	0020	293	0.
1	0540	69	1343.	*	1	1155	144	0.	*	1	1810	219	0.	*	2	0025	294	0.
1	0545	70	1183.	*	1	1200	145	0.	*	1	1815	220	0.	*	2	0030	295	0.
1	0550	71	1042.	*	1	1205	146	0.	*	1	1820	221	0.	*	2	0035	296	0.
1	0555	72	915.	*	1	1210	147	0.	*	1	1825	222	0.	*	2	0040	297	0.
1	0600	73	801.	*	1	1215	148	0.	*	1	1830	223	0.	*	2	0045	298	0.
1	0605	74	698.	*	1	1220	149	0.	*	1	1835	224	0.	*	2	0050	299	0.
1	0610	75	606.	*	1	1225	150	0.	*	1	1840	225	0.	*	2	0055	300	0.
				*					*					*				

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PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4768.	3.92	1384.	350.	337.	337.
		(INCHES) .593	.599	.599	.599
		(AC-FT) 686.	694.	694.	694.

CUMULATIVE AREA = 21.71 SQ MI

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PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 .88	RATIO 2 .87	RATIO 3 .86	RATIO 4 .85
HYDROGRAPH AT								
+	OG04-C*	.29	1	FLOW	222.	218.	215.	213.
				TIME	3.75	3.75	3.75	3.75
DIVERSION TO								
+	DPD01	.29	1	FLOW	124.	124.	124.	124.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	DOG04-C*	.29	1	FLOW	98.	94.	91.	89.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RDOG04-C	.29	1	FLOW	55.	52.	50.	49.
				TIME	4.33	4.42	4.42	4.42
HYDROGRAPH AT								
+	OG05-C*	.27	1	FLOW	190.	187.	184.	182.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	COG05-C*	.55	1	FLOW	190.	187.	185.	183.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCOG05-C	.55	1	FLOW	192.	189.	187.	185.
				TIME	4.08	4.08	4.08	4.08
HYDROGRAPH AT								
+	CY06B-C*	.50	1	FLOW	210.	207.	204.	201.
				TIME	4.17	4.17	4.17	4.17
2 COMBINED AT								
+	CCY06B-C	1.05	1	FLOW	402.	395.	389.	384.
				TIME	4.08	4.08	4.08	4.08
ROUTED TO								
+	RCCY06B*	1.05	1	FLOW	400.	393.	388.	384.
				TIME	4.17	4.17	4.17	4.17
HYDROGRAPH AT								
+	GD17BG-C	.36	1	FLOW	215.	212.	209.	206.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RGD17BG*	.36	1	FLOW	215.	211.	208.	206.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	GD11B-C*	.26	1	FLOW	228.	224.	221.	219.
				TIME	3.67	3.67	3.67	3.67
2 COMBINED AT								
+	CGD11B-C	.63	1	FLOW	387.	381.	376.	371.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCGD11B*	.63	1	FLOW	388.	381.	376.	372.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	PT6B-C*	.45	1	FLOW	181.	178.	175.	173.
				TIME	4.17	4.17	4.17	4.25
2 COMBINED AT								
+	CPT6B-C*	1.08	1	FLOW	540.	531.	524.	518.
				TIME	4.00	4.00	4.00	4.00
DIVERSION TO								
+	DGOW1A	1.08	1	FLOW	539.	530.	523.	517.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	DPT6B-C1	1.08	1	FLOW	1.	1.	1.	1.
				TIME	2.08	2.17	2.17	2.17
DIVERSION TO								

REFERENCE MATERIAL

							UFC2	
+	DTRILGY	1.08	1	FLOW	0.	0.	0.	0.
				TIME	2.08	2.08	2.17	2.17
HYDROGRAPH AT								
+	DPT6B-C2	1.08	1	FLOW	1.	1.	1.	1.
				TIME	2.08	2.17	2.17	2.17
ROUTED TO								
+	RCPT6B-C	1.08	1	FLOW	1.	1.	1.	1.
				TIME	2.75	2.83	2.83	2.83
HYDROGRAPH AT								
+	DGOW1A*	.00	1	FLOW	539.	530.	523.	517.
				TIME	4.00	4.00	4.00	4.00
ROUTED TO								
+	RDGOW1A*	.00	1	FLOW	540.	529.	522.	516.
				TIME	4.00	4.00	4.00	4.00
2 COMBINED AT								
+	CCPT6B-C	1.08	1	FLOW	541.	530.	523.	517.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	DTRILGY*	.00	1	FLOW	0.	0.	0.	0.
				TIME	2.08	2.08	2.17	2.17
HYDROGRAPH AT								
+	CY07B*	.20	1	FLOW	124.	122.	120.	119.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CCY07B*	.20	1	FLOW	124.	122.	121.	119.
				TIME	3.92	3.92	3.92	3.92
DIVERSION TO								
+	DCENT1	.20	1	FLOW	52.	50.	49.	47.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	DCY07B*	.20	1	FLOW	72.	72.	72.	72.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RDCY07B*	.20	1	FLOW	75.	76.	76.	76.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	CY08-C*	.09	1	FLOW	68.	67.	66.	65.
				TIME	3.75	3.75	3.75	3.75
3 COMBINED AT								
+	CCY08-C*	1.38	1	FLOW	656.	646.	638.	631.
				TIME	3.92	3.92	3.92	3.92
DIVERSION TO								
+	DCENTRAL	1.38	1	FLOW	26.	16.	8.	1.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	DGOW2A*	1.38	1	FLOW	630.	630.	630.	630.
				TIME	3.92	3.92	3.92	3.92
DIVERSION TO								
+	D3ALL	1.38	1	FLOW	630.	630.	630.	630.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	D3ALL*	1.38	1	FLOW	0.	0.	0.	0.
				TIME	.00	.00	.00	.00
HYDROGRAPH AT								
+	DCENT1*	.00	1	FLOW	52.	50.	49.	47.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RDCENT1*	.00	1	FLOW	53.	51.	49.	48.
				TIME	3.92	3.92	4.00	4.00
3 COMBINED AT								
+	CRGOWAN*	2.43	1	FLOW	444.	435.	429.	424.
				TIME	4.17	4.17	4.17	4.17
ROUTED TO								
+	RCRGOWAN	2.43	1	FLOW	438.	432.	424.	417.
				TIME	4.17	4.17	4.17	4.25
HYDROGRAPH AT								
+	PD05A-C*	.14	1	FLOW	106.	105.	104.	103.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CPD05A-C	2.56	1	FLOW	505.	498.	489.	481.
				TIME	4.17	4.17	4.17	4.17
DIVERSION TO								
+	DA1-C	2.56	1	FLOW	211.	211.	211.	211.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	DCPD05A*	2.56	1	FLOW	294.	287.	278.	270.
				TIME	4.17	4.17	4.17	4.17
ROUTED TO								
+	RCPD05*	2.56	1	FLOW	291.	284.	275.	268.
				TIME	4.25	4.25	4.25	4.25
HYDROGRAPH AT								
+	DPD01*	.00	1	FLOW	124.	124.	124.	124.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RDPD01*	.00	1	FLOW	128.	128.	129.	129.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	PD01-C*	.38	1	FLOW	197.	193.	190.	188.
				TIME	3.83	3.83	3.83	3.83

REFERENCE MATERIAL

2 COMBINED AT								
+	CPD01-C*	.38	1	FLOW	320.	316.	312.	310.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCPD01*	.38	1	FLOW	320.	315.	313.	310.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	CY04A-C	.46	1	FLOW	242.	237.	234.	231.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CCY04A-C	.83	1	FLOW	561.	553.	546.	540.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCCY04A*	.83	1	FLOW	556.	549.	544.	537.
				TIME	4.00	3.92	3.92	4.00
HYDROGRAPH AT								
+	PD04B-C*	.47	1	FLOW	251.	246.	243.	240.
				TIME	4.00	4.00	4.00	4.00
2 COMBINED AT								
+	CPD04B-C	1.30	1	FLOW	807.	794.	785.	776.
				TIME	4.00	3.92	3.92	4.00
2 COMBINED AT								
+	CCPD04BC	3.87	1	FLOW	1020.	997.	978.	964.
				TIME	4.08	4.08	4.08	4.08
ROUTED TO								
+	RCPD04B*	3.87	1	FLOW	1011.	990.	971.	957.
				TIME	4.17	4.17	4.17	4.17
HYDROGRAPH AT								
+	OG03-C*	.32	1	FLOW	199.	196.	193.	190.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	ROG03-C*	.32	1	FLOW	201.	197.	195.	192.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	OG02-C*	.32	1	FLOW	237.	233.	230.	227.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	ROG02-C*	.32	1	FLOW	232.	229.	226.	224.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	LM01-C*	.33	1	FLOW	159.	156.	153.	151.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CLM01-C*	.64	1	FLOW	391.	385.	379.	375.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCLM01-C	.64	1	FLOW	389.	383.	376.	373.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	SR00A-C*	.37	1	FLOW	187.	183.	180.	178.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CSR00A*	1.01	1	FLOW	575.	566.	556.	551.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CCSR00A*	1.34	1	FLOW	767.	753.	742.	733.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCSR00A*	1.34	1	FLOW	766.	752.	740.	731.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	SR02E-C*	.30	1	FLOW	181.	178.	175.	173.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CSR02E*	1.64	1	FLOW	934.	918.	904.	892.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCSR02E*	1.64	1	FLOW	933.	920.	901.	894.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	SR05D-C*	.30	1	FLOW	175.	172.	170.	168.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CSR05D*	1.94	1	FLOW	1108.	1092.	1071.	1062.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCSR05D*	1.94	1	FLOW	1101.	1083.	1062.	1052.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	SR05B-C*	.36	1	FLOW	186.	183.	181.	179.
				TIME	4.08	4.08	4.08	4.08
2 COMBINED AT								
+	CSR05B*	2.30	1	FLOW	1273.	1253.	1230.	1218.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CCSR05B*	6.16	1	FLOW	2207.	2164.	2124.	2098.
				TIME	4.00	4.08	4.08	4.08
ROUTED TO								

REFERENCE MATERIAL

							UFC2	
+	RCCSR05B	6.16	1	FLOW	2205.	2163.	2123.	2097.
				TIME	4.08	4.08	4.08	4.08
HYDROGRAPH AT								
+	B1-C*	.27	1	FLOW	200.	197.	195.	193.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CB1-C*	6.44	1	FLOW	2383.	2337.	2293.	2265.
				TIME	4.00	4.00	4.08	4.08
ROUTED TO								
+	RCB1-C*	6.44	1	FLOW	2379.	2334.	2291.	2264.
				TIME	4.08	4.08	4.08	4.08
HYDROGRAPH AT								
+	A1-C1*	.31	1	FLOW	215.	212.	209.	207.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	DA1-C*	.00	1	FLOW	211.	211.	211.	211.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RDA1-C*	.00	1	FLOW	212.	212.	213.	213.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CA1-C*	.31	1	FLOW	428.	424.	422.	420.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	FN2-C*	.21	1	FLOW	162.	159.	157.	155.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RFN2-C*	.21	1	FLOW	162.	160.	158.	156.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CCA1-C*	.52	1	FLOW	585.	580.	575.	571.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCCA-1C*	.52	1	FLOW	582.	579.	571.	565.
				TIME	3.92	3.92	4.00	4.00
HYDROGRAPH AT								
+	DCENTRAL	.00	1	FLOW	26.	16.	8.	1.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RDCENTRA	.00	1	FLOW	25.	13.	6.	1.
				TIME	4.92	5.08	5.25	3.92
HYDROGRAPH AT								
+	FN5-C*	.48	1	FLOW	270.	265.	262.	259.
				TIME	4.00	4.00	4.00	4.00
2 COMBINED AT								
+	CFN5-C*	.48	1	FLOW	271.	266.	263.	260.
				TIME	4.00	4.00	4.00	4.00
DIVERSION TO								
+	DR-C	.48	1	FLOW	131.	126.	123.	120.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	DFN5-C*	.48	1	FLOW	140.	140.	140.	140.
				TIME	3.58	3.67	3.67	3.67
ROUTED TO								
+	RDFN5-C*	.48	1	FLOW	143.	143.	143.	143.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	B3-2*	.31	1	FLOW	227.	224.	221.	219.
				TIME	3.83	3.83	3.83	3.83
3 COMBINED AT								
+	CB3-2*	1.31	1	FLOW	940.	934.	922.	913.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCB3-2*	1.31	1	FLOW	933.	925.	914.	904.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	B3-1*	.31	1	FLOW	218.	215.	212.	210.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CB3-1*	1.61	1	FLOW	1147.	1136.	1122.	1111.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CCB3-1*	8.05	1	FLOW	3472.	3419.	3365.	3328.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	DR-C*	.00	1	FLOW	131.	126.	123.	120.
				TIME	4.00	4.00	4.00	4.00
ROUTED TO								
+	RDR-C*	.00	1	FLOW	130.	125.	122.	119.
				TIME	4.17	4.17	4.17	4.17
HYDROGRAPH AT								
+	R-C*	.27	1	FLOW	204.	201.	198.	196.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RR-C*	.27	1	FLOW	203.	199.	197.	194.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CR-C*	.27	1	FLOW	257.	248.	244.	241.
				TIME	4.00	4.00	4.00	4.00

REFERENCE MATERIAL

ROUTED TO								
+	RCR-C*	.27	1	FLOW	253.	245.	243.	239.
				TIME	4.08	4.08	4.08	4.08
HYDROGRAPH AT								
+	R2-CA*	.45	1	FLOW	358.	353.	348.	344.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CR2-CA*	.71	1	FLOW	551.	542.	537.	532.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	LM02-C*	.29	1	FLOW	164.	161.	158.	156.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RLM02-C*	.29	1	FLOW	164.	160.	158.	156.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	LM03-C*	.34	1	FLOW	249.	245.	242.	239.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CLM03-C*	.63	1	FLOW	409.	402.	397.	392.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCLM03-C	.63	1	FLOW	409.	403.	396.	391.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	LM05-C*	.37	1	FLOW	236.	232.	228.	226.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CLM05-C*	1.00	1	FLOW	645.	634.	625.	617.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	OG011AC2	.12	1	FLOW	115.	114.	112.	111.
				TIME	3.58	3.58	3.58	3.58
DIVERSION TO								
+	OG011AD	.12	1	FLOW	45.	45.	45.	45.
				TIME	3.33	3.33	3.33	3.33
HYDROGRAPH AT								
+	OG011D*	.12	1	FLOW	70.	69.	67.	66.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	ROG011D*	.12	1	FLOW	75.	76.	77.	66.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	OG011A-C	.31	1	FLOW	136.	133.	131.	129.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	ROG011A*	.31	1	FLOW	136.	133.	130.	128.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	VG02-C*	.24	1	FLOW	119.	117.	115.	113.
				TIME	3.83	3.83	3.83	3.83
3 COMBINED AT								
+	CVG02-C*	.68	1	FLOW	324.	320.	316.	302.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCVG02*	.68	1	FLOW	320.	312.	306.	293.
				TIME	3.92	3.92	3.92	4.00
HYDROGRAPH AT								
+	VG03-C*	.28	1	FLOW	115.	112.	110.	108.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CVG03-C*	.95	1	FLOW	432.	422.	413.	396.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCVG03*	.95	1	FLOW	421.	412.	404.	394.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	VG04-C*	.31	1	FLOW	195.	192.	189.	187.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CVG04-C*	1.26	1	FLOW	613.	599.	589.	577.
				TIME	3.92	4.00	4.00	4.00
DIVERSION TO								
+	DVG20C	1.26	1	FLOW	164.	164.	164.	164.
				TIME	3.50	3.50	3.50	3.58
HYDROGRAPH AT								
+	DCVG04-C	1.26	1	FLOW	449.	435.	425.	413.
				TIME	3.92	4.00	4.00	4.00
ROUTED TO								
+	RDCVG04C	1.26	1	FLOW	448.	433.	421.	408.
				TIME	4.00	4.00	4.00	4.00
2 COMBINED AT								
+	CCLM05-C	2.26	1	FLOW	1043.	1017.	994.	970.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCCLM05C	2.26	1	FLOW	1029.	1005.	982.	959.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								

REFERENCE MATERIAL

							UFC2	
+	LM06B-C*	.35	1	FLOW	222.	218.	215.	213.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CLM06-C*	2.61	1	FLOW	1251.	1223.	1197.	1172.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCLM06*	2.61	1	FLOW	1233.	1205.	1182.	1158.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	LM10-C*	.41	1	FLOW	301.	296.	292.	289.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CLM10-C*	3.02	1	FLOW	1502.	1470.	1442.	1415.
				TIME	3.92	3.92	3.92	3.92
3 COMBINED AT								
+	CARYLMIN	11.78	1	FLOW	5454.	5355.	5263.	5184.
				TIME	4.00	4.00	4.00	4.00
ROUTED TO								
+	CARYLMDB	11.78	1	FLOW	586.	415.	378.	376.
				TIME	6.08	6.33	6.33	6.33
			** PEAK STAGES IN FEET **					
			1	STAGE	118.67	118.53	118.32	118.14
				TIME	6.08	6.33	6.33	6.33
DIVERSION TO								
+	DR2	11.78	1	FLOW	168.	168.	168.	168.
				TIME	5.50	5.58	5.75	5.83
HYDROGRAPH AT								
+	DCAREY*	11.78	1	FLOW	418.	247.	210.	208.
				TIME	6.08	6.33	6.33	6.33
ROUTED TO								
+	RDCAREY*	11.78	1	FLOW	416.	247.	210.	208.
				TIME	6.17	6.33	6.42	6.42
DIVERSION TO								
+	DFLOW	11.78	1	FLOW	416.	247.	210.	208.
				TIME	6.17	6.33	6.42	6.42
HYDROGRAPH AT								
+	DFLOW*	11.78	1	FLOW	0.	0.	0.	0.
				TIME	.00	.00	.00	.00
HYDROGRAPH AT								
+	LM16A-C*	.38	1	FLOW	272.	268.	264.	261.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CLM16A-C	12.16	1	FLOW	272.	268.	264.	261.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RCLM16A*	12.16	1	FLOW	271.	267.	263.	260.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	LM14-C*	.34	1	FLOW	186.	183.	180.	177.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CLM14-C*	12.51	1	FLOW	457.	450.	443.	438.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCLM14	12.51	1	FLOW	452.	445.	438.	433.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	LM19*	.26	1	FLOW	124.	122.	120.	118.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RLM19	.26	1	FLOW	124.	122.	120.	118.
				TIME	4.17	4.17	4.17	4.17
HYDROGRAPH AT								
+	LM20-C*	.38	1	FLOW	218.	214.	211.	208.
				TIME	3.83	3.83	3.83	3.83
3 COMBINED AT								
+	CLM20-C*	13.14	1	FLOW	749.	737.	725.	717.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCLM20*	13.14	1	FLOW	745.	733.	720.	712.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	DVG20C*	.00	1	FLOW	164.	164.	164.	164.
				TIME	3.50	3.50	3.50	3.58
ROUTED TO								
+	RDVG20C*	.00	1	FLOW	172.	173.	174.	174.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	VG20-C*	.31	1	FLOW	166.	163.	161.	159.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CVG20-C*	.31	1	FLOW	331.	328.	326.	324.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	LM09-C*	.46	1	FLOW	362.	356.	352.	348.
				TIME	3.75	3.75	3.75	3.75
DIVERSION TO								
+	DHOLLY	.46	1	FLOW	162.	156.	152.	148.
				TIME	3.75	3.75	3.75	3.75

REFERENCE MATERIAL

HYDROGRAPH AT								
+	DLM09-C*	.46	1	FLOW	200.	200.	200.	200.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RDLM09-C	.46	1	FLOW	203.	203.	203.	204.
				TIME	3.58	3.58	3.67	3.67
2 COMBINED AT								
+	CCVG20-C	.76	1	FLOW	532.	530.	528.	526.
				TIME	3.83	3.83	3.83	3.83
DIVERSION TO								
+	LV15	.76	1	FLOW	0.	0.	0.	0.
				TIME	.00	.00	.00	.00
HYDROGRAPH AT								
+	DCVG20-C	.76	1	FLOW	532.	530.	528.	526.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RDCVG20C	.76	1	FLOW	534.	532.	531.	529.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	DHOLLY*	.00	1	FLOW	162.	156.	152.	148.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RDHOLLY*	.00	1	FLOW	206.	203.	199.	195.
				TIME	4.33	4.33	4.33	4.33
HYDROGRAPH AT								
+	LM16B-C*	.38	1	FLOW	198.	195.	192.	190.
				TIME	4.00	4.00	4.00	4.00
3 COMBINED AT								
+	CLM16B-C	1.14	1	FLOW	821.	812.	803.	793.
				TIME	4.33	4.33	4.33	4.33
ROUTED TO								
+	RCLM16B*	1.14	1	FLOW	807.	784.	766.	751.
				TIME	4.33	4.33	4.33	4.33
HYDROGRAPH AT								
+	OG011AD*	.00	1	FLOW	45.	45.	45.	45.
				TIME	3.33	3.33	3.33	3.33
ROUTED TO								
+	ROG011AD	.00	1	FLOW	46.	46.	46.	46.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	WA01-C*	.19	1	FLOW	158.	155.	153.	151.
				TIME	3.67	3.67	3.67	3.67
2 COMBINED AT								
+	CWA01-C*	.19	1	FLOW	202.	200.	198.	196.
				TIME	3.67	3.67	3.67	3.67
ROUTED TO								
+	RWA01*	.19	1	FLOW	204.	202.	200.	198.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	WA04-C*	.20	1	FLOW	112.	110.	108.	107.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CWA04-C*	.39	1	FLOW	314.	310.	306.	303.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCWA04*	.39	1	FLOW	312.	309.	306.	301.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	WA09-C*	.10	1	FLOW	77.	76.	75.	74.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CWA09-C*	.49	1	FLOW	381.	377.	373.	367.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCWA09*	.49	1	FLOW	380.	376.	372.	366.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	WA10-C*	.45	1	FLOW	289.	284.	280.	276.
				TIME	3.75	3.75	3.75	3.75
DIVERSION TO								
+	WA10SE	.45	1	FLOW	250.	250.	250.	250.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	WA10D*	.45	1	FLOW	39.	34.	30.	26.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CWA10NW*	.94	1	FLOW	401.	391.	380.	371.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCWA10NW	.94	1	FLOW	399.	390.	380.	371.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	WA13-C*	.33	1	FLOW	277.	272.	269.	266.
				TIME	3.67	3.67	3.67	3.67
2 COMBINED AT								
+	CWA13-C*	1.27	1	FLOW	604.	590.	576.	564.
				TIME	3.83	3.83	3.83	3.83
DIVERSION TO								

REFERENCE MATERIAL

							UFC2	
+	WA13SE	1.27	1	FLOW	365.	357.	349.	341.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	DCWA13*	1.27	1	FLOW	239.	233.	227.	222.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	LV15*	.00	1	FLOW	0.	0.	0.	0.
				TIME	.00	.00	.00	.00
ROUTED TO								
+	RLV15*	.00	1	FLOW	0.	0.	0.	0.
				TIME	.00	.00	.00	.00
2 COMBINED AT								
+	CCWA13-C	1.27	1	FLOW	239.	233.	227.	222.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCWA13*	1.27	1	FLOW	239.	233.	228.	222.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	WA15A-C*	.37	1	FLOW	193.	190.	187.	185.
				TIME	4.00	4.00	4.00	4.00
2 COMBINED AT								
+	CWA15A-C	1.65	1	FLOW	426.	417.	409.	402.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	VG07*	.26	1	FLOW	106.	103.	102.	100.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RVG07*	.26	1	FLOW	106.	103.	102.	100.
				TIME	4.00	4.00	4.00	4.00
2 COMBINED AT								
+	CVG07*	1.91	1	FLOW	529.	518.	508.	499.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCVG07*	1.91	1	FLOW	525.	518.	505.	500.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	WA20-C*	.53	1	FLOW	271.	266.	263.	259.
				TIME	4.08	4.08	4.08	4.08
2 COMBINED AT								
+	CWA20-C*	2.44	1	FLOW	794.	783.	766.	757.
				TIME	4.00	4.00	4.00	4.00
ROUTED TO								
+	RCWA20-C	2.44	1	FLOW	788.	774.	762.	751.
				TIME	4.08	4.08	4.08	4.08
HYDROGRAPH AT								
+	VG10-C*	.39	1	FLOW	205.	201.	198.	196.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CVG10-C*	2.82	1	FLOW	988.	970.	952.	941.
				TIME	4.00	4.00	4.00	4.00
2 COMBINED AT								
+	CCVG10*	3.96	1	FLOW	1710.	1687.	1667.	1647.
				TIME	4.08	4.08	4.08	4.08
DIVERSION TO								
+	DRAILRD	3.96	1	FLOW	855.	844.	833.	824.
				TIME	4.08	4.08	4.08	4.08
HYDROGRAPH AT								
+	DCCVG10*	3.96	1	FLOW	855.	844.	833.	824.
				TIME	4.08	4.08	4.08	4.08
ROUTED TO								
+	RDCCVG10	3.96	1	FLOW	854.	842.	832.	822.
				TIME	4.08	4.08	4.08	4.08
HYDROGRAPH AT								
+	VG24-C*	.48	1	FLOW	293.	288.	284.	281.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CVG24*	4.44	1	FLOW	1128.	1111.	1096.	1084.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	DRAILRD*	.00	1	FLOW	855.	844.	833.	824.
				TIME	4.08	4.08	4.08	4.08
ROUTED TO								
+	RDRAILRD	.00	1	FLOW	855.	843.	833.	823.
				TIME	4.08	4.08	4.08	4.08
3 COMBINED AT								
+	CCVG24*	17.59	1	FLOW	2704.	2662.	2624.	2596.
				TIME	4.00	4.00	4.00	4.00
ROUTED TO								
+	RCCVG24*	17.59	1	FLOW	2693.	2652.	2613.	2586.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	DR2*	.00	1	FLOW	168.	168.	168.	168.
				TIME	5.50	5.58	5.75	5.83
DIVERSION TO								
+	DFLOW	.00	1	FLOW	168.	168.	168.	168.
				TIME	5.50	5.58	5.75	5.83
HYDROGRAPH AT								
+	DFLOW*	.00	1	FLOW	0.	0.	0.	0.
				TIME	.00	.00	.00	.00

REFERENCE MATERIAL

ROUTED TO								
+	RDR2*	.00	1	FLOW	0.	0.	0.	0.
				TIME	.00	.00	.00	.00
HYDROGRAPH AT								
+	R2-C*	.38	1	FLOW	320.	316.	312.	309.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CR2-C*	.38	1	FLOW	320.	316.	312.	309.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RCR2-C*	.38	1	FLOW	319.	314.	311.	307.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	S*	.57	1	FLOW	391.	384.	379.	375.
				TIME	3.83	3.83	3.83	3.83
2 COMBINED AT								
+	CS*	.95	1	FLOW	706.	695.	687.	679.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RCS*	.95	1	FLOW	697.	692.	685.	671.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	S1-C*	.47	1	FLOW	261.	257.	253.	250.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT								
+	CS1-C*	1.42	1	FLOW	951.	942.	931.	913.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCS1-C*	1.42	1	FLOW	943.	933.	921.	904.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	W1C2*	.36	1	FLOW	292.	287.	283.	280.
				TIME	3.67	3.67	3.67	3.67
3 COMBINED AT								
+	CW1C2*	19.36	1	FLOW	3776.	3711.	3666.	3624.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO								
+	RCW1C2*	19.36	1	FLOW	3755.	3695.	3648.	3606.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	OFF-7	.05	1	FLOW	54.	54.	53.	53.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	ROFF7	.05	1	FLOW	52.	51.	51.	50.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	OFF6UL	.13	1	FLOW	74.	73.	71.	70.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CP2OFF	.17	1	FLOW	125.	123.	121.	120.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCP2OFF	.17	1	FLOW	125.	123.	121.	119.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT								
+	OFF-2	.01	1	FLOW	11.	11.	11.	11.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	ROFF2	.01	1	FLOW	10.	10.	10.	10.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	OFF3UL	.05	1	FLOW	55.	54.	53.	53.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	ROF3UL	.05	1	FLOW	54.	53.	52.	52.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	OFF5UL	.01	1	FLOW	8.	8.	8.	8.
				TIME	3.50	3.50	3.50	3.50
4 COMBINED AT								
+	CP1OFF	.24	1	FLOW	155.	152.	150.	148.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCP1OFF	.24	1	FLOW	153.	150.	147.	146.
				TIME	3.92	3.92	3.92	4.00
2 COMBINED AT								
+	CPFWC1	19.60	1	FLOW	3907.	3844.	3796.	3752.
				TIME	4.00	4.00	4.00	4.00
ROUTED TO								
+	RCPFWC1	19.60	1	FLOW	3862.	3801.	3747.	3715.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	OFF-4	.02	1	FLOW	21.	21.	21.	20.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	ROFF4	.02	1	FLOW	21.	21.	20.	20.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								

REFERENCE MATERIAL

							UFC2	
+	LOSE1**	.03	1	FLOW	33.	32.	32.	31.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	R-LOSE1*	.03	1	FLOW	33.	32.	32.	31.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	LOSE2**	.13	1	FLOW	129.	127.	125.	124.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	LOSE3**	.02	1	FLOW	30.	30.	29.	29.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	LOSE4**	.06	1	FLOW	67.	66.	66.	65.
				TIME	3.58	3.58	3.58	3.58
4 COMBINED AT								
+	C3-LOSE*	.24	1	FLOW	231.	227.	224.	222.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RC3-LOSE	.24	1	FLOW	229.	226.	223.	220.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	UPRR1**	.01	1	FLOW	15.	15.	14.	14.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	UPRR2**	.01	1	FLOW	9.	9.	9.	9.
				TIME	3.50	3.50	3.50	3.50
3 COMBINED AT								
+	EPC1**	.26	1	FLOW	244.	240.	237.	234.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RECP1	.26	1	FLOW	241.	237.	234.	231.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	RR-7	.02	1	FLOW	19.	19.	19.	18.
				TIME	3.58	3.58	3.58	3.58
4 COMBINED AT								
+	CPFWC2	19.90	1	FLOW	3978.	3915.	3861.	3827.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	PMAYF1**	.33	1	FLOW	255.	251.	248.	246.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RMAYF1-3	.33	1	FLOW	254.	251.	248.	245.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	PMAYF3**	.03	1	FLOW	34.	34.	33.	33.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPMAYF3*	.35	1	FLOW	266.	262.	259.	256.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCPMAYF3	.35	1	FLOW	265.	261.	258.	255.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	PMAYF2**	.06	1	FLOW	67.	65.	65.	64.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RMAYF2-4	.06	1	FLOW	63.	63.	62.	60.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	MAYF4A**	.08	1	FLOW	94.	93.	92.	91.
				TIME	3.58	3.58	3.58	3.58
3 COMBINED AT								
+	CP1A**	.49	1	FLOW	359.	355.	350.	346.
				TIME	3.67	3.67	3.67	3.67
ROUTED TO								
+	RCP1A**	.49	1	FLOW	359.	354.	350.	346.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	PMAY4B**	.01	1	FLOW	12.	12.	12.	12.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	C4BMAYF*	.50	1	FLOW	363.	358.	354.	350.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	PMAYF6**	.03	1	FLOW	39.	38.	38.	37.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	PMAYF7**	.00	1	FLOW	5.	5.	5.	4.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPMAY7**	.03	1	FLOW	43.	43.	42.	42.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RCPMAY7*	.03	1	FLOW	42.	41.	41.	40.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CRCPAY7*	.53	1	FLOW	389.	384.	380.	374.
				TIME	3.58	3.58	3.58	3.58

Central Freeway Channel Flow upstream of Brooks Channel confluence, Freeway Channel Peaks at hydrograph time interval 4:00 hr.

REFERENCE MATERIAL

HYDROGRAPH AT								
+	PMAY5**	.02	1	FLOW	28.	27.	27.	27.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	PMAYF8**	.00	1	FLOW	4.	4.	4.	4.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPMAYF8*	.02	1	FLOW	32.	31.	31.	31.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	PCP3A**	.55	1	FLOW	410.	405.	400.	394.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	PMAYF9**	.00	1	FLOW	4.	4.	4.	4.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	PMAYF10*	.00	1	FLOW	1.	1.	1.	1.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPMAYF10	.00	1	FLOW	5.	5.	5.	5.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	PCP3B**	.55	1	FLOW	414.	409.	404.	398.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	PBRKS1**	.05	1	FLOW	36.	35.	34.	34.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	PBRKS2**	.02	1	FLOW	12.	12.	12.	12.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPBRKS2*	.06	1	FLOW	47.	46.	46.	45.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	PBRKS3**	.00	1	FLOW	2.	2.	2.	2.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CPBRKS3*	.07	1	FLOW	49.	48.	47.	46.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RCPBRK3*	.07	1	FLOW	49.	48.	47.	46.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	POFF1**	.06	1	FLOW	64.	63.	62.	61.
				TIME	3.67	3.67	3.67	3.67
2 COMBINED AT								
+	CP5**	.13	1	FLOW	110.	109.	107.	106.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RCP5**	.13	1	FLOW	108.	107.	105.	104.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	POFF2**	.05	1	FLOW	54.	54.	53.	53.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	POFF3**	.02	1	FLOW	18.	18.	18.	18.
				TIME	3.58	3.58	3.58	3.58
4 COMBINED AT								
+	CP6**	.74	1	FLOW	588.	580.	573.	565.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	LOS1**	.00	1	FLOW	3.	3.	3.	3.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	LOS2**	.00	1	FLOW	5.	5.	4.	4.
				TIME	3.58	3.58	3.58	3.58
3 COMBINED AT								
+	CP6A**	.75	1	FLOW	595.	587.	580.	572.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RCP6A**	.75	1	FLOW	586.	577.	571.	563.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	OFF4**	.04	1	FLOW	41.	41.	40.	40.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	OFF5**	.04	1	FLOW	42.	41.	41.	40.
				TIME	3.58	3.58	3.58	3.58
3 COMBINED AT								
+	CP7**	.82	1	FLOW	668.	659.	651.	643.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	RR-6	.01	1	FLOW	14.	14.	14.	14.
				TIME	3.58	3.58	3.58	3.58
3 COMBINED AT								
+	CPFWC3	20.74	1	FLOW	4398.	4329.	4270.	4232.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								

REFERENCE MATERIAL

								UFC2
+	RR-5	.01	1	FLOW	15.	15.	15.	15.
				TIME	3.58	3.58	3.58	3.58
2 COMBINED AT								
+	CPFWC4	20.75	1	FLOW	4404.	4334.	4276.	4237.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	RR-4	.02	1	FLOW	18.	17.	17.	17.
				TIME	3.58	3.58	3.58	3.58
2 COMBINED AT								
+	CPFWC5	20.76	1	FLOW	4408.	4339.	4280.	4242.
				TIME	4.00	4.00	4.00	4.00
HYDROGRAPH AT								
+	ULT-1A**	.06	1	FLOW	57.	56.	55.	54.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RULT-1A*	.06	1	FLOW	57.	56.	55.	55.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	ULT-1B**	.13	1	FLOW	99.	98.	96.	95.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	ULT-1C**	.12	1	FLOW	116.	114.	113.	112.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RULT-1C*	.12	1	FLOW	115.	113.	112.	111.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	ULT-1D**	.12	1	FLOW	108.	107.	106.	104.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	ULT-1F**	.01	1	FLOW	14.	14.	14.	13.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RULT-1F*	.01	1	FLOW	16.	15.	15.	14.
				TIME	4.00	4.00	4.00	4.00
5 COMBINED AT								
+	CP-1**	.44	1	FLOW	349.	343.	338.	334.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RCP-1**	.44	1	FLOW	343.	342.	341.	337.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	ULT-2D**	.03	1	FLOW	33.	32.	32.	32.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-2E**	.05	1	FLOW	43.	42.	42.	41.
				TIME	3.75	3.75	3.75	3.75
3 COMBINED AT								
+	CP-2**	.53	1	FLOW	396.	395.	393.	389.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCP-2*	.53	1	FLOW	393.	391.	390.	385.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	ULT-2A**	.03	1	FLOW	30.	30.	29.	29.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RULT-2A	.03	1	FLOW	29.	29.	29.	28.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-2B**	.01	1	FLOW	15.	15.	15.	14.
				TIME	3.58	3.58	3.58	3.58
2 COMBINED AT								
+	CP-3**	.04	1	FLOW	44.	43.	43.	43.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RCP-3	.04	1	FLOW	42.	42.	41.	41.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-2C**	.03	1	FLOW	36.	36.	35.	35.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-2G**	.07	1	FLOW	72.	71.	70.	70.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-1E**	.03	1	FLOW	32.	31.	31.	30.
				TIME	3.67	3.67	3.67	3.67
ROUTED TO								
+	RULT-1E	.03	1	FLOW	32.	31.	31.	31.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	ULT-2F**	.03	1	FLOW	24.	24.	23.	23.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RULT-2F	.03	1	FLOW	24.	24.	24.	23.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT								
+	CP-4C	.06	1	FLOW	54.	54.	53.	52.
				TIME	3.75	3.75	3.75	3.75

REFERENCE MATERIAL

HYDROGRAPH AT								
+	ULT-2H**	.01	1	FLOW	4.	4.	4.	4.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-2I**	.01	1	FLOW	2.	2.	2.	2.
				TIME	3.50	3.50	3.50	3.50
3 COMBINED AT								
+	CP-4B	.07	1	FLOW	58.	57.	56.	56.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RCP-4B	.07	1	FLOW	57.	56.	56.	55.
				TIME	3.83	3.83	3.83	3.83
5 COMBINED AT								
+	CP-4A	.74	1	FLOW	528.	524.	521.	515.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO								
+	RCP-4A	.74	1	FLOW	527.	524.	520.	514.
				TIME	3.83	3.83	3.83	3.83
HYDROGRAPH AT								
+	ULT-3A**	.02	1	FLOW	23.	23.	23.	22.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RULT-3A	.02	1	FLOW	23.	23.	22.	22.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-3B**	.03	1	FLOW	32.	32.	32.	31.
				TIME	3.58	3.58	3.58	3.58
2 COMBINED AT								
+	CPD1	.05	1	FLOW	55.	55.	54.	54.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-3C**	.01	1	FLOW	9.	8.	8.	8.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RULT-3C	.01	1	FLOW	8.	8.	8.	8.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-3D**	.01	1	FLOW	18.	18.	17.	17.
				TIME	3.50	3.50	3.50	3.50
ROUTED TO								
+	RULT-3D	.01	1	FLOW	17.	17.	17.	17.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-3E**	.01	1	FLOW	13.	13.	13.	13.
				TIME	3.50	3.50	3.50	3.50
5 COMBINED AT								
+	CP-5	.82	1	FLOW	575.	568.	563.	556.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RCP-5	.82	1	FLOW	573.	566.	562.	555.
				TIME	3.75	3.75	3.83	3.83
HYDROGRAPH AT								
+	ULT-3F**	.02	1	FLOW	26.	25.	25.	25.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-3G**	.01	1	FLOW	9.	9.	9.	9.
				TIME	3.50	3.50	3.50	3.50
2 COMBINED AT								
+	CP-6A	.03	1	FLOW	34.	34.	34.	33.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	ULT-3H**	.00	1	FLOW	5.	5.	5.	4.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	ULT-3J**	.02	1	FLOW	24.	24.	23.	23.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RULT-3J	.02	1	FLOW	22.	22.	22.	22.
				TIME	3.67	3.58	3.67	3.67
HYDROGRAPH AT								
+	ULT-3K**	.02	1	FLOW	17.	17.	17.	17.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RULT-3K	.02	1	FLOW	17.	17.	16.	16.
				TIME	3.58	3.58	3.58	3.58
5 COMBINED AT								
+	CP-6	.89	1	FLOW	625.	617.	612.	604.
				TIME	3.75	3.75	3.75	3.75
ROUTED TO								
+	RCP-6	.89	1	FLOW	625.	617.	611.	603.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								
+	ULT-3L**	.03	1	FLOW	26.	25.	25.	25.
				TIME	3.58	3.58	3.58	3.58
2 COMBINED AT								
+	CP-7**	.92	1	FLOW	646.	637.	631.	623.
				TIME	3.75	3.75	3.75	3.75
HYDROGRAPH AT								

REFERENCE MATERIAL

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                                                                  UFC2
+                  RR-3       .01     1   FLOW          10.      10.      10.      10.
                                          TIME         3.58     3.58     3.58     3.58

  3 COMBINED AT
+                CPFWC6     21.70     1   FLOW        4955.    4890.    4818.    4765.
                                          TIME         3.92     3.92     3.92     3.92

 HYDROGRAPH AT
+                  RR-2       .00     1   FLOW           5.       5.       5.       5.
                                          TIME         3.50     3.50     3.50     3.50

 HYDROGRAPH AT
+                 OFF-1       .01     1   FLOW          14.      13.      13.      13.
                                          TIME         3.50     3.50     3.50     3.50

 ROUTED TO
+                 ROFF1       .01     1   FLOW          10.      10.      10.      10.
                                          TIME         4.42     4.42     4.42     4.42

  3 COMBINED AT
+                CPFWC7     21.71     1   FLOW        4957.    4892.    4820.    4768.
                                          TIME         3.92     3.92     3.92     3.92

 HYDROGRAPH AT
+                  RR-1       .01     1   FLOW          17.      17.      17.      16.
                                          TIME         3.58     3.58     3.58     3.58

  2 COMBINED AT
+                CPFWC8     21.72     1   FLOW        4965.    4900.    4828.    4775.
                                          TIME         3.92     3.92     3.92     3.92
1
                                    SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                        (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                  INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
           ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                     PEAK                                     PEAK
                                (MIN)     (CFS)      (MIN)     (IN)     (MIN)     (CFS)     (MIN)       (IN)

          FOR PLAN = 1  RATIO=  .00
          RDOG04-C  MANE         5.00     55.07    260.00       .20      5.00     55.07    260.00         .20

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3266E+01 EXCESS= .0000E+00 OUTFLOW= .3091E+01 BASIN STORAGE= .6340E-02 PERCENT ERROR=   5.1

          FOR PLAN = 1  RATIO=  .00
          RDOG04-C  MANE         5.00     52.29    265.00       .19      5.00     52.29    265.00         .19

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3107E+01 EXCESS= .0000E+00 OUTFLOW= .2930E+01 BASIN STORAGE= .6064E-02 PERCENT ERROR=   5.5

          FOR PLAN = 1  RATIO=  .00
          RDOG04-C  MANE         5.00     50.42    265.00       .18      5.00     50.42    265.00         .18

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2991E+01 EXCESS= .0000E+00 OUTFLOW= .2814E+01 BASIN STORAGE= .6020E-02 PERCENT ERROR=   5.7

          FOR PLAN = 1  RATIO=  .00
          RDOG04-C  MANE         5.00     48.75    265.00       .18      5.00     48.75    265.00         .18

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2889E+01 EXCESS= .0000E+00 OUTFLOW= .2711E+01 BASIN STORAGE= .5981E-02 PERCENT ERROR=   6.0

          FOR PLAN = 1  RATIO=  .00
          RCOG05-C  MANE         5.00    192.36    245.00       .83      5.00    192.36    245.00         .83

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2462E+02 EXCESS= .0000E+00 OUTFLOW= .2463E+02 BASIN STORAGE= .4303E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
          RCOG05-C  MANE         5.00    189.30    245.00       .82      5.00    189.30    245.00         .82

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2410E+02 EXCESS= .0000E+00 OUTFLOW= .2412E+02 BASIN STORAGE= .4154E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
          RCOG05-C  MANE         5.00    187.01    245.00       .80      5.00    187.01    245.00         .80

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2371E+02 EXCESS= .0000E+00 OUTFLOW= .2372E+02 BASIN STORAGE= .4393E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
          RCOG05-C  MANE         5.00    184.86    245.00       .79      5.00    184.86    245.00         .79

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2336E+02 EXCESS= .0000E+00 OUTFLOW= .2337E+02 BASIN STORAGE= .4372E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
          RCCY06B*  MANE         3.28    400.92    248.98      1.00      5.00    400.48    250.00        1.00

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .5636E+02 EXCESS= .0000E+00 OUTFLOW= .5636E+02 BASIN STORAGE= .8787E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCCY06B*  MANE         3.29    392.99    250.07       .98      5.00    392.95    250.00         .98

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .5525E+02 EXCESS= .0000E+00 OUTFLOW= .5525E+02 BASIN STORAGE= .9186E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCCY06B*  MANE         3.30    387.99    250.93       .97      5.00    387.96    250.00         .97

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .5437E+02 EXCESS= .0000E+00 OUTFLOW= .5437E+02 BASIN STORAGE= .9020E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
```

REFERENCE MATERIAL

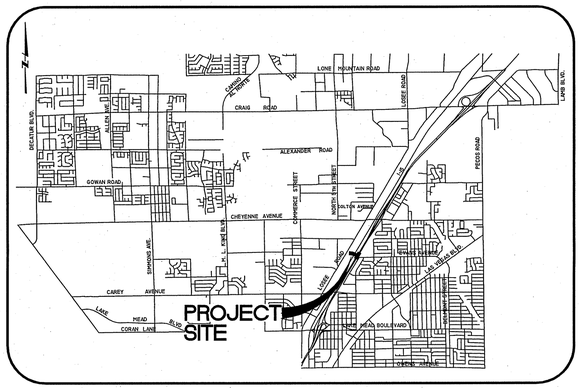
Appendix E

MWH

CITY OF NORTH LAS VEGAS
DEPARTMENT OF PUBLIC WORKS
BROOKS CHANNEL FLOOD CONTROL PROJECT

BID NO. 1455
LABOR COMMISSION NO. PWP-CL-2015-3
FUNDED BY:

CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT



VICINITY MAP
NOT TO SCALE

CITY OF
NORTH LAS VEGAS
Your Community of Choice

REVIEWED & APPROVED BY:

JENNIFER DOODY, P.E., CFM — 9/30/14 DATE
DEPUTY DIRECTOR OF PUBLIC WORKS

GALE Wm. FRASER, II, P.E. — 09/22/2014 DATE
GENERAL MANAGER / CHIEF ENGINEER
CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

DALE DAFFERN, P.E. — 9-30-14 DATE
MANAGER, ENGINEERING AND CONSTRUCTION SERVICES

DAN LE, P.E., CFM — 9/29/14 DATE
PUBLIC WORKS PROJECT MANAGER

ALYSSA REYNOLDS, P.E., PTOE — 9/30/14 DATE
CITY TRAFFIC ENGINEER
Court Knoeker for Alyssa Reynolds

GARY HANCOCK, P.L.S. — 9/30/14 DATE
ACTING CITY SURVEYOR

JOHN RUNKS — 9-30-14 DATE
MANAGER, INFRASTRUCTURE MAINTENANCE

ROBERT A. McLAUGHLIN, P.E. — 9/29/14 DATE
MANAGER, DEVELOPMENT AND FLOOD CONTROL

LORENA CANDELARIO, SR/WA — 9/30/14 DATE
REAL PROPERTY COORDINATOR

COX COMMUNICATIONS LAS VEGAS INC. — 9.18.2014 DATE

CENTRAL TELEPHONE COMPANY, d/b/a CENTURY LINK — 9/19/14 DATE
DAVE CRAFTS

SOUTHWEST GAS CORPORATION — 9-18-2014 DATE

Barbara Garrison — NV ENERGY – DISTRIBUTION — 9-19-14 DATE

NV ENERGY – TRANSMISSION — 9-19-14 DATE

ALL DRAWINGS, SPECIFICATIONS AND SPECIAL TECHNICAL REQUIREMENTS ASSOCIATED WITH THE PROJECT AND IMPROVEMENTS PRESENTED HEREIN HAVE BEEN ACCOMPLISHED UNDER THE SUPERVISION OF RESPONSIBLE PROFESSIONAL(S) HAVING THE APPROPRIATE REGISTRATION TO SERVE IN THIS CAPACITY BASED ON THE SCOPE OF THIS SPECIFIC PROJECT, AND IN ACCORDANCE WITH THE STATUTORY PROVISIONS OF THE NEVADA REVISED STATUTES (NRS) AND THE NEVADA ADMINISTRATIVE CODE (NAC) INCLUDING: NRS 278, NRS 338, NRS 623, NAC 338, NAC 623 AND NAC 625 CERTIFICATION SIGNIFYING COMPLIANCE WITH STATUTORY AND RELATED ADMINISTRATIVE CODE REQUIREMENTS IS HEREBY PROVIDED BY THE RESPONSIBLE PROFESSIONAL(S) IN THE FORM OF A STAMP OR SEAL PLACED ON THE PROJECT DOCUMENTS.

THE AFFIXED CENTURY LINK NEVADA APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

NV ENERGY COMPANY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED. THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE: NA
DESIGN: R VALDEZ
DRAWN: R VALDEZ
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA PAUL V. VALDEZ Exp: 6-30-16 No 21427 CIVIL 9/18/14

MWH
3010 WEST CHARLESTON BLVD. SUITE 100
LAS VEGAS,NV. 89102
(702) 878-8010

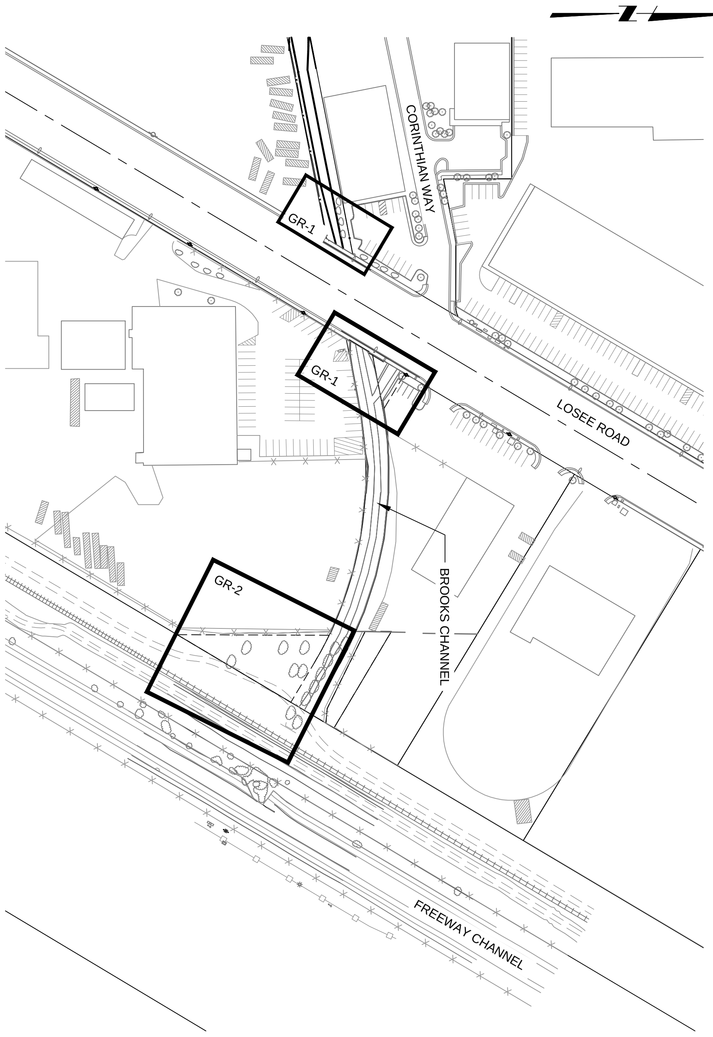
GENERAL - COVER SHEET (DRAWING TITLE)

BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL
CITY OF NORTH LAS VEGAS (PROJECT TITLE) (LOCATION)

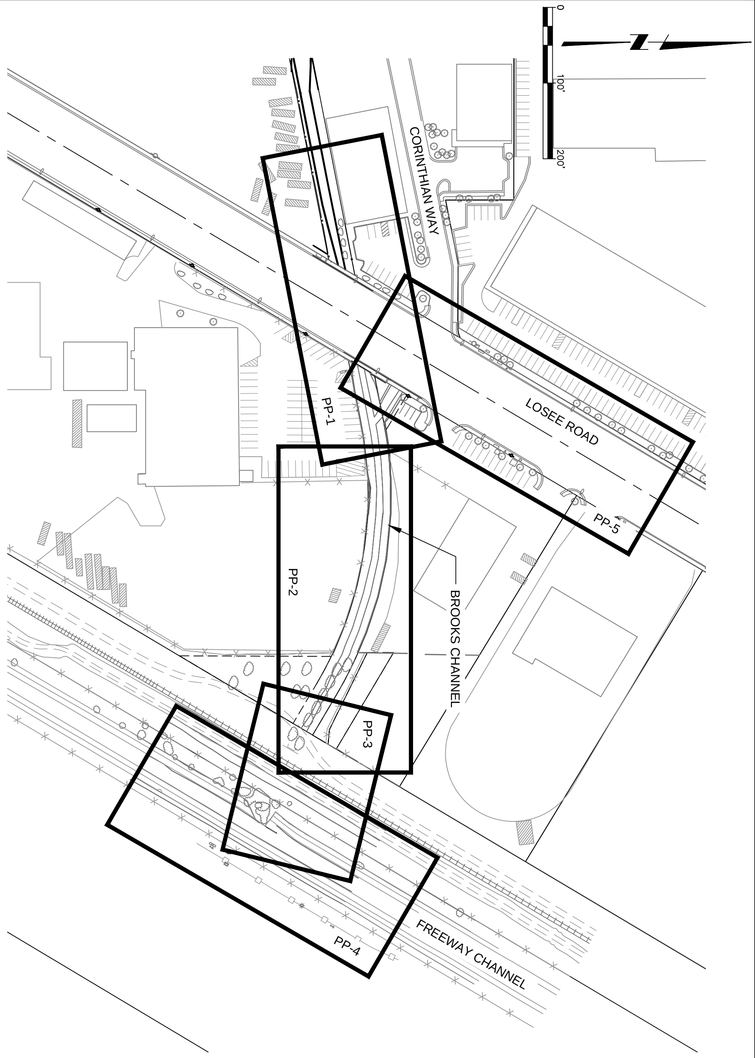
SHEET NO.
G-1

SHEET 1 OF 43

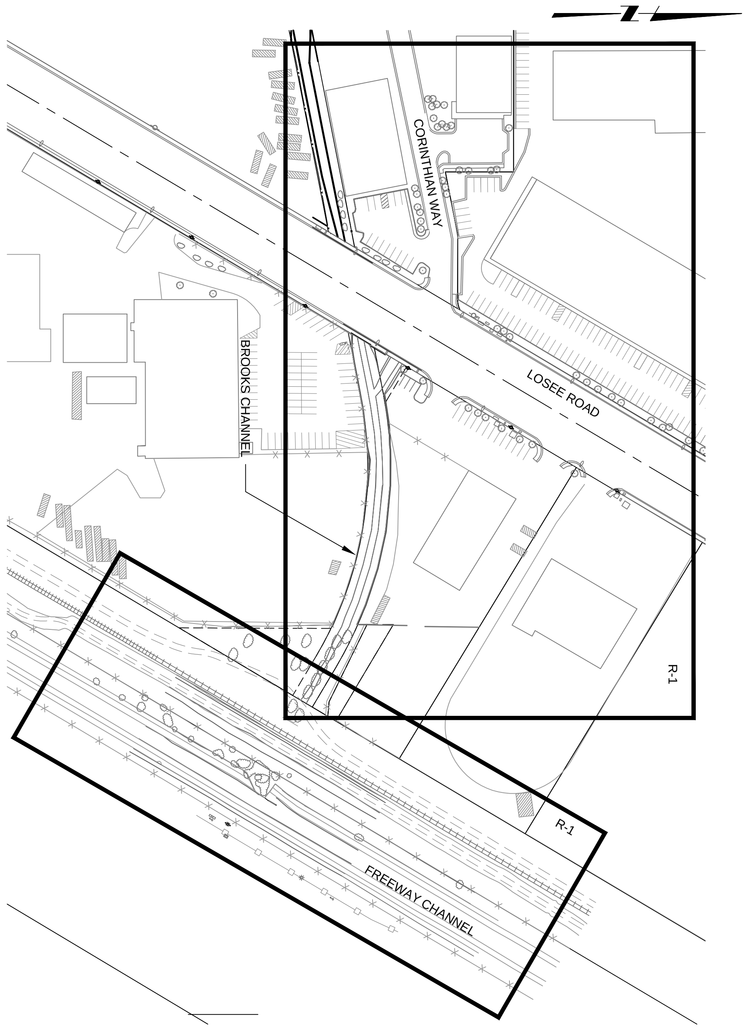
GRADING KEY MAP



MAIN PLAN AND PROFILE KEY MAP



REMOVAL KEY MAP



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1-702-455-7544

CALL BEFORE YOU DIG
OVERHEAD
1-702-227-2929

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

SHEET NO. G-2

SHEET 2 OF 43

(DRAWING TITLE) GENERAL - KEY MAP

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL

(LOCATION) CITY OF NORTH LAS VEGAS

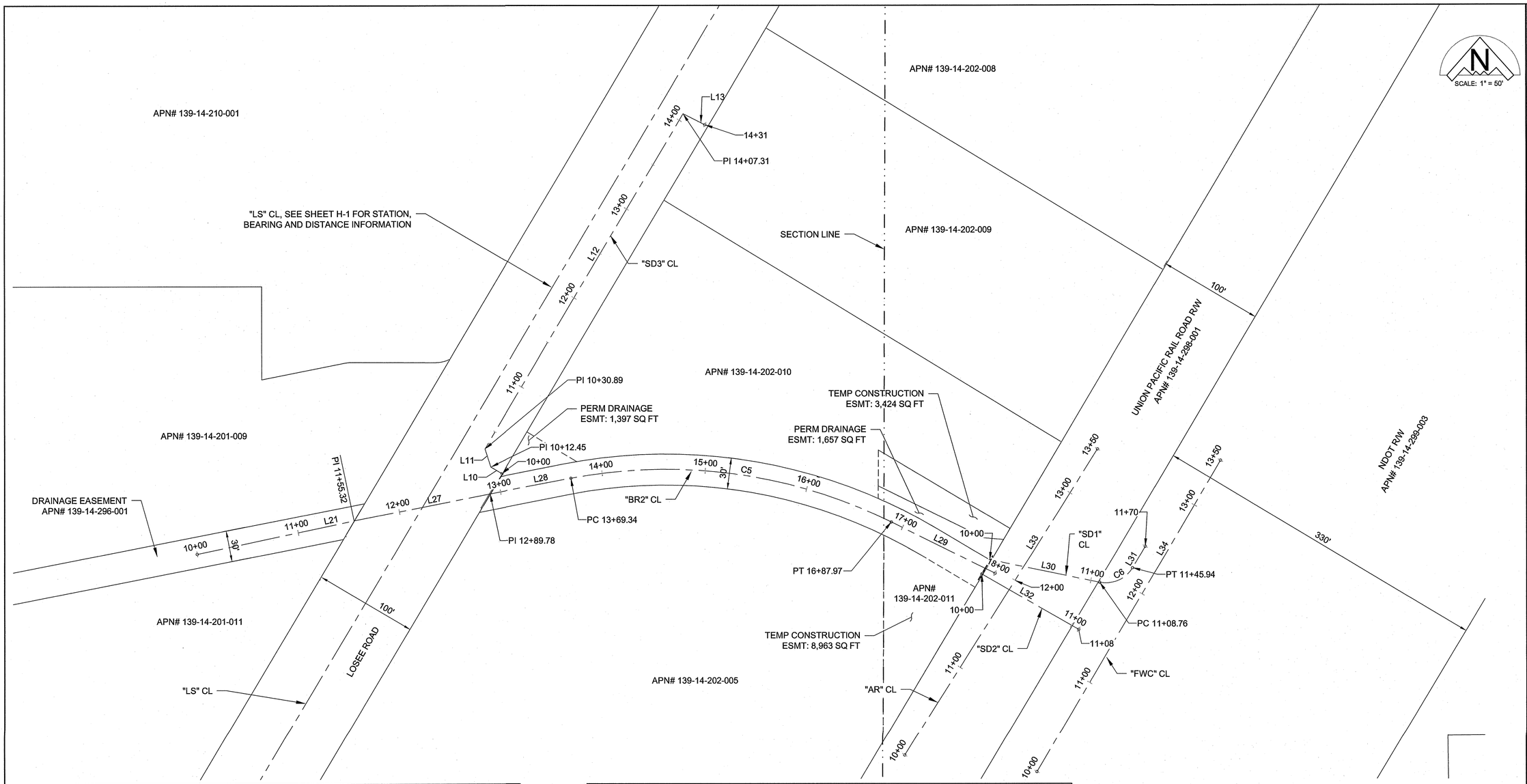
MWH
3010 WEST CHARLESTON BLVD.
SUITE 100
LAS VEGAS,NV. 89102
(702) 878-8010

PROFESSIONAL ENGINEER
RAUL V. VALDEZ
Exp: 6-30-16
CIVIL
No.21427
STATE OF NEVADA
10/02/14

SCALE:	1"=100'
DESIGN:	R VALDEZ
DRAWN:	N NATALE
CHECKED:	S CHAVEZ
APPROVED:	J PARKE
DATE:	OCTOBER 2014

REVISIONS

NO.	DESCRIPTION	DATE	BY



ALIGNMENT LINE TABLE

LINE NO	LENGTH	DIRECTION	STATION (PT)	START NORTHING	START EASTING	ALIGNMENT NAME
L10	12.45'	N 59°14'41" W	10+00.00	61277.16	65297.70	SD3
L11	18.44'	N 17°42'10" W	10+12.45	61283.52	65287.00	SD3
L12	376.42'	N 30°43'51" E	10+30.89	61301.09	65281.39	SD3
L13	23.50'	S 63°19'56" E	14+07.31	61624.65	65473.74	SD3
L21	155.32'	N 78°05'32" E	10+00.00	61199.71	65002.47	BR
L27	134.45'	N 78°56'31" E	11+55.32	61231.76	65154.45	BR
L28	79.56'	N 79°15'50" E	12+89.78	61257.55	65286.41	BR
L29	112.10'	S 63°42'02" E	16+87.97	61229.97	65674.81	BR
L30	108.76'	S 78°18'52" E	10+00.00	61193.43	65770.11	SD1
L31	24.15'	N 30°40'33" E	11+45.94	61185.47	65908.49	SD1
L32	108.15'	S 60°04'10" E	10+00.00	61179.55	65762.53	SD2
L33	350.00'	N 32°11'32" E	10+00.00	61004.12	65688.11	AR
L34	350.06'	N 30°29'49" E	10+00.00	60987.81	65816.12	FWC

ALIGNMENT CURVE TABLE COORDINATES

CURVE NO	STATION (PC)	START NORTHING	START EASTING	DELTA	LENGTH	ALIGNMENT NAME
C5	13+69.34	61272.37	65364.58	037°02'09"	318.6'	BR
C6	11+08.76	61171.40	65876.61	071°00'34"	37.2'	SD1

LEGEND

- SECTION LINE
- EASEMENT
- EXISTING RIGHT-OF-WAY
- PARCEL LINES
- FOUND MONUMENT AS NOTED
- CENTER LINE

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
OR 1-800-227-2600
AND CLARK COUNTY TRAFFIC OPERATIONS 1-702-455-7544

CITY OF NORTH LAS VEGAS
"Your Community of Choice"
SURVEY DIVISION
DEPT. OF PUBLIC WORKS
50 EAST BROOKS AVENUE
NORTH LAS VEGAS, NEVADA

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE: 1"=50'
DESIGN: B DALTON
DRAWN: R VALDEZ
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

PROFESSIONAL LAND SURVEYOR STATE OF NEVADA
GARY M. HANCOCK
Exp. 6/30/15
No. 19757
6/1/14

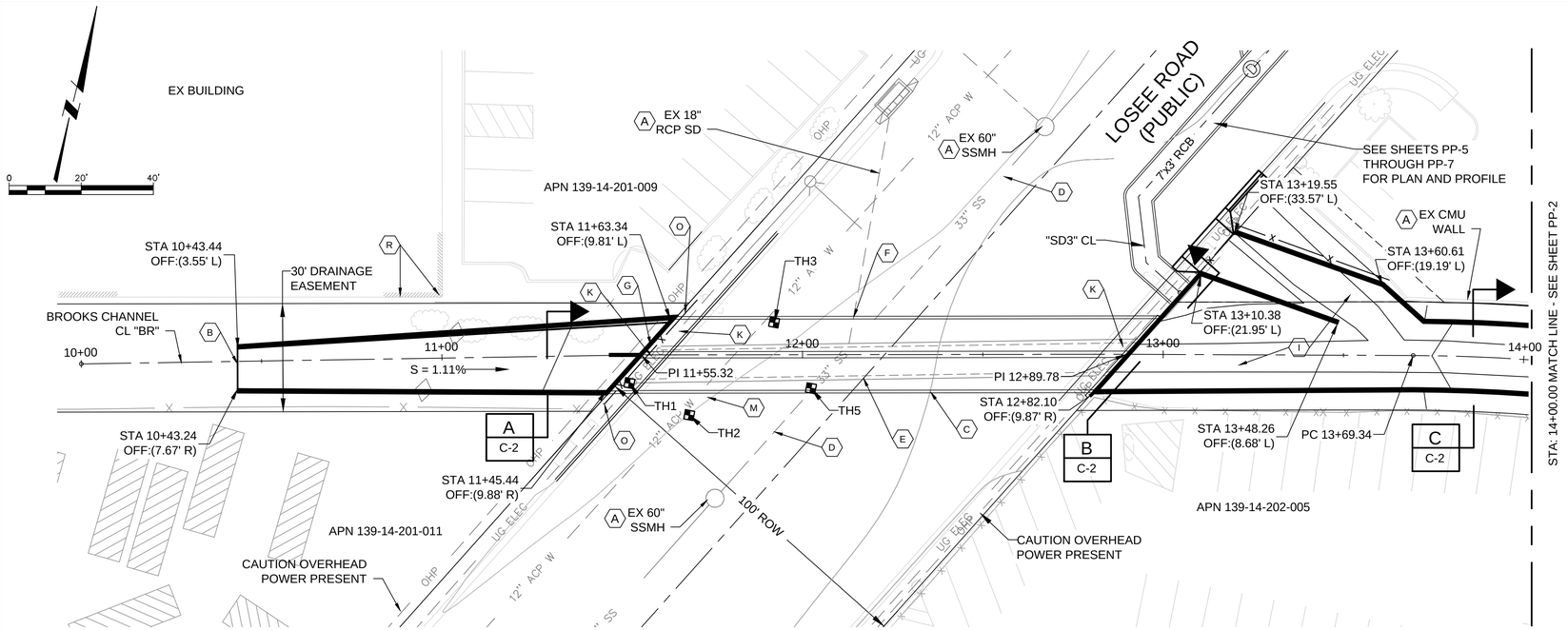
MWH
3010 WEST CHARLESTON BLVD.
SUITE 100
LAS VEGAS, NV 89102
(702) 878-8010

(DRAWING TITLE) CIVIL - HORIZONTAL CONTROL PLAN - II

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL

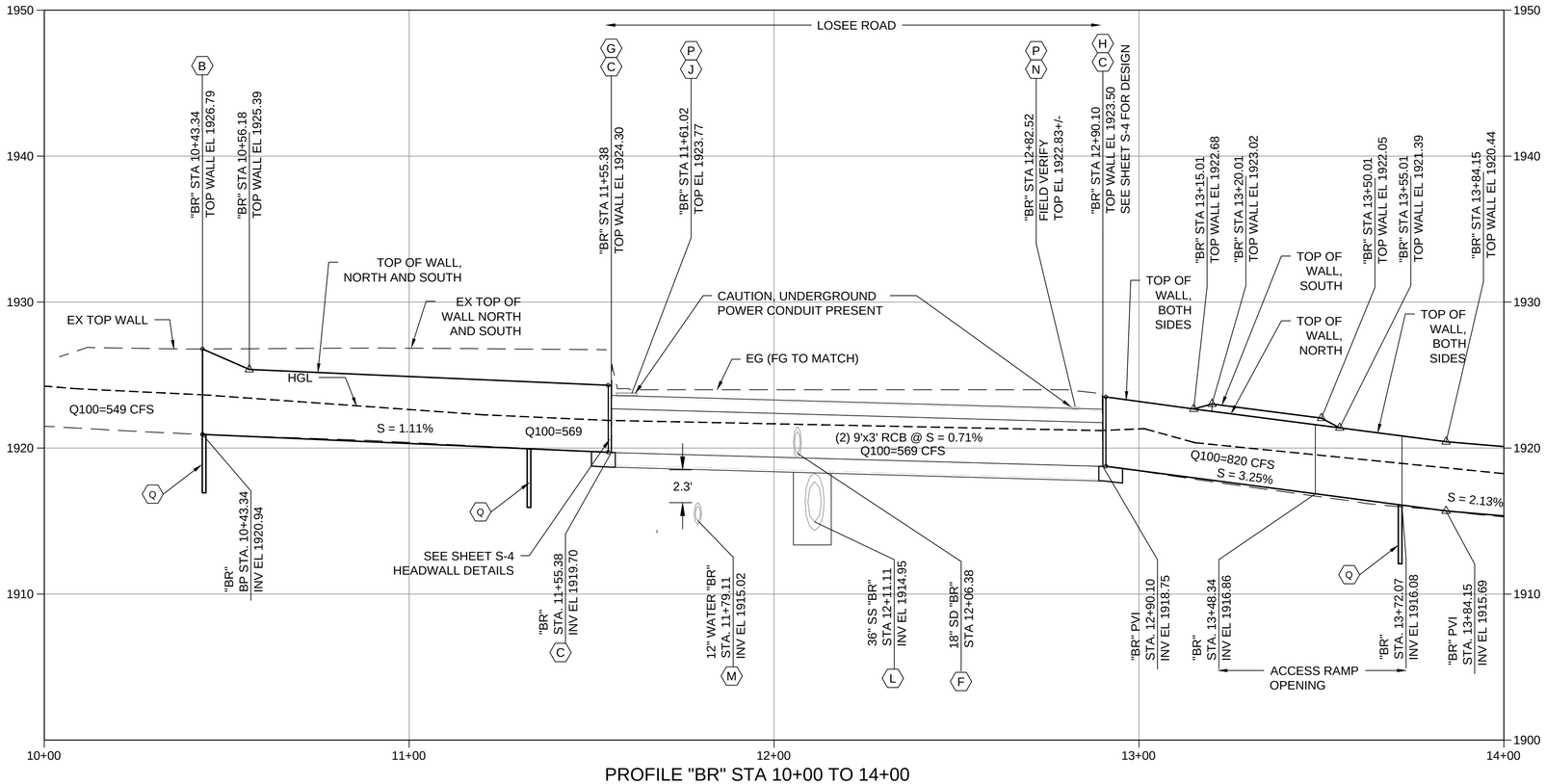
(LOCATION) CITY OF NORTH LAS VEGAS

SHEET NO.
H-2
SHEET 7 OF 43



PLAN "BR" STA 10+00 TO 14+00

HORIZONTAL SCALE: 1"=20'



PROFILE "BR" STA 10+00 TO 14+00

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=5'

GENERAL SHEET NOTES

1. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING FENCES, GATES, WALLS, SURFACES, AND APPURTENANCES UNLESS OTHERWISE NOTED ON THIS PLAN
2. CALL KINDER MORGAN GAS AT 811 FOR STANDBY WHEN EXCAVATING NEAR HIGH PRESSURE FUEL LINES

SHEET KEYNOTES

A. PROTECT IN PLACE

B. BEGIN TRANSITION FROM 12'X6.5' TO 20'X5' RECTANGULAR CHANNEL, FROM "BR" STA 10+43.34 TO "BR" STA 11+55.38 PER SECTION A / SHEET C-2

C. CONSTRUCT (2) 9'X3' RCB STORM DRAIN, FROM "BR" STA 11+55.38 TO "BR" STA 12+90.10

D. REMOVE EX 33" RCP SANITARY SEWER AND INSTALL 36" PVC SANITARY SEWER, REFER TO SHEET PP-8 FOR PLAN AND PROFILE

E. REMOVE EX 8'X3' RCB STORM DRAIN BENEATH LOSEE ROAD

F. TIE EX 18" RCP STORM DRAIN INTO NEW (2) 9'X3' RCB STORM DRAIN PER CONNECTION DETAIL S-906 / SHEET GS-3

G. CONSTRUCT CONC HEADWALL PER SECTION D / SHEET S-4

H. CONSTRUCT CONC HEADWALL PER SECTION B / SHEET C-2

I. RECONSTRUCT CONCRETE CHANNEL AND ACCESS RAMP AT DOWNSTREAM END OF RCB STORM DRAIN, SEE SHEET GR-1 FOR GRADING DETAIL

J. RELOCATE EX UNDERGROUND ELECTRIC POWER CONDUIT (3-1/0 1 - 4" C) BENEATH NEW (2)9'X3' RCB STORM DRAIN, PROVIDE MIN 18" SEPARATION COORDINATE WITH NV ENERGY TO RELOCATE

K. INSTALL SIDEWALK DRAINS PER CCAUSD DWG# 236, REFER TO SHEET GR-1 FOR PLACEMENT LOCATION AND LENGTHS

L. CONSTRUCT REINFORCED CONCRETE ENCASEMENT OF SANITARY SEWER, SEE SHEET PP-8 FOR PROFILE

M. REMOVE AND REPLACE EX 12" ACP WATER LINE WITH NEW DIP MATERIAL, REFER TO SHEET PP-8 FOR PROFILE INVERTS AND STATIONING

N. RELOCATE EX UNDERGROUND ELECTRIC POWER CONDUIT (3-336 AA 1-2/0 ACSR) BENEATH NEW (2)9'X3' RCB STORM DRAIN, PROVIDE MIN 18" SEPARATION, COORDINATE WITH NV ENERGY TO RELOCATE WITHOUT DELAY TO THE PROJECT

O. INSTALL CHAIN LINK FENCE AT BACK OF SIDE WALK PER DETAIL C-900/SHEET GC-1, FROM "BR" STA 11+44.87, OFF 13.1' R TO "BR" STA 11+70.77, OFF 15.6' L, CONNECT TO EX CHAIN LINK FENCES ON BOTH SIDES OF DRAINAGE EASEMENT

P. RELOCATE EX FO AND CABLE UTILITY CONDUITS IN SIDEWALK WITHOUT DELAY TO THE PROJECT, COORDINATE WITH CNLV, CENTURY LINK, AND COX CABLE

Q. CONSTRUCT CUTOFF WALL PER DETAIL S-109/SHEET GS-1, REFER TO SHEETS S-1 THROUGH S-2 FOR EXACT WALL STATION (TYP)

R. CAUTION, EXISTING BUILDING LIMITS, CONTRACTOR SHALL PROVIDE SHORING PROTECTION DURING EXCAVATION PER SPECIFICATION SECTION 206 - STRUCTURE EXCAVATION

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
OR
1-800-227-2600
OR
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

SCALE: AS SHOWN
DESIGN: R VALDEZ
DRAWN: N NATALE
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

PROFESSIONAL ENGINEER STATE OF NEVADA RAUL V VALDEZ No 21442 Exp: 6-30-16 CIVIL 10/09/14

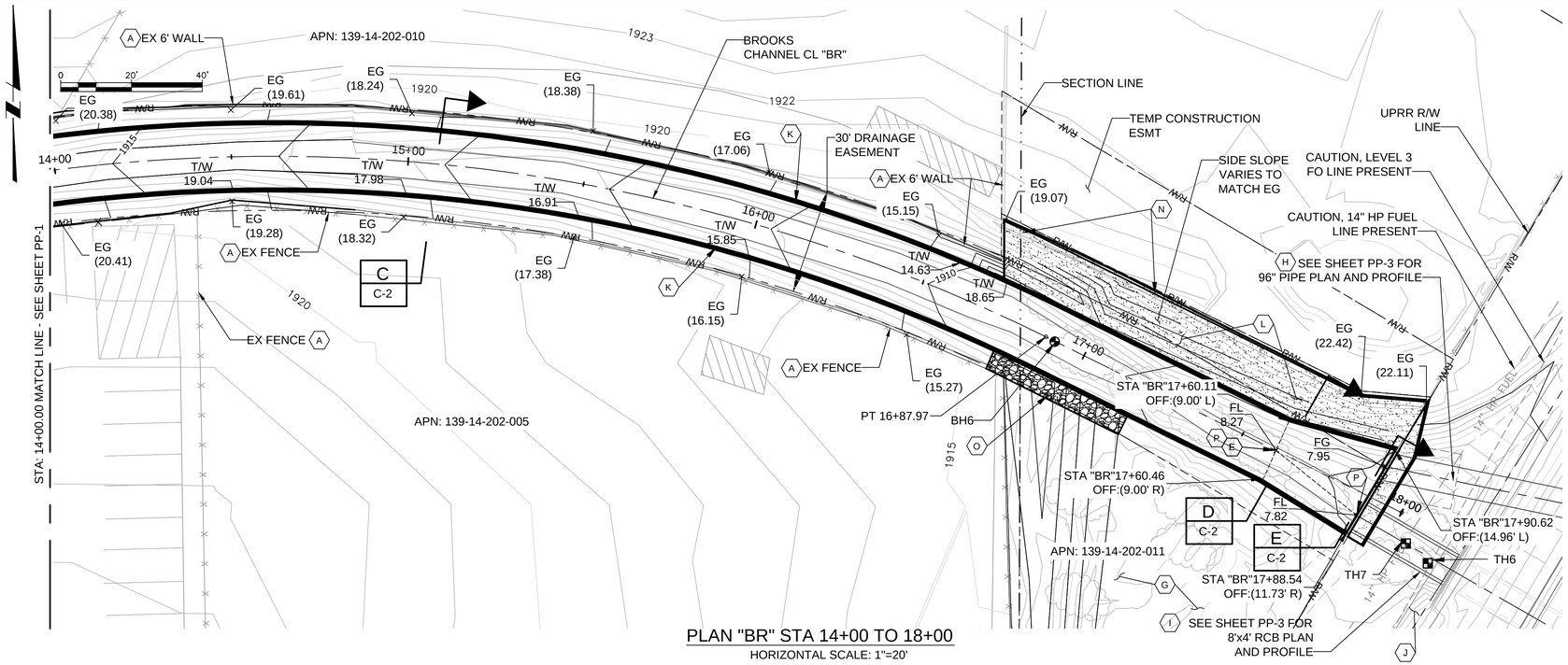
MWH
3010 WEST CHARLESTON BLVD. SUITE 100
LAS VEGAS, NV. 89102
(702) 878-8010

(DRAWING TITLE) CIV - CHANNEL PLAN AND PROFILE STA 10+00 TO 14+00

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL
CITY OF NORTH LAS VEGAS

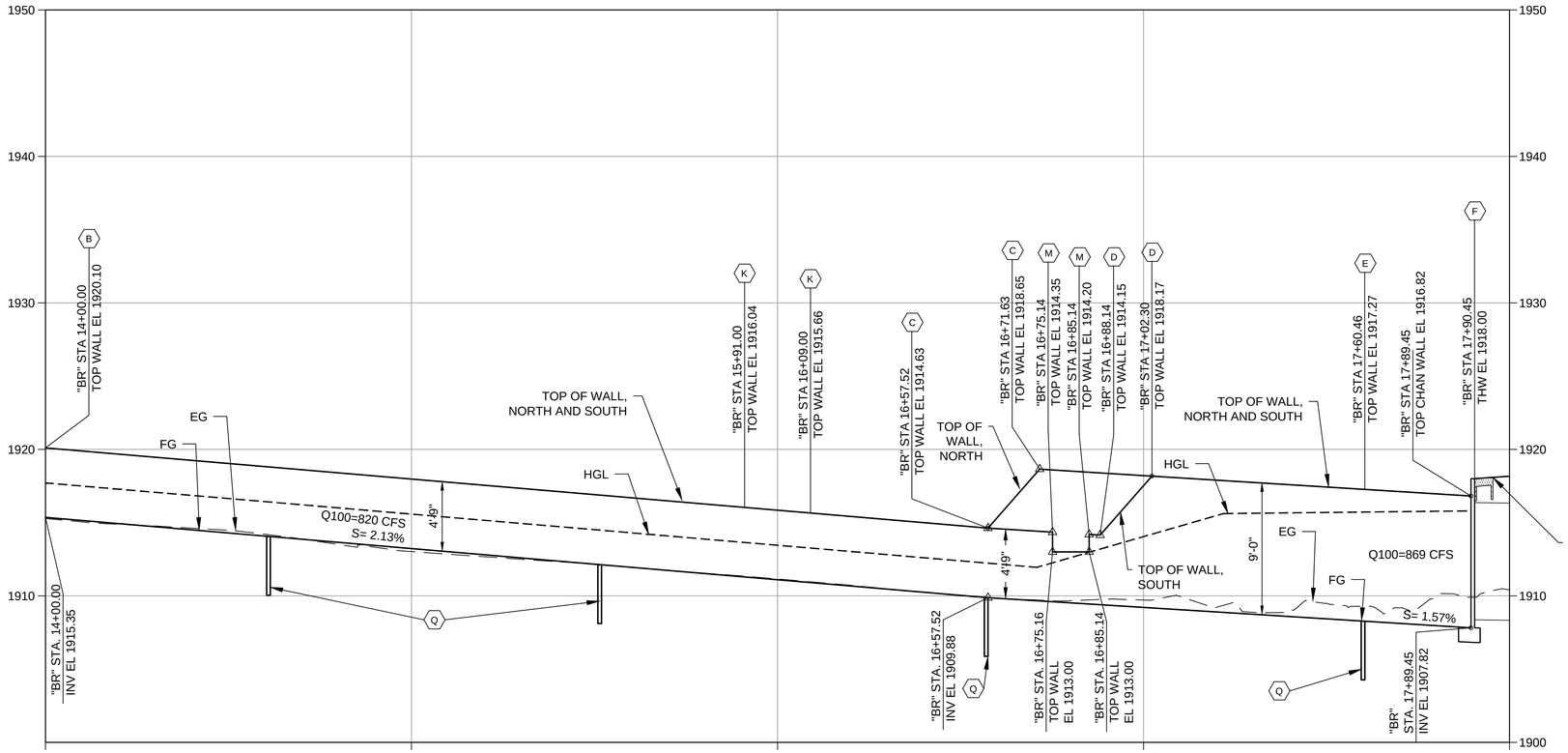
(LOCATION)

SHEET NO.
PP-1
SHEET 15 OF 43



PLAN "BR" STA 14+00 TO 18+00

HORIZONTAL SCALE: 1"=20'



PROFILE "BR" STA 14+00 TO 18+00

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=5'

GENERAL SHEET NOTES

1. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING FENCES, GATES, WALLS, SURFACES, AND APPURTENANCES UNLESS OTHERWISE NOTED ON THIS PLAN
2. CALL KINDER MORGAN GAS AT 702-643-1282 FOR STANDBY WHEN EXCAVATING NEAR HIGH PRESSURE FUEL LINES

SHEET KEYNOTES

A. PROTECT IN PLACE

B. CONSTRUCT 18' WIDE X 4'-9" HIGH RECTANGULAR REINFORCED CONCRETE CHANNEL PER SECTION C / SHEET C-2, "BR" STA 14+00.00 TO "BR" STA 16+57.52

C. CONSTRUCT 18' WIDE RECTANGULAR REINFORCED CONCRETE CHANNEL PER SECTION D / SHEET C-2, BEGIN NORTH CHANNEL TOP OF WALL ELEVATION TAPER FROM "BR" STA 16+57.52, OFF: 9' L TO "BR" STA 16+71.63, OFF: 9' L

D. CONSTRUCT 18' WIDE RECTANGULAR REINFORCED CONCRETE CHANNEL PER SECTION D / SHEET C-2, BEGIN SOUTH CHANNEL TOP OF WALL ELEVATION TAPER FROM "BR" STA 16+88.14, OFF: 9' R TO "BR" STA 17+02.30, OFF: 9' R

E. CONSTRUCT RECTANGULAR REINFORCED CONCRETE CHANNEL PER SECTION D / SHEET C-2, BEGIN WIDTH TRANSITION FROM 18' TO 27' WIDE, FROM "BR" STA: 17+60.46 TO "BR" STA 17+89.45

F. END 27' WIDE RECTANGULAR REINFORCED CONCRETE CHANNEL, CONSTRUCT CUSTOM CONCRETE HEADWALL PER SECTION E / SHEET C-2

G. FILL PARCEL 139-14-202-011 TO LIMITS AND ELEVATIONS PER CONTOUR GRADING PER SHEET GR-2

H. INSTALL 96" INSIDE DIAMETER STEEL PIPE CULVERT BENEATH UPRR EMBANKMENT

I. INSTALL 8'X4' RCB CULVERT, CONNECT TO EXISTING CULVERT IN PLACE

J. GRADE NEW RAIL ROAD ACCESS ROAD OVER TOP OF PROPOSED 96" DIAMETER PIPE AND 8'X4' RCB CULVERTS PER SHEET PP-10

K. INSTALL CHANNEL ACCESS LADDER PER DETAIL C-910 / SHEET GC-3 AT "BR" STA 15+91.00, OFF 9' R, AND "BR" STA 16+09.00, OFF 9'L

L. INSTALL CONCRETE SLOPE PAVING PER DETAIL C-909 / SHEET GC-2 FROM "BR" STA 16+63.91, OFF: 25.23' L TO "BR" STA 17+92.94, OFF: 31.9' L

M. CONSTRUCT 10' WIDE DRAINAGE SIDE NOTCH IN SOUTH CHANNEL WALL, FROM "BR" STA 16+75.14, OFF: 9' R TO "BR" STA 16+85.14, OFF: 9' R

N. REMOVE AND REPLACE EX PRECAST CONCRETE BARRIER RAIL AND CHAIN LINK FENCE ALONG LIMITS OF SLOPE PAVING, FROM "BR" STA 16+63.91, OFF: 25.2' L TO "BR" STA 17+92.94, OFF: 31.9' L; MATCH EX BARRIER RAIL STYLE FOR DRAINAGE

O. INSTALL GROUTED RIP RAP PAD IN FRONT OF SIDE DRAINAGE NOTCH PER DETAIL C-908 / SHEET GC-2, FROM "BR" STA 16+76.26, OFF: 9' R TO "BR" STA 17+18.51, OFF: 9' R

P. BEGIN FLOW LINE CROSS SECTION WARP AT "BR" STA 17+60.46 TOWARDS 8'X4' RCB INLET INVERT

Q. CONSTRUCT CUTOFF WALL (TYP) PER DETAIL S-109 / SHEET GS-1, REFER TO SHEETS S-1 THROUGH S-2 FOR EXACT WALL STATIONS

EXTREME CAUTION!!!
HIGH PRESSURE PETROLEUM LINES PRESENT

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

SCALE: AS SHOWN
DESIGN: R VALDEZ
DRAWN: N NATALE
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

MWH
3010 WEST CHARLESTON BLVD. SUITE 100
LAS VEGAS,NV. 89102
(702) 878-8010

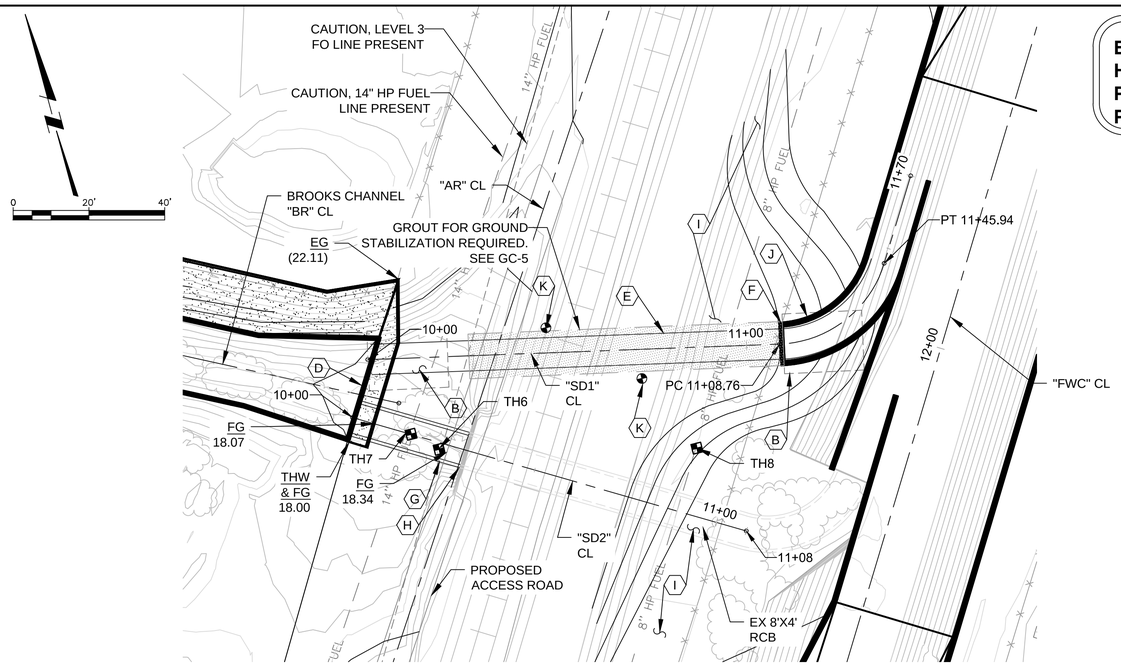
(DRAWING TITLE) CIV - CHANNEL PLAN AND PROFILE STA 14+00 TO 18+00

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL
CITY OF NORTH LAS VEGAS

(LOCATION)

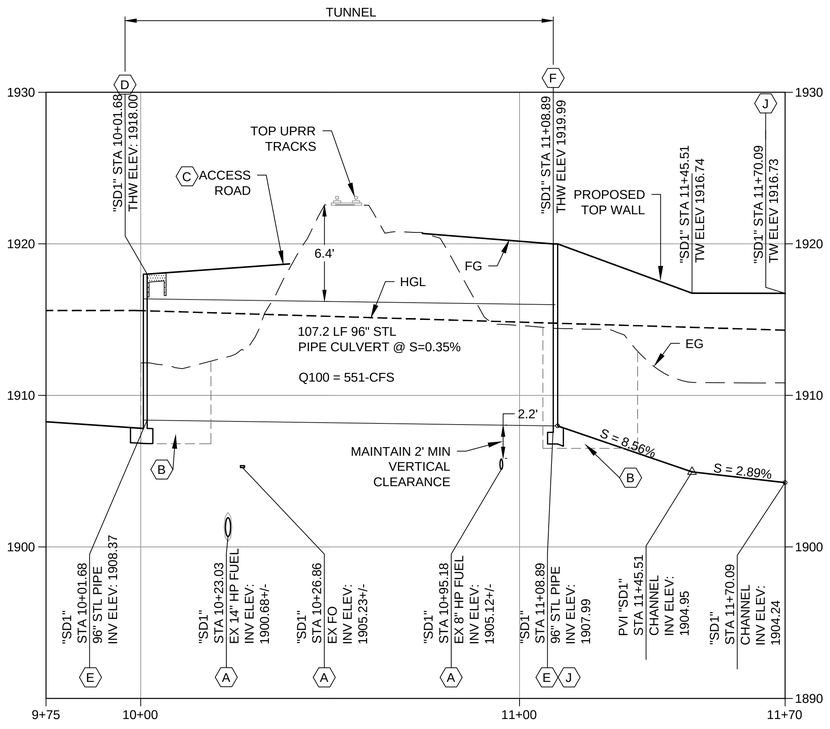
SHEET NO. PP-2

SHEET 16 OF 43

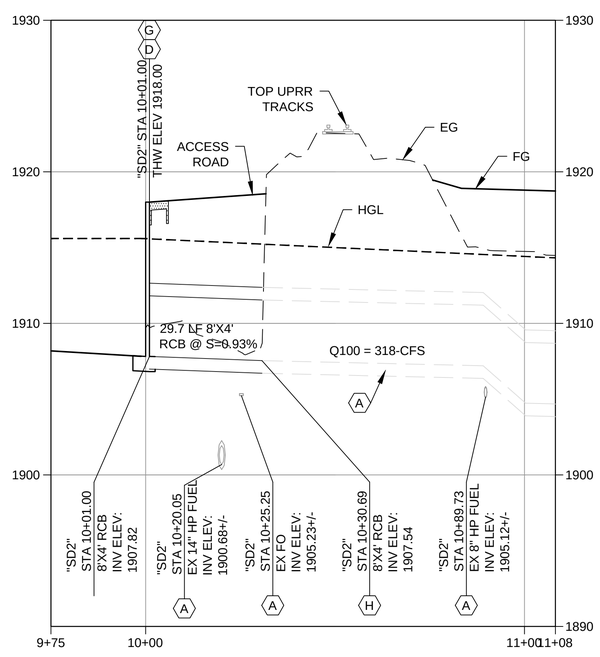


EXTREME CAUTION!!! HIGH PRESSURE PETROLEUM LINES PRESENT

PLAN "SD1" ALIGNMENTS STA 10+00 TO 11+70
AND
PLAN "SD2" ALIGNMENTS STA 10+00 TO 11+08
HORIZONTAL SCALE: 1"=20'



PROFILE "SD1" STA 10+00 TO 11+70
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=5'



PROFILE "SD2" STA 10+00 TO 11+08
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=5'

GENERAL SHEET NOTES

1. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING FENCES, GATES, WALLS, SURFACES, AND APPURTENANCES UNLESS OTHERWISE NOTED ON THIS PLAN
2. SEE SHEET R-1 FOR REMOVAL LIMITS.
3. CALL KINDER MORGAN GAS AT 702-643-1282 FOR STANDBY WHEN EXCAVATING NEAR HIGH PRESSURE FUEL LINES; PROVIDE KINDER MORGAN WITH A CONSTRUCTION SCHEDULE AT LEAST 2 WEEKS PRIOR TO START OF CONSTRUCTION.

SHEET KEYNOTES

A. PROTECT IN PLACE.

B. ANTICIPATED TUNNELING SHAFT PER CONTRACTOR DESIGN

C. GRADE NEW RAIL ROAD ACCESS ROAD OVER TOP OF PROPOSED 96" DIAMETER PIPE AND 8'x4' RCB CULVERTS PER SHEET PP-10

D. CONSTRUCT CUSTOM CONCRETE HEADWALL PER SECTION E / SHEET C-2, CONNECT TO 96" DIAMETER STL PIPE AND 8'x4' RCB CULVERTS

E. INSTALL 96" INSIDE DIAMETER STL PIPE WITH TUNNEL METHODS PER DETAIL C-912 / SHEET GC-5 FROM "SD1" STA 10+01.68 TO "SD1" STA 11+08.89

F. CONSTRUCT 96" DIAMETER STL PIPE OUTLET HEADWALL, PER STRUCTURAL DWG'S

G. INSTALL 8'X4' RCB FROM "SD2" STA 10+01.00 TO "SD2" STA 10+30.69

H. CONNECT NEW 8'X4' RCB TO EXISTING 8'X4' STRUCTURE IN PLACE REFER TO STRUCTURAL DWGS FOR CONNECTION DETAILS

I. FILL AND RE-GRADE OVER TOP OF CULVERT CROSSINGS AND TIE INTO EDGE OF PROPOSED CONFLUENCE CHANNEL WALL, SEE SHEET PP-4 FOR FULL EXTENT OF GRADING LIMITS

J. CONSTRUCT 9' WIDE X 12' HIGH SIDE CHANNEL, "SD1" STA 11+08.89 TO "SD1" STA 11+70.09, TIE INTO CENTRAL FREEWAY CHANNEL CONFLUENCE, TAPER TOP OF WALLS TO MATCH CONFLUENCE, REFER TO STRUCTURAL DWGS FOR CONNECTION DETAILS

K. NEW GEOTECHNICAL BORING BY CONTRACTOR. SEE SPECIFICATION SECTION 221

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
OR
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

SCALE: AS SHOWN
DESIGN: R VALDEZ
DRAWN: N NATALE
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

PROFESSIONAL ENGINEER STATE OF NEVADA THOMAS V VALDEZ Exp: 6-30-16 CIVIL No 21142 10/09/14

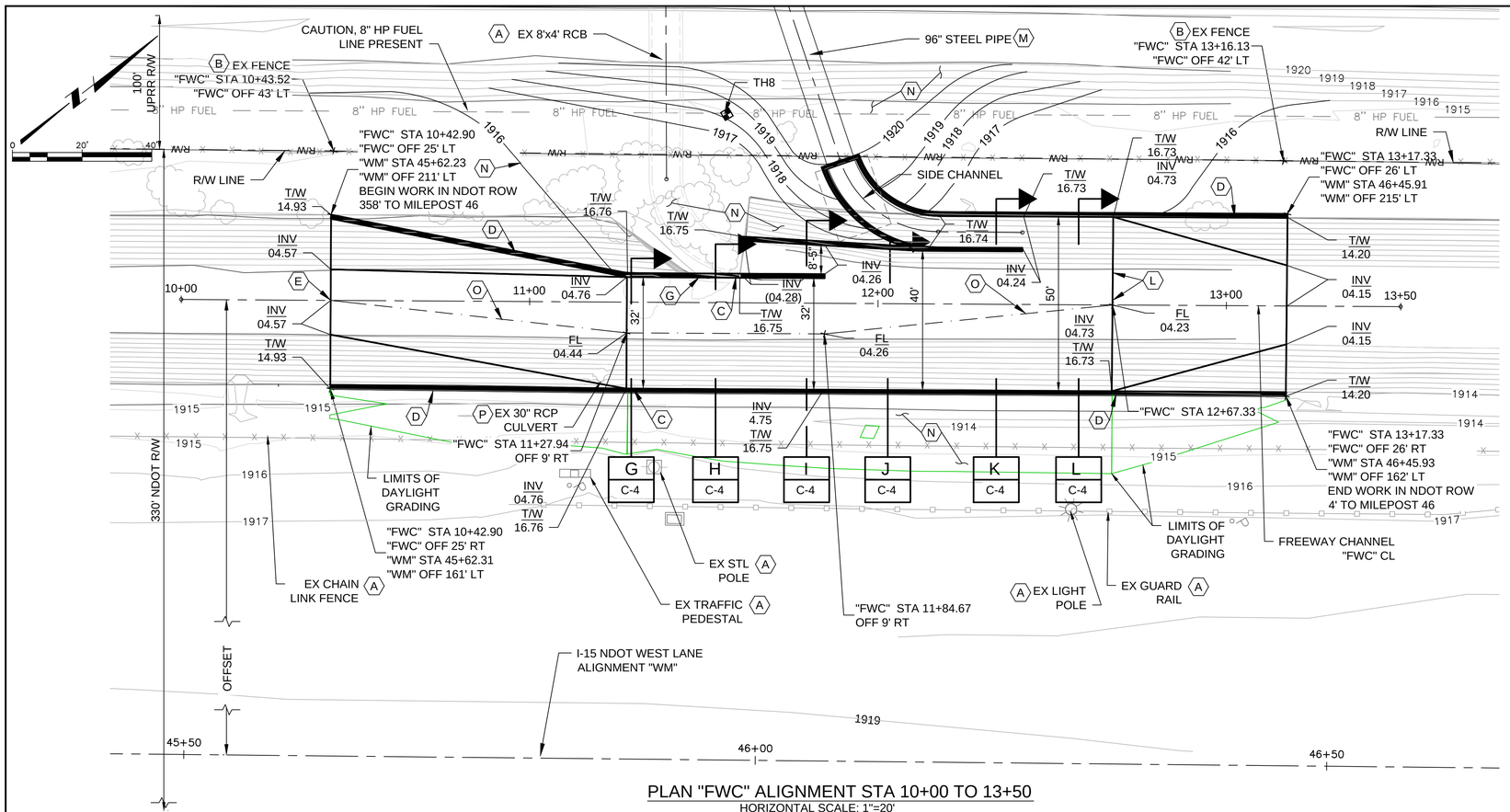
MWH
3010 WEST CHARLESTON BLVD. SUITE 100 89102
LAS VEGAS,NV.
(702) 878-8010

(DRAWING TITLE) CIVIL - UPRR CROSSING PLAN AND PROFILE

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL
CITY OF NORTH LAS VEGAS

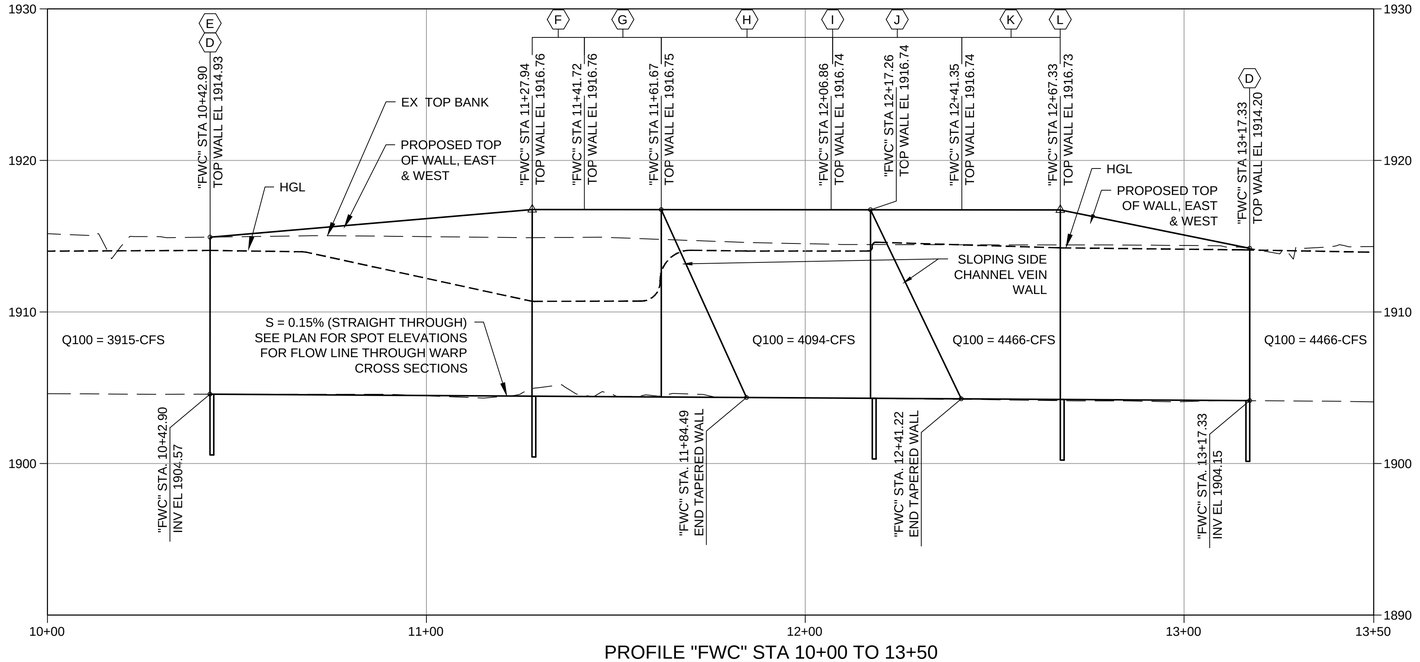
(LOCATION)

SHEET NO.
PP-3
SHEET17 OF 43



PLAN "FWC" ALIGNMENT STA 10+00 TO 13+50

HORIZONTAL SCALE: 1"=20'



PROFILE "FWC" STA 10+00 TO 13+50

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=5'

GENERAL SHEET NOTES

1. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING FENCES, GATES, WALLS, SURFACES, AND APPURTENANCES UNLESS OTHERWISE NOTED ON THIS PLAN
2. SEE SHEET R-1 FOR REMOVAL LIMITS.
3. CALL KINDER MORGAN GAS AT 702-643-1282 FOR STANDBY WHEN EXCAVATING NEAR HIGH PRESSURE FUEL LINES

SHEET KEYNOTES

A. PROTECT IN PLACE

B. REMOVE AND REPLACE

C. INSTALL CHANNEL ACCESS LADDER, PER DETAIL C-910 / SHEET GC-3 AT "FWC" STA 11+29.98, OFF 25' RT, AND "FWC" STA 11+59.09, OFF 7' LT

D. INSTALL POST AND CABLE FENCE ALONG CHANNEL WALL FROM "FWC" STA: 10+42.90 TO "FWC" STA: 13+17.33, BOTH SIDES PER DETAIL C-911 / SHEET GC-4

E. BEGIN TRANSITION FROM EX TRAPEZOIDAL CHANNEL TO 32'X12' RECTANGULAR CHANNEL SECTION; FROM "FWC' STA 10+42.90 TO "FWC" STA 11+27.94

F. CONSTRUCT 32'X12' RECTANGULAR CHANNEL PER SECTION G / SHEET C-4, "FWC" STA 11+27.94 TO "FWC" STA 11+41.72

G. CONSTRUCT 32'X12' RECTANGULAR CHANNEL PER SECTION H / SHEET C-4, "FWC" STA 11+41.72 TO "FWC" STA 11+61.67; TIE PROPOSED NORTH CHANNEL WALL INTO EX 8'X4' RCB OUTLET STRUCTURE PER STRUCTURAL DWG'S

H. CONSTRUCT VARYING WIDTH RECTANGULAR CHANNEL (42'6" TO 41'0"X12') WITH SIDE CHANNEL VEIN WALL PER SECTION I / SHEET C-4 FROM "FWC" STA 11+61.67 TO "FWC" STA 11+84.49, CONTINUE WIDTH TAPER TO TOTAL WIDTH OF 40' BY "FWC" STA 12+06.86

I. CONSTRUCT 40'X12' RECTANGULAR CHANNEL PER SECTION J /SHEET C-4, AT "FWC" STA 12+06.86

J. CONSTRUCT 50'X12' RECTANGULAR CHANNEL WITH SIDE CHANNEL VEIN WALL PER SECTION K/ SHEET C-4 FROM "FWC" STA 12+06.86 TO "FWC" 12+41.35

K. CONSTRUCT 50'X12' RECTANGULAR CHANNEL PER SECTION L / SHEET C-4 FROM "FWC' STA 12+41.35 TO "FWC" 12+67.33

L. BEGIN TRANSITION FROM 50'X12' RECTANGULAR CHANNEL TO EX TRAPEZOIDAL CHANNEL FROM "FWC" STA 12+67.33 TO "FWC" STA 13+17.33

M. SEE SHEET PP-3 FOR 96" STEEL PIPE STORM DRAIN AND SIDE CHANNEL PLAN AND PROFILE

N. FILL AND RE-GRADE PER FINISHED GRADE CONTOURS, DEPICTED THIS SHEET

O. ADJUST FLOW LINE TOWARD CENTER OF CONFLUENCE CHANNEL SECTION PER STATION-OFFSETS PROVIDED

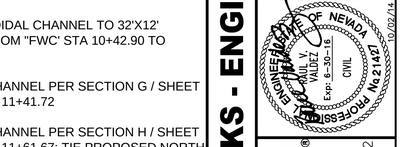
P. CONNECT EX 30" RCP CULVERT TO NEW CHANNEL WALL PER STRUCTURAL DETAIL S-906/SHEET GS-3, MATCH EX INVERT ELEVATION

EXTREME CAUTION!!!
HIGH PRESSURE PETROLEUM LINES PRESENT

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

SCALE: AS SHOWN
DESIGN: R VALDEZ
DRAWN: N NATALE
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014



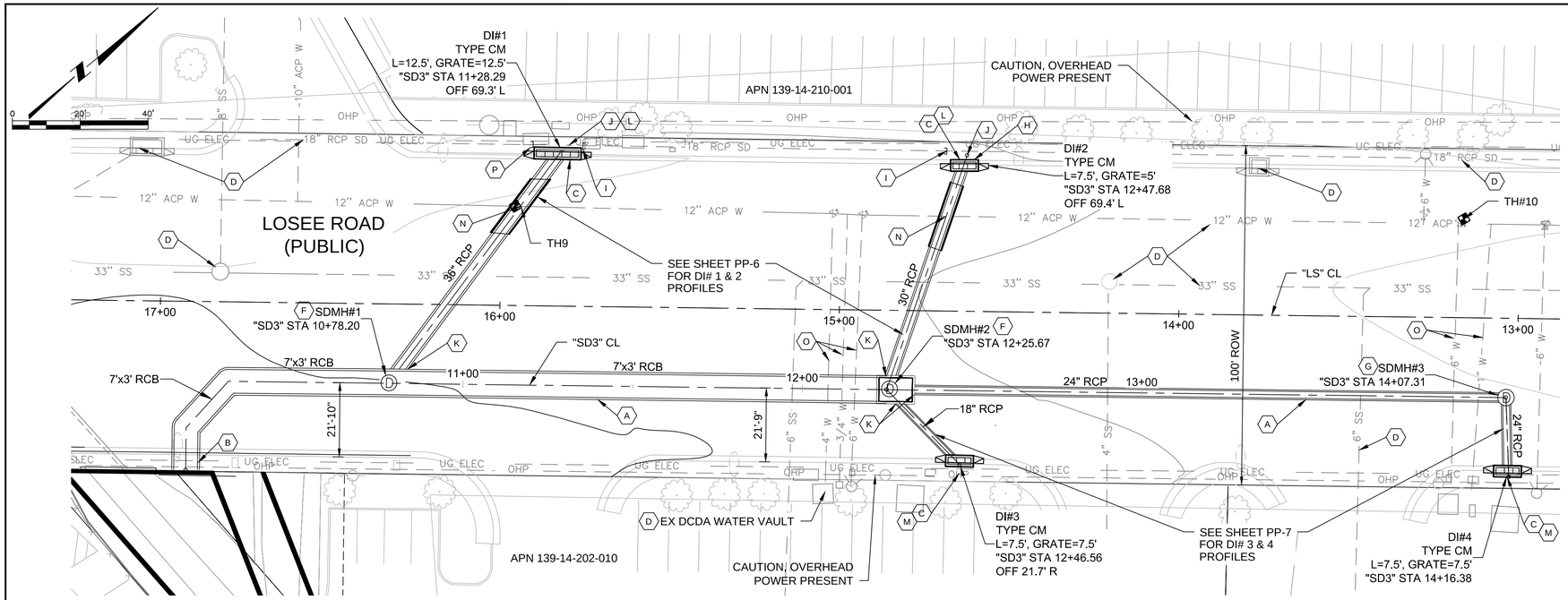
MWH
3010 WEST CHARLESTON BLVD. SUITE 100 89102
LAS VEGAS,NV. (702) 878-8010

(DRAWING TITLE) CIV-FWY CHANNEL PLAN & PROFILE STA 10+00 TO 13+50

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL
CITY OF NORTH LAS VEGAS

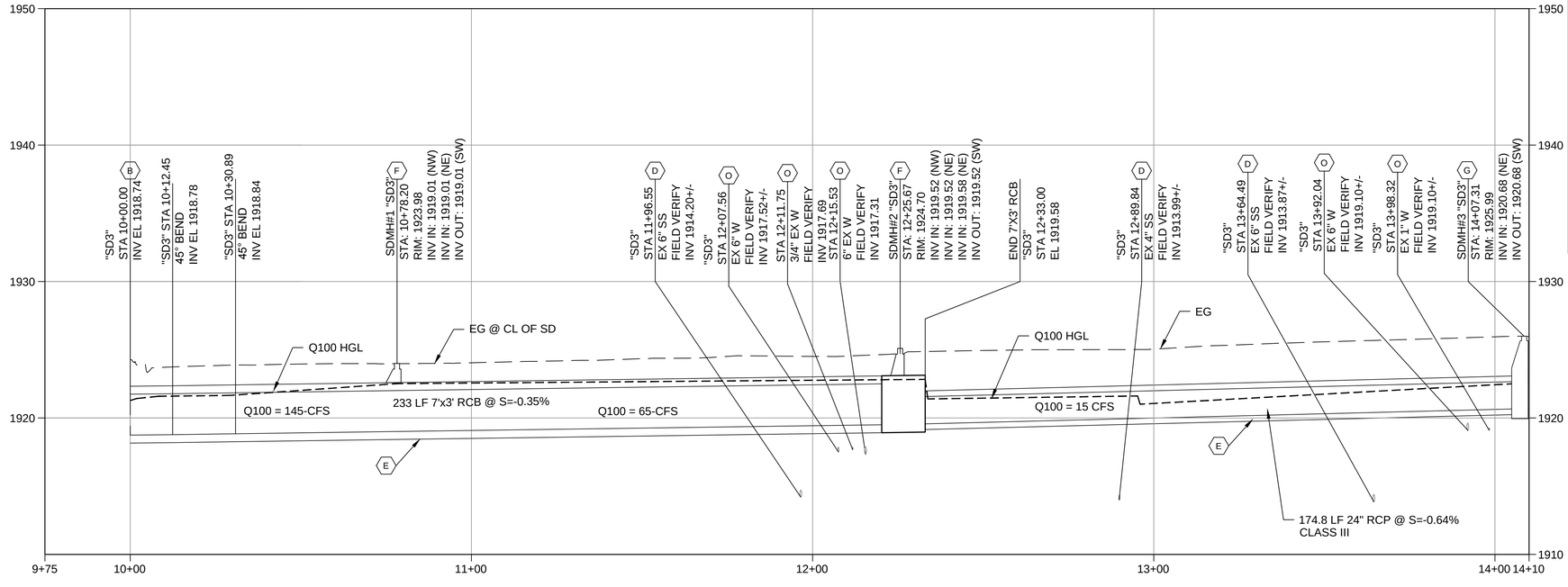
(LOCATION)

SHEET NO.
PP-4
SHEET 18 OF 43



PLAN "SD3" STA 10+00 TO 14+10

HORIZONTAL SCALE: 1"=20'



PROFILE "SD3" STA 10+00 TO 14+10

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=5'

GENERAL SHEET NOTES

1. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING FENCES, GATES, WALLS, SURFACES, AND APPURTENANCES UNLESS OTHERWISE NOTED ON THIS PLAN
2. RELOCATE ALL ELECTRICAL, COMMUNICATION, AND FO LINES LOCATED IN SIDEWALK AT LOCATION OF DROP INLETS AROUND IMPROVEMENTS; COORDINATE RELOCATIONS WITH NV ENERGY, COX CABLE, AND CENTURY LINK.
3. LINEAR FOOTAGE (LF) SLOPES AND INVERTS OF STORM DRAIN AS SHOWN ON PLANS ARE CALCULATED HORIZONTALLY FROM CENTERLINE OF STRUCTURE TO CENTERLINE OF STRUCTURE.

SHEET KEYNOTES

A. INSTALL STORM DRAIN PIPING

B. CONNECT STORM DRAIN OUTLET TO CONCRETE HEADWALL PER SECTION B / SHEET C-2

C. CONSTRUCT CURB AND GUTTER DROP INLET TYPE CM PER CCAUSD DWG # 422

D. PROTECT IN PLACE

E. STORM DRAIN PIPE TRENCH AND BEDDING PER DETAIL C-906 / SHEET GC-2

F. CONSTRUCT 48" DIAMETER RISER TYPE MANHOLE WITH MANHOLE STEPS EXTENDING INTO SIDE WALL OF RCB PER CCAUSD DWG # 410

G. CONSTRUCT 48" DIAMETER TYPE I STORM DRAIN MANHOLE PER CCAUSD DWG # 403.

H. CONNECT EX 18" RCP STORM DRAIN TO PROPOSED DROP INLET

I. ABANDON IN PLACE EX 18" RCP STORM DRAIN FROM "SD3" STA 12+42.13, OFF 70.5' L TO "SD3" STA 11+19.80, OFF 70.9' L PER DETAIL C-907 / SHEET GC-2

J. REMOVE 15' SEGMENT OF EX 18" STORM DRAIN TO INSTALL NEW DROP INLET

K. CONNECT PROPOSED STORM DRAIN LATERALS TO NEW RCB PER STRUCTURAL DETAIL S-906 / SHEET GS-3

L. RELOCATE EX UNDERGROUND ELECTRIC POWER CONDUIT (3-1/0 1-4"C) AROUND NEW DROP INLET, COORDINATE WITH NV ENERGY TO RELOCATE

M. RELOCATE EX UNDERGROUND ELECTRIC POWER CONDUIT (3-336 AA 1-2/0 ACSR) AROUND NEW DROP INLET, COORDINATE WITH NV ENERGY TO RELOCATE

N. ENCASE STORM DRAIN LINE OVER WATER LINE CROSSING WITH CLSM SLURRY, SEE SHEET PP-6.

O. VERTICALLY RELOCATE EX WATER SERVICE LINES UNDER NEW STORM DRAIN PER UDACSPLATE # 21 & #23, RESTRAIN ALL JOINTS

P. CAP EX 18" RCP STORM DRAIN, DO NOT CONNECT TO PROPOSED DROP INLET, AT "SD3" STA 11+19.80, OFF 70.9' L

AVOID HITTING OVERHEAD POWER LINES. IT'S DEADLY!
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
or
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

SCALE: AS SHOWN
DESIGN: R VALDEZ
DRAWN: R VALDEZ
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

STATE OF NEVADA
PROFESSIONAL ENGINEER
RAUL V. VALDEZ
Exp: 6-30-16
CIVIL
No 21442
10/09/14

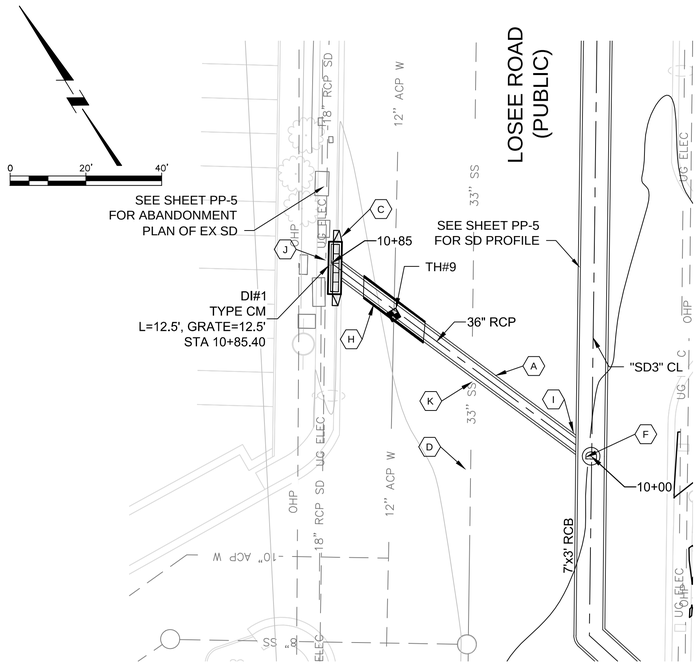
MWH
3010 WEST CHARLESTON BLVD. SUITE 100
LAS VEGAS,NV. 89102
(702) 878-8010

(DRAWING TITLE) CIV-STORM DRAIN PLAN & PROFILE STA 10+00 TO 14+10

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL
CITY OF NORTH LAS VEGAS

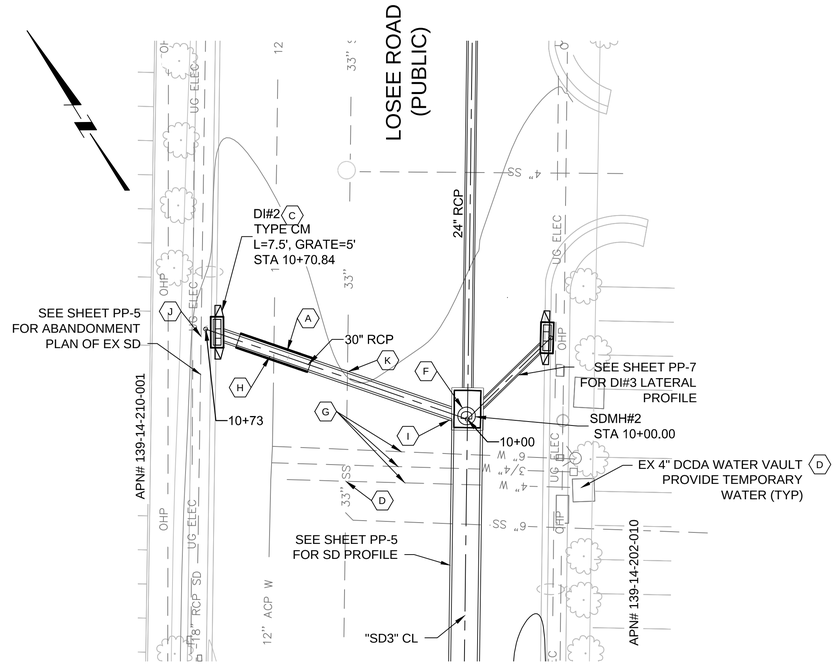
(LOCATION)

SHEET NO.
PP-5
SHEET 19 OF 43



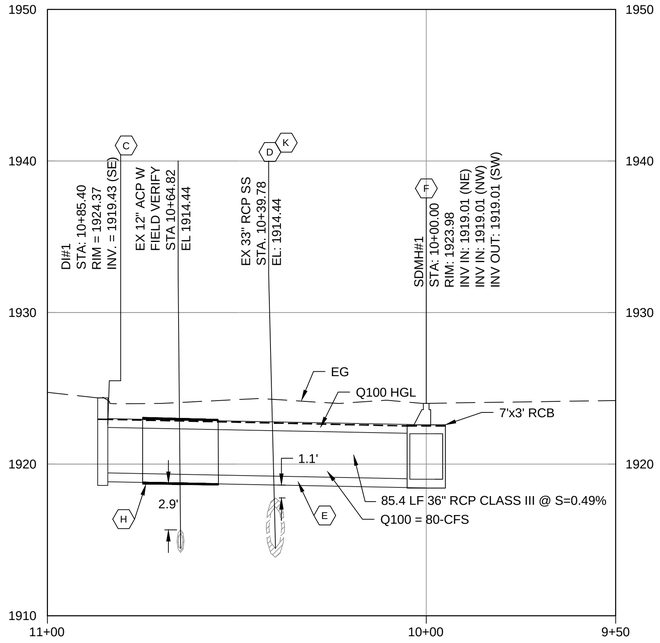
DI# 1 PLAN

HORIZONTAL SCALE: 1"=20'



DI# 2 PLAN

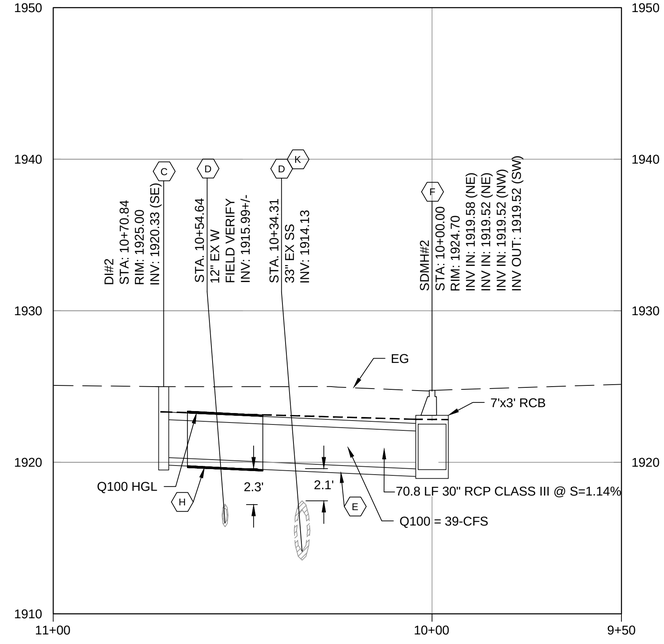
HORIZONTAL SCALE: 1"=20'



DI# 1 PROFILE

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=5'



DI# 2 PROFILE

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=5'

GENERAL SHEET NOTES

1. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING FENCES, GATES, WALLS, SURFACES, AND APPURTENANCES UNLESS OTHERWISE NOTED ON THIS PLAN
2. RELOCATE ALL ELECTRICAL, COMMUNICATION, AND FO LINES LOCATED IN SIDEWALK AT LOCATION OF DROP INLETS AROUND IMPROVEMENTS; COORDINATE RELOCATIONS WITH NV ENERGY, COX CABLE, AND CENTURY LINK.
3. LINEAR FOOTAGE (LF) SLOPES AND INVERTS OF STORM DRAIN AS SHOWN ON PLANS ARE CALCULATED HORIZONTALLY FROM CENTERLINE OF STRUCTURE TO CENTERLINE OF STRUCTURE

SHEET KEYNOTES

- A. INSTALL STORM DRAIN PIPING
- B. NOTE NOT USED
- C. CONSTRUCT CURB AND GUTTER DROP INLET, TYPE CM PER CCAUSD DWG# 422
- D. PROTECT IN PLACE
- E. STORM DRAIN PIPE TRENCH AND BEDDING PER DETAIL C-906 / SHEET GC-2
- F. CONSTRUCT 48" RISER TYPE MANHOLE WITH MANHOLE STEPS EXTENDING INTO RCB PER CCAUSD DWG # 410
- G. VERTICALLY RELOCATE EX WATER LINES UNDER NEW STORM DRAIN PER UDACS PLATE #21 & #23, RESTRAIN ALL JOINTS.
- H. ENCASE STORM DRAIN LINE WITH 4" THICK CLSM SLURRY, EXTEND ENCASEMENT 10-FT BOTH SIDES OF CROSSING.
- I. CONNECT PROPOSED STORM DRAIN LATERALS TO NEW RCB PER STRUCTURAL DETAIL S-906 / SHEET GS-3
- J. RELOCATE EX UNDERGROUND ELECTRIC POWER CONDUIT (3-1/0 1-4"C) AROUND NEW DROP INLET, COORDINATE WITH NV ENERGY TO RELOCATE
- K. PROVIDE STRUCTURAL SUPPORT FOR EX SANITARY SEWER CROSSING PER DRAWING SD-21 OF THE DCSWCS

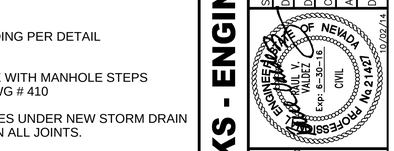
1-702-227-2929

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call
811
or
1-800-227-2800
and
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

SCALE: AS SHOWN
DESIGN: R VALDEZ
DRAWN: R VALDEZ
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014



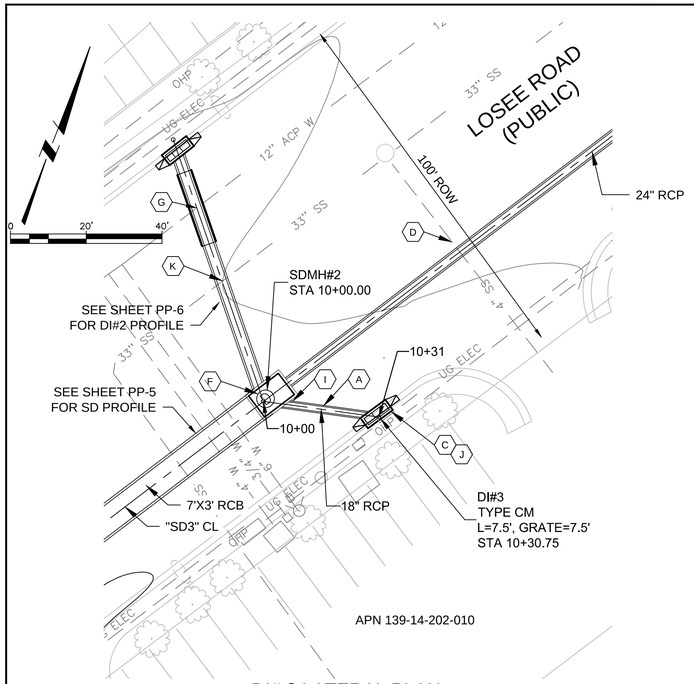
MWH
3010 WEST CHARLESTON BLVD. SUITE 100
LAS VEGAS,NV. 89102
(702) 878-8010

(DRAWING TITLE) CIVIL - STORM DRAIN PLAN AND PROFILE LATERALS - 1

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL

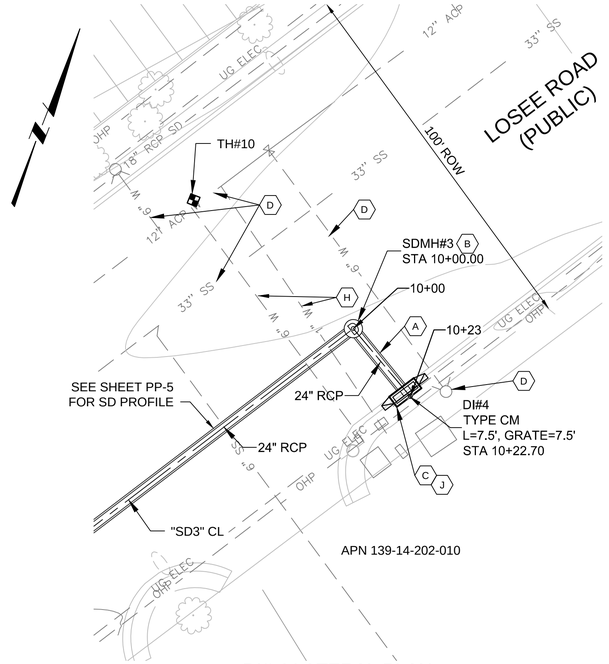
(LOCATION) CITY OF NORTH LAS VEGAS

SHEET NO.
PP-6
SHEET 20 OF 43



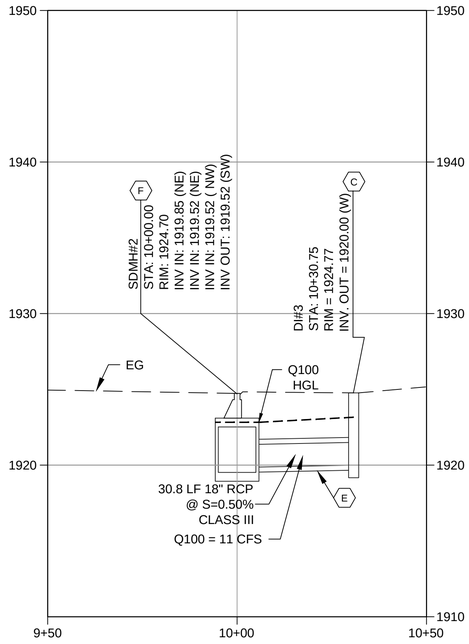
DI# 3 LATERAL PLAN

HORIZONTAL SCALE: 1"=20'



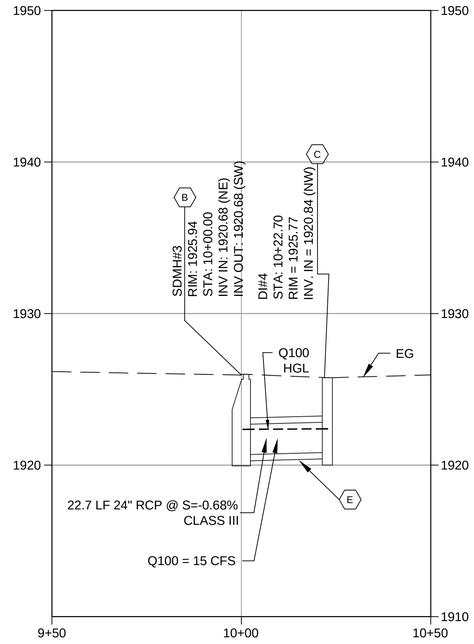
DI# 4 LATERAL PLAN

HORIZONTAL SCALE: 1"=20'



DI# 3 LATERAL PROFILE STA

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=5'



DI# 4 LATERAL PROFILE STA

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=5'

GENERAL SHEET NOTES

1. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING FENCES, GATES, WALLS, SURFACES, AND APPURTENANCES UNLESS OTHERWISE NOTED ON THIS PLAN
2. RELOCATE ALL ELECTRICAL, COMMUNICATION, AND FO LINES LOCATED IN SIDEWALK AT LOCATION OF DROP INLETS AROUND IMPROVEMENTS; COORDINATE RELOCATIONS WITH NV ENERGY, COX CABLE, AND CENTURY LINK.
3. LINEAR FOOTAGE (LF) SLOPES AND INVERTS OF STORM DRAIN AS SHOWN ON PLANS ARE CALCULATED HORIZONTALLY FROM CENTERLINE OF STRUCTURE TO CENTERLINE OF STRUCTURE

SHEET KEYNOTES

A. INSTALL STORM DRAIN PIPING

B. CONSTRUCT 48" DIAMETER TYPE I STORM DRAIN MANHOLE PER CCAUSD DWG # 403.

C. CONSTRUCT CURB AND GUTTER DROP INLET TYPE CM PER CCAUSD DWG # 422

D. PROTECT IN PLACE

E. STORM DRAIN PIPE TRENCH AND BEDDING PER DETAIL C-906/SHEET GC-2

F. CONSTRUCT 48" DIAMETER RISER TYPE MANHOLE

G. ENCASE STORM DRAIN LATERALS WITH 4" CLSM SLURRY, SEE SHEET PP-8

H. VERTICALLY RELOCATE EX WATER LINES PER UDACS PLATE #21 & #23, RESTRAIN ALL JOINTS

I. CONNECT PROPOSED STORM DRAIN LATERALS TO NEW RCB PER STRUCTURAL DETAIL S-906 / SHEET GS-3

J. RELOCATE EX UNDERGROUND ELECTRIC POWER CONDUIT (3-336 AA 1-2/0 ACSR) AROUND NEW DROP INLET, COORDINATE WITH NV ENERGY TO RELOCATE

K. PROVIDE STRUCTURAL SUPPORT FOR EX SANITARY SEWER CROSSING PER DRAWING SD-21 OF THE DCSWCS

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	REVISIONS DESCRIPTION	DATE	BY

SCALE: AS SHOWN
DESIGN: R VALDEZ
DRAWN: R VALDEZ
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

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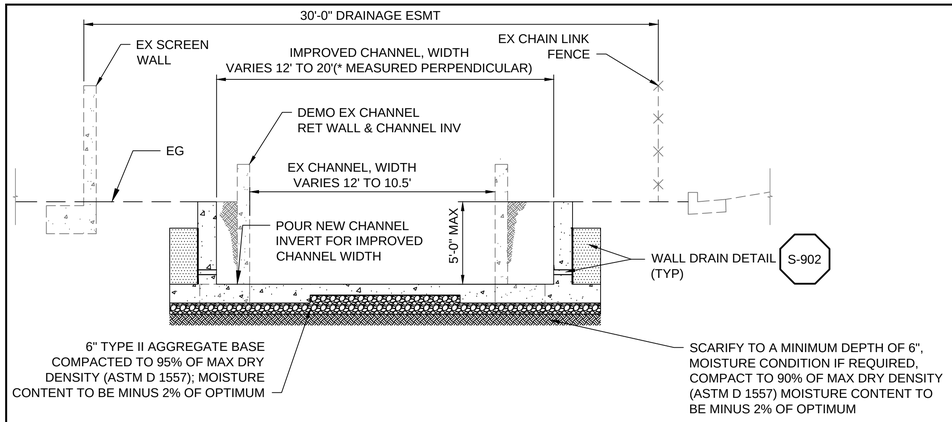
LAS VEGAS,NV. 89102
(702) 878-8010

(DRAWING TITLE) CIVIL - STORM DRAIN PLAN AND PROFILE LATERALS - II

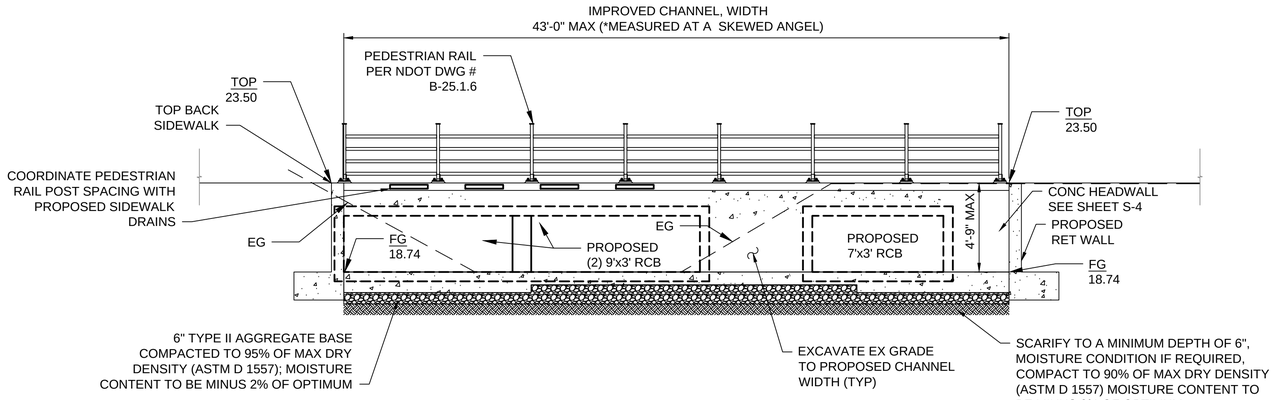
(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL
(LOCATION) CITY OF NORTH LAS VEGAS

SHEET NO.
PP-7
SHEET 21 OF 43



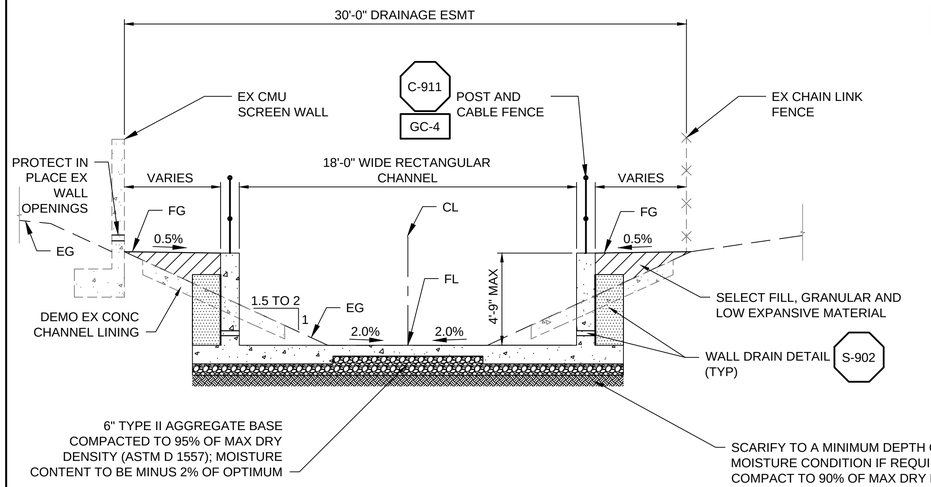
LOSEE ROAD CULVERT CROSSING SECTION
"BR" STA: 10+43 TO STA: 11+55

A
PP-1



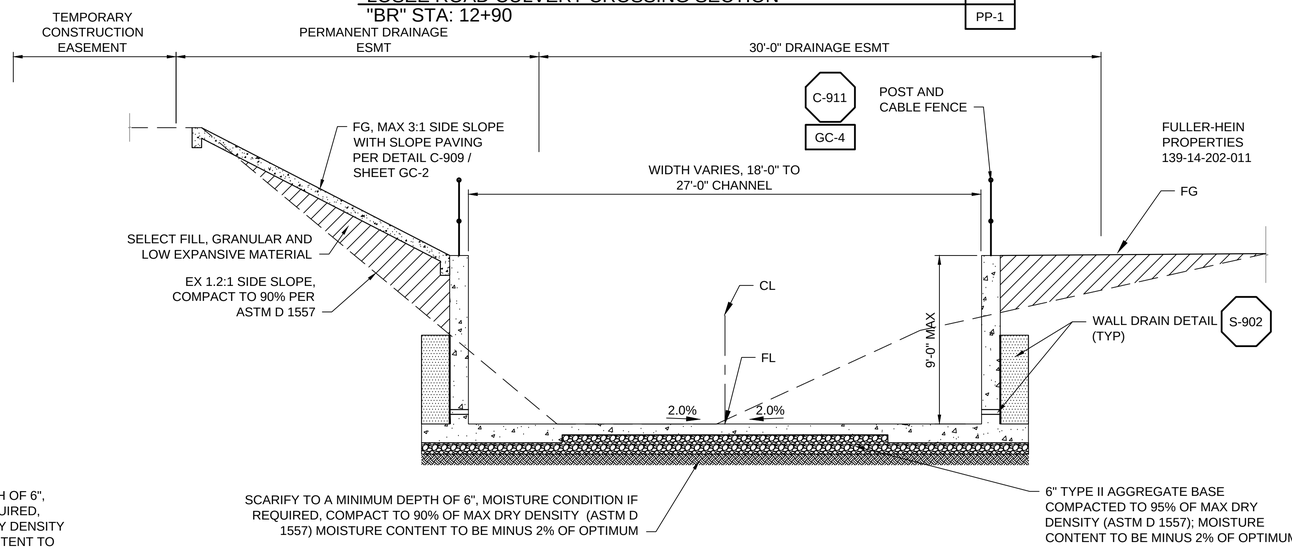
LOSEE ROAD CULVERT CROSSING SECTION
"BR" STA: 12+90

B
PP-1



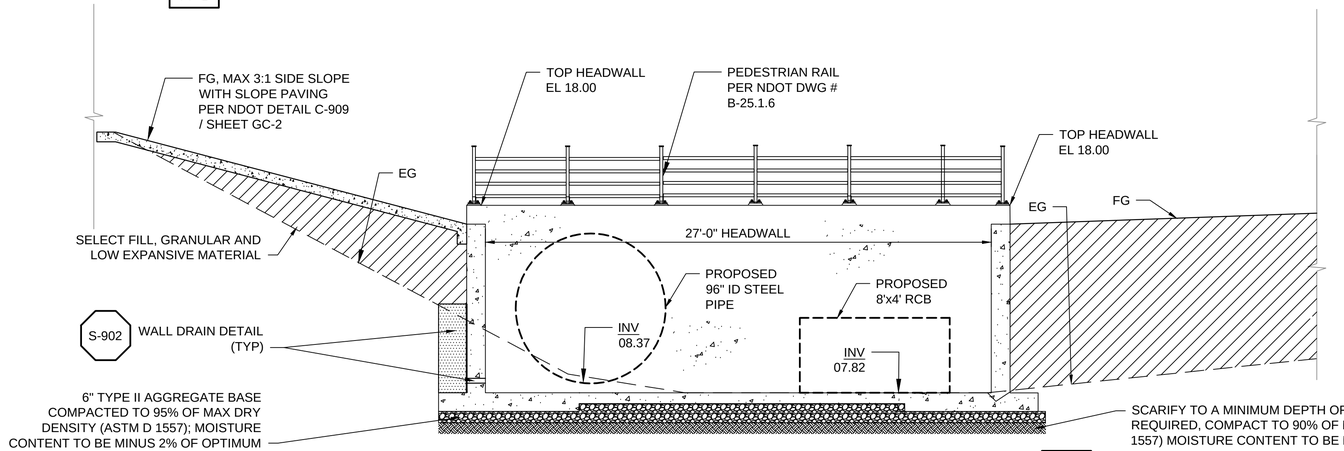
BROOKS CHANNEL TYPICAL CROSS SECTION
"BR" STA: 13+72 TO "BR" STA: 16+57

C
PP-1
PP-2



BROOKS CHANNEL TYPICAL CROSS SECTION
"BR" STA: 17+60 TO STA: 17+89

D
PP-2



HEADWALL AT RAIL ROAD TYPICAL CROSS SECTION
"BR" STA: 17+89

E
PP-2

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CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

SCALE: NO SCALE
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REGISTERED PROFESSIONAL ENGINEER
RICHARD V. VALDEZ
Exp: 6-30-16
CIVIL
STATE OF NEVADA
No 21142
10/09/14

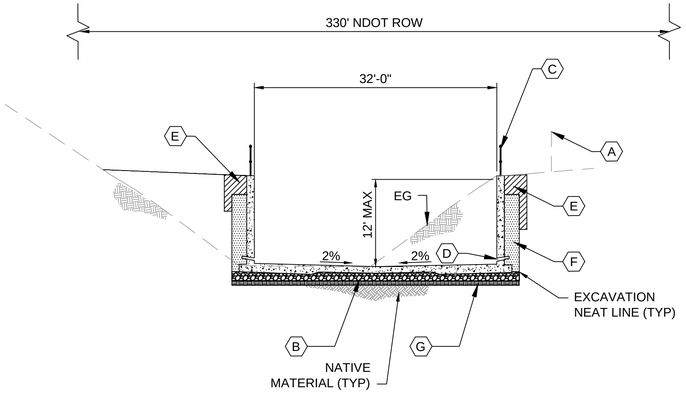
(DRAWING TITLE) CIVIL - CROSS SECTIONS - I

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL

(LOCATION) CITY OF NORTH LAS VEGAS

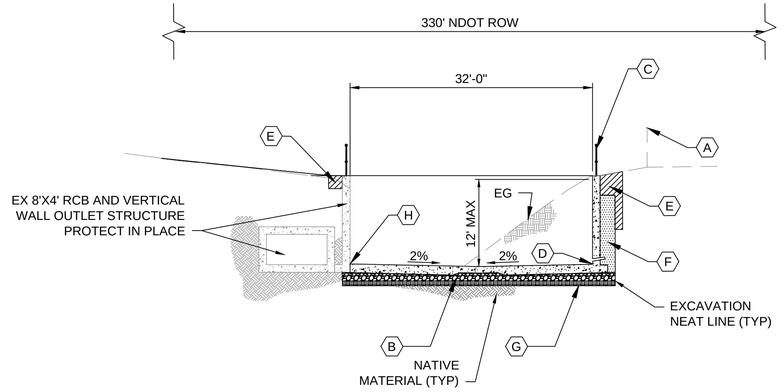
SHEET NO. C-2

SHEET 26 OF 43



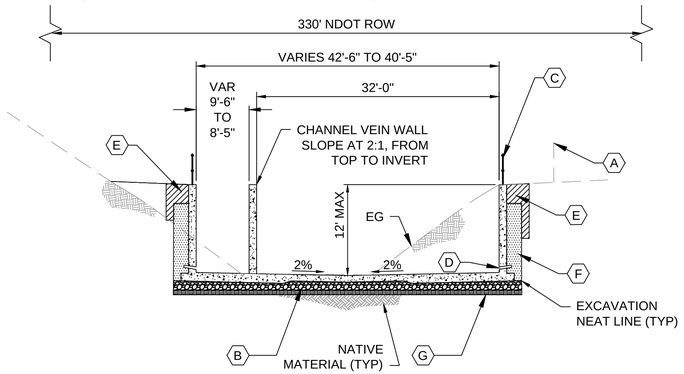
FREEWAY CHANNEL CONFLUENCE SECTION
"FWC" STA: 11+27 TO "FWC" STA: 11+41
(VIEWED LOOKING NORTHEAST)

G
PP-4



FREEWAY CHANNEL CONFLUENCE SECTION
"FWC" STA: 11+41 TO "FWC" STA: 11+61
(VIEWED LOOKING NORTHEAST)

H
PP-4



FREEWAY CHANNEL CONFLUENCE SECTION
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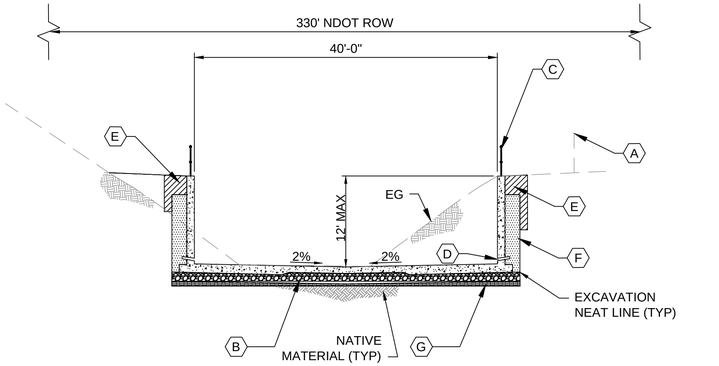
(VIEWED LOOKING NORTHEAST)

I
PP-4



FREEWAY CHANNEL CONFLUENCE SECTION
"FWC" STA: 12+06
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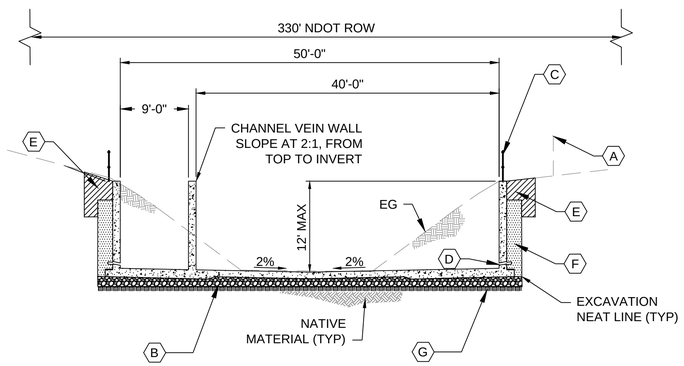
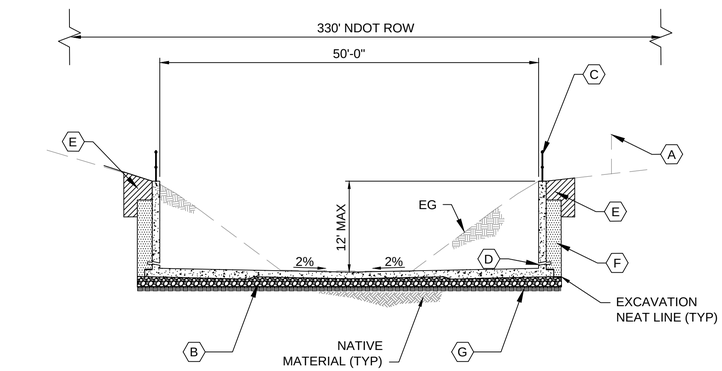
PP-4



FREEWAY CHANNEL CONFLUENCE SECTION
"FWC" STA: 12+06 TO "FWC" STA: 12+41
(VIEWED LOOKING NORTHEAST)

K
PP-4



FREEWAY CHANNEL CONFLUENCE SECTION
"FWC" STA: 12+41 TO "FWC" STA: 12+67
(VIEWED LOOKING NORTHEAST)

L
PP-4

GENERAL SHEET NOTES

1. FOR OVER EXCAVATION BEYOND NEATLINE EXCAVATION LIMITS, REFER TO SPECIFICATIONS SECTION 203 OF SPECIAL PROVISIONS.
2. EXCAVATION NEATLINE DEPICTS THE MINIMUM LIMITS OF CHANNEL EXCAVATION THAT IS REQUIRED FOR CHANNEL CONSTRUCTION; CONTRACTOR IS RESPONSIBLE TO CONFORM TO OSHA SAFETY SLOPE REQUIREMENTS
3. MIRAFI G200N DRAINAGE COMPOSITE, OR APPROVED EQUAL, MAY BE USED PER MANUFACTURER'S SPECIFICATION, IN LIEU OF WRAPPED DRAIN BACKFILL FOR VERTICAL CHANN WALLS AND WALL DRAINS ONLY; DRAINAGE COMPOSITE MAY NOT BE USED UNDER CHANNEL SLAB
4. CONTRACTOR TO ADJUST FLOW LINE TOWARD CENTER OF CONFLUENCE CHANNEL PER STATION-OFFSET INFORMATION DEPICTED ON SHEET PP-4; CHANNEL SIDE SLOPE TO VARY FROM 2% THROUGH CONFLUENCE CHANNEL SEGMENTS

SHEET KEYNOTES

A. PROTECT IN PLACE EX I-15 GUARD RAIL AND CHAIN LINK FENCE

B. 6" TYPE II AGGREGATE BASE COMPACTED TO 95% OF MAX DRY DENSITY (ASTM D 1557); MOISTURE CONTENT TO BE MINUS 2% OF OPTIMUM

C. INSTALL POST AND CABLE FENCE, BOTH SIDES PER DETAIL C-911 / SHEET GC-4

D. 4" WEEP HOLE PER STRUCTURAL DETAIL S-902

E. STRUCTURAL FILL PER SPECIFICATION SECTION 203 (TYP)

F. SELECTED BACKFILL PER SPECIFICATION SECTION 207 (TYP)

G. SCARIFY NATIVE TO A MINIMUM DEPTH OF 6", MOISTURE CONDITION IF REQUIRED, COMPACT TO 90% OF MAX DRY DENSITY (ASTM D 1557) MOISTURE CONTENT TO BE MINUS 2% OF OPTIMUM

H. TIE IN NEW CHANNEL INVERT SLAB TO EXISTING 8'X4' RCB OUTLET STRUCTURE VERTICAL WALL PER STRUCTURAL DWGS.

CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	REVISIONS DESCRIPTION	DATE	BY

SCALE: NO SCALE
DESIGN: R VALDEZ
DRAWN: R VALDEZ
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014

PROFESSIONAL ENGINEER STATE OF NEVADA RICHARD V. VALDEZ No 21442 Exp: 6-30-16 CIVIL 10/09/14

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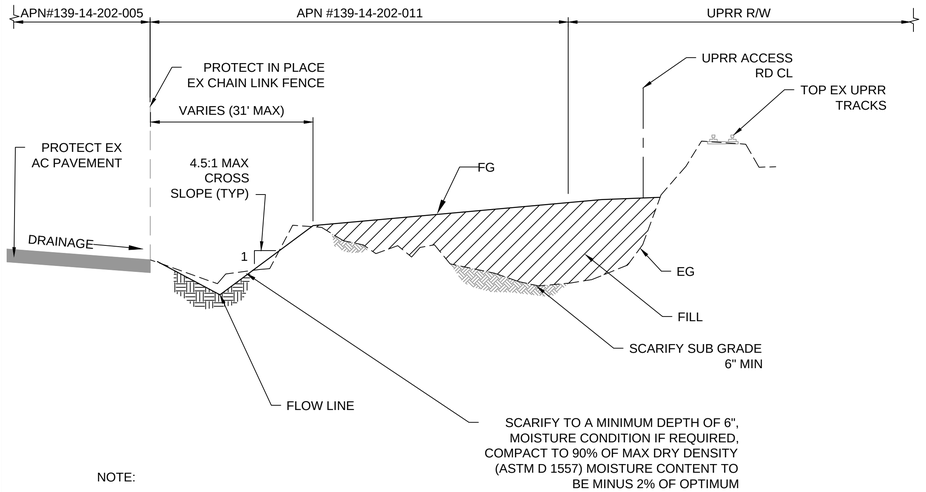
(DRAWING TITLE) CIVIL CROSS SECTIONS - III

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL
CITY OF NORTH LAS VEGAS

(LOCATION)

SHEET NO.
C-4

SHEET 28 OF 43



NOTE:

REFER TO SHEET GR-2 FOR CONTOUR GRADING AND DRAINAGE

CROSS SECTION

M

GR-2

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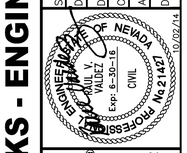
NO.	REVISIONS DESCRIPTION	DATE	BY

SCALE: NO SCALE
DESIGN: R VALDEZ
DRAWN: R VALDEZ
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014



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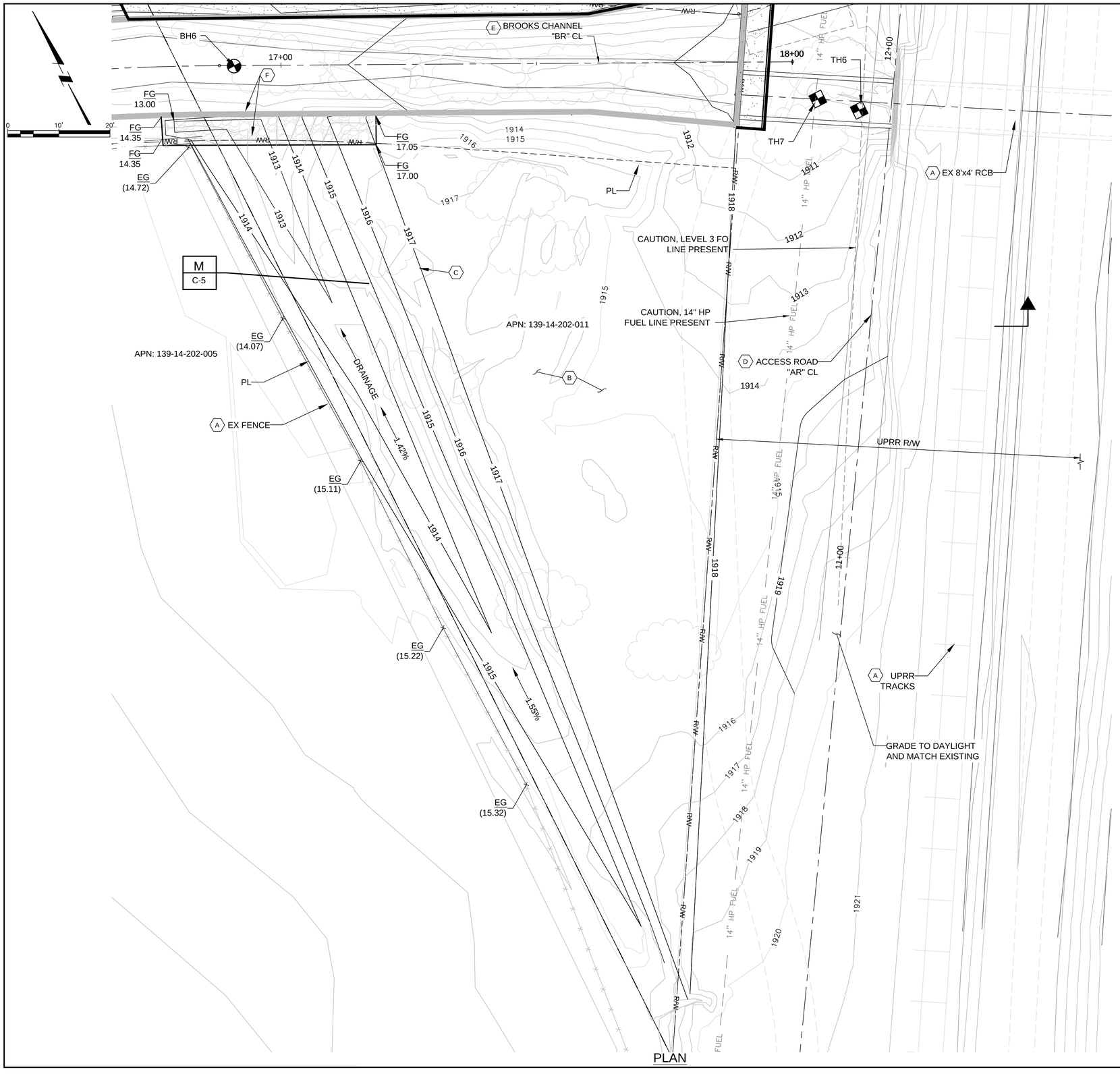
(DRAWING TITLE) CIVIL - CROSS SECTIONS - IV

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL

(LOCATION) CITY OF NORTH LAS VEGAS

SHEET NO.
C-5



PLAN

GENERAL SHEET NOTES

1. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING FENCES, GATES, WALLS, SURFACES, AND APPURTENANCES UNLESS OTHERWISE NOTED ON THIS PLAN
2. CALL KINDER MORGAN GAS AT 811 FOR STANDBY WHEN EXCAVATING NEAR HIGH PRESSURE FUEL LINES

SHEET KEYNOTES

A. PROTECT IN PLACE

B. FILL PARCEL 139-14-202-011 TO LIMITS AND ELEVATIONS PER CONTOUR GRADING, THIS SHEET

C. GRADE V-DITCH SWALE FOR DRAINAGE

D. GRADE NEW 8' WIDE RAILROAD ACCESS ROAD OVER PROPOSED STORM DRAIN CULVERT CROSSINGS PER SHEET PP-10

E. CONSTRUCT RECTANGULAR CHANNEL, SEE SHEET PP-1 AND PP-2 FOR CHANNEL PLAN AND PROFILE

F. CONSTRUCT 10' WIDE DEEP DRAINAGE NOTCH IN CHANNEL SOUTH WALL PER SHEET PP-2, GRADE TO DRAIN SWALE THROUGH SIDE OF RECTANGULAR CONCRETE CHANNEL

EXTREME CAUTION!!!
HIGH PRESSURE
PETROLEUM LINES
PRESENT

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
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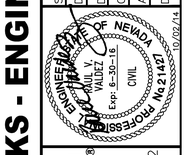
CITY OF NORTH LAS VEGAS - DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES DIVISION

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

SCALE: 1" = 10'
DESIGN: R VALDEZ
DRAWN: N NATALE
CHECKED: S CHAVEZ
APPROVED: J PARKE
DATE: OCTOBER 2014



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(DRAWING TITLE) CIVIL - GRADING DETAIL - II

(PROJECT TITLE) BROOKS CHANNEL
LOSEE ROAD TO FREEWAY CHANNEL
CITY OF NORTH LAS VEGAS

(LOCATION)

SHEET NO.
GR-2
SHEET 31 OF 43

Appendix F

MWH

Appendix F-1

Section 8 Environmental Screening Report

March 13, 2014

Ms. Jennifer Doody
City of North Las Vegas
2250 Las Vegas Boulevard North
North Las Vegas, Nevada 89030

RE: BROOKS CHANNEL FLOOD CONTROL PROJECT SECTION 8 ENVIRONMENTAL SCREENING

Dear Ms. Doody:

INTRODUCTION

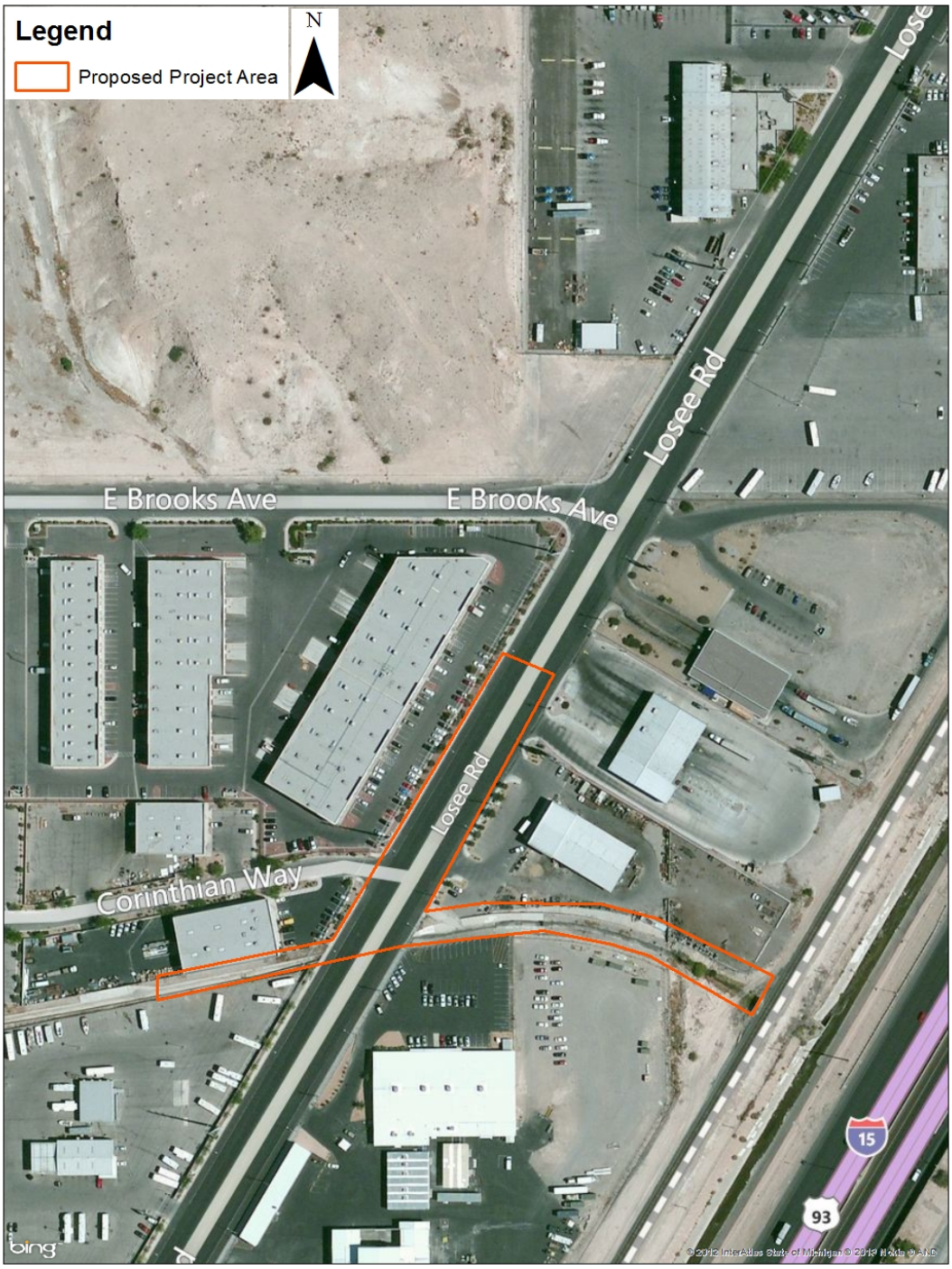
This document provides an analysis of the potential environmental impacts related to the construction of the proposed Brooks Channel Flood Control Improvements. The project is located approximately 0.1-miles south of the intersection of Brooks Street and Losee Road, in North Las Vegas. The project would extend from Losee Road to the Central Freeway Channel facility running parallel to Interstate 15 (I-15). This analysis was conducted pursuant to Chapter 8 of the *Supplemental Programmatic Environmental Impact Statement, Clark County Regional Flood Control District (CCRFCD) 2002 Master Plan Update, Final September 2004* (BLM 2004), hereafter referred to as the SEIS, which outlines the process necessary to determine the appropriate level of National Environmental Policy Act (NEPA) documentation for a particular facility.

PROJECT DESCRIPTION

The Brooks Channel Flood Control Project will construct CCRFCD 2013 Master Plan Update (MPU) facilities LVBR 0000 and upgrade LVBR 0005 and 0011. The facility includes a storm crossing located beneath the existing Union Pacific Rail Road (UPRR) track alignment, which is located west of I-15. Specifically, the 1,000-linear foot project will consist of the following components:

- Installation of an enlarged reinforced concrete box (RCB) beneath Losee Road;
- Demolition of a deteriorated trapezoidal concrete channel, regarding and reconstruction of a new rectangular concrete channel;
- Construction of upsized storm drain pipe culvert crossing beneath the UPRR; and,
- Construction of a channel confluence section within the existing Central Freeway Channel alignment, located west of I-15.

Additionally, a local 400-linear foot storm drain system is also proposed to be installed within Losee Road north of the Brooks Channel crossing to alleviate localized flooding.



CITY OF NORTH LAS VEGAS

0 460 Feet

0 120 Meters

1:1,930

Brooks Channel Project Area

NewFields

Figure 1.

Location of the Brooks Channel Improvements Project.

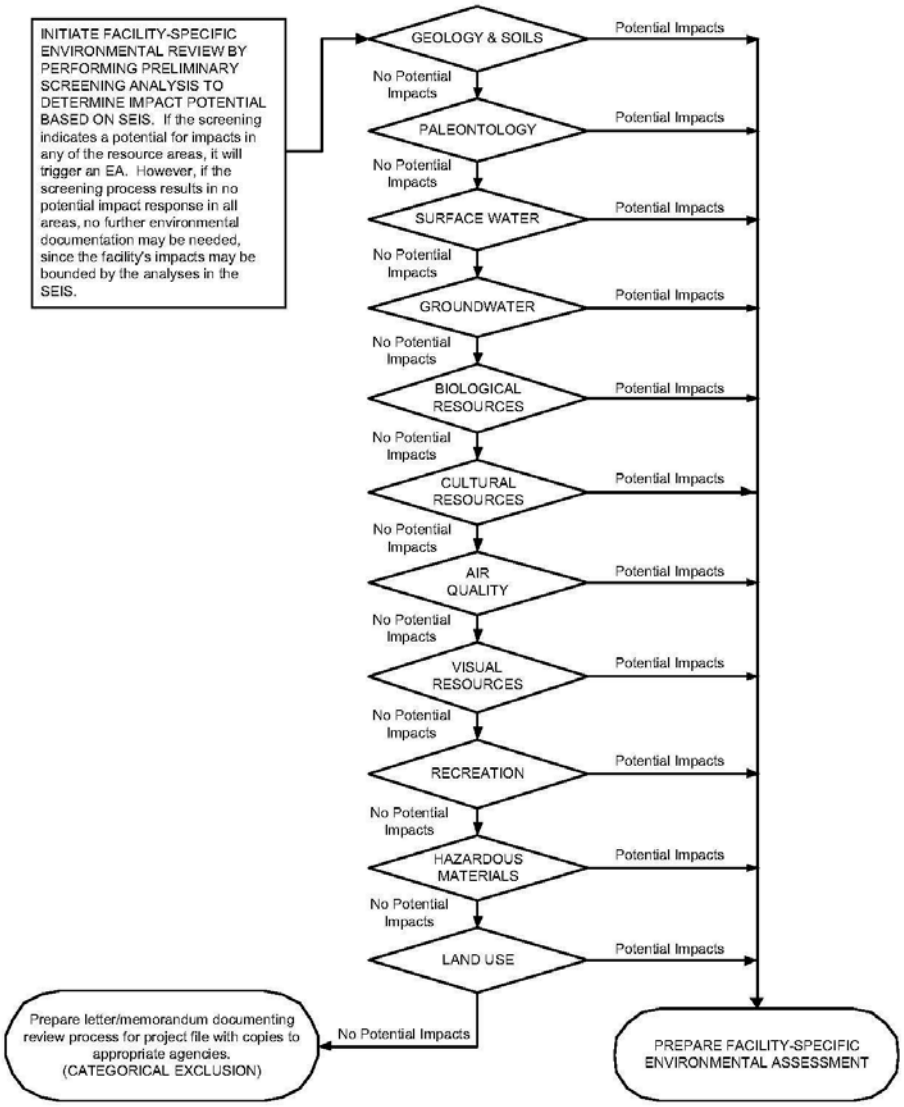
LVBR0005 is an existing trapezoidal concrete channel with an average width and height of 9-feet and 5-feet respectively. The channel is is 375 feet long.

Finally, LVBR0000 will consist of a concrete lined trapezoidal channel with an average bottom width and height of 9-feet and 5.5-feet respectively and will connect facility LVBR0005 to LV150059 beneath the UPRR track alignment.

SECTION 8 SCREENING

The preliminary project-specific analysis process shown in **Figure 2** specifies that preliminary screening analyses be conducted for a series of potentially impacted resources. If no potential impacts are documented, the SEIS and associated Decision Record directs that a letter or memorandum documenting the review process should be prepared and submitted to the appropriate agencies. The project can then proceed without further analysis. This level of documentation conforms to the Bureau of Land Management Categorical Exclusion level of NEPA documentation.

NewFields conducted such screenings utilizing existing documents and other resources such as the SEIS, archaeological records stored at the Desert Research Institute in Las Vegas, and the CCRFCD Flood Zone Advanced web site.



Reference Source: BLM 2004, Figure 8.1-1

Figure 2. Preliminary Project-specific Analysis Screening Process

Field inspection, the SEIS, aerial photographs, and the CCRFCD web site indicate the project area consists mainly of previously developed commercial neighborhoods. From North 5th Street to the eastern end of the proposed project area, an industrial character is dominant. The area does not contain any unmodified geology, soils, or paleontological resources. However, the SEIS indicates that a series of alluvial faults extend across segments of the project area. The proximity of these faults should be mitigated through appropriate engineering design.

The project is designed to improve surface water flows in the area, so there would be a beneficial impact to this resource. Screening for compliance with Section 404 of the Clean Water Act was conducted. Excavation to construct the concrete channel and box culverts may impact or be impacted by groundwater resources because groundwater occurs at shallow depths in the project area (GeoTek, Inc 2010). Impacts to groundwater could be minimized through engineering design, stabilizing excavations or subgrades, and other Best Management Practices (BMPs), which would reduce potential impacts to insignificant levels.

An archaeological records search indicates that some important cultural resources have been recorded in the project area. Kiel Ranch is located at Carey and Losee and dates to the earliest non-native use of the Las Vegas Valley. However, the site will not be impacted by the proposed development. An architectural review revealed that no buildings more than 50 years old are located adjacent to the Area of Potential Effect (DuBarton 2014). The adjacent buildings consist of metal and concrete block buildings focused on commercial and industrial pursuits. None are eligible for listing on the National Register of Historic Places. Biologists surveyed the project area, and no threatened and endangered or species or concern were observed. Therefore, there would be no threat to these resources.

The proposed project would not change the existing land use and recreational opportunities found in the neighborhood, so there would be no threat to these resources. The visual character of the area would not be changed by the proposed project as the commercial/industrial character would remain the same. Potential spills of hazardous materials during construction would be minimized through BMPs such that potential impacts would be reduced to insignificant levels.

The project area is located in Hydrographic Basin 212 (Las Vegas Valley) where emissions of concern include $PM_{10,}$ CO emissions, ozone precursors (nitrogen oxides [NO_x], and volatile organic compounds [VOC]). The Clark County Department of Air Quality and Environmental Management (CCDAQM), regulates and permits construction activities that generate air pollutants and fugitive dust within Clark County. In fulfilling this responsibility, the CCDAQM often requires implementation of mitigation measures, such as application of water combined with other dust suppressants. The contractor will be required to comply with all mitigation measures stipulated in the construction permits.

Other resources were considered at the programmatic level in the SEIS (BLM 2004). That document indicates there would be either short-term and minor, or no impacts to socioeconomics, transportation, noise, and environmental justice. Therefore, no facility-specific evaluations are necessary. The results of this screening are summarized in **Table 1**.

Table 1. Recommended Mitigation Measures for the Brooks Channel Project.

Resource	Potential Impact	Mitigation
Geology and Soils	Based on review of the CCRFCD SEIS and the Geotechnical Evaluation Report (GeoTek, Inc. 2010), a previously mapped subsidence fault crosses the proposed alignment. This fault is reportedly caused by subsidence-induced movement. Also, review of the Clark County Soils Guidelines Map (1998) indicates that soils in the project area are within a special geotechnical consideration area. These expansive soils may require special engineering design. Such design options reduce potential impacts to the proposed project.	Although geotechnical evaluations were previously completed for this project in 2010, more geotechnical investigations are planned prior to finalized design and construction. It is likely that any potential impacts could be mitigated to insignificance through engineering design.
Paleontology	The SEIS (BLM 2004) indicates that the proposed project is in an area of low paleontological potential. Additionally, field inspections, aerial photographs, and the CCRFCD web site indicate the project area consists of previously developed urban and industrial neighborhoods. Houses, buildings, transportation infrastructure, introduced plant landscaping, and graded/filled soils make up the current environment (see Figure 1). The area is unlikely to contain any paleontological resources.	None required.
Surface Water	The project is designed to improve surface water flows in the area, so there would be a beneficial impact to this resource. No adverse impacts to surface water are expected to occur, since the proposed project: (1) will not divert water from downstream habitat that depends upon that water, and (2) would occur in previously disturbed areas. Screening for compliance with Section 404 of the Clean Water Act was conducted by NewFields in August, 2012. The proposed project would disturb less than 2 acres of Waters of the United States, and therefore would qualify for the CCRFCD Regional General Permit (RGP) 7.	Mitigation measures should be implemented in compliance with those prescribed in the 404 permit.
Groundwater	The SEIS (BLM 2004) and the Geotechnical Evaluations Report (GeoTek, Inc. 2010) indicate that the proposed project is in an area of shallow groundwater (i.e., less than about 30 feet). Construction activities may affect, and be affected by, the shallow groundwater system (BLM 2004). It is unlikely that the proposed project would impact deeper groundwater aquifers, since seepage rates from shallow groundwater into these aquifers would be very low due to existing fine-grained geologic formations (BLM 2004).	Although geotechnical evaluations were previously completed for this project in 2010, more geotechnical investigations are planned prior to finalized design and construction. It is likely that any potential impacts could be mitigated to insignificance through engineering design, stabilizing excavations or subgrades, and other BMPs.

Table 1. Recommended Mitigation Measures for the Brooks Channel Project.

Resource	Potential Impact	Mitigation
Biological Resources	The SEIS (BLM 2004) indicates that some sensitive wildlife may occur in the project area. However, biologists surveyed the project area and found no threatened, endangered, or sensitive species. Construction activities will be short-term and temporary. Additionally, since the project occurs in a disturbed urban and industrial environment, neither construction nor operation of the facility will result in the temporary disturbance or permanent removal of previously undisturbed habitat. Therefore, no potential threats or impacts to these resources are expected to occur. The proposed project does not occur in an area of known distributions of noxious weeds.	None required.
Cultural Resources	The SEIS (BLM 2004) and the facility-specific evaluation described below indicate there are no potential threats or impacts to cultural resources. The SEIS (BLM 2004) indicates that the proposed project is in an area of low to moderate archaeological sensitivity, and moderate historical resources sensitivity. A facility-specific procedure was performed for the proposed Brooks Channel project that involved a literature review and field reconnaissance to identify any historic buildings in or near the proposed facility location. These studies found that previous cultural resource investigations adequately characterized the project area. No cultural resources or historic buildings will be impacted.	None required.
Transportation	The programmatic analysis in the SEIS (BLM 2004) indicate that there would be either short-term, minor, or no impacts to this resource, and that screening evaluations are not necessary at the project-specific level.	Consult with local transportation planning authorities, as required, and develop alternative traffic flow patterns or construction schedules if necessary, to minimize the potential for congestion and delays during construction.
Air Quality	The project area is located in Hydrographic Basin 212 (Las Vegas Valley) where emissions of concern include particulate matter of 10 microns in diameter or smaller (PM_{10}), carbon monoxide (CO) emissions, ozone precursors (nitrogen oxides [NO_x], and volatile organic compounds [VOC]). The Clark County Department of Air Quality and Environmental Management (CCDAQM), regulates and permits construction activities that generate air pollutants and fugitive dust within Clark County. In fulfilling this responsibility, the CCDAQM often requires implementation of mitigation measures, such as application of water combined with other dust suppressants.	The contractor will be required to comply with all mitigation measures stipulated in the construction permits.
Visual Resources	The visual character of the area would not be changed by the proposed project as the character of the area would remain the same.	None required.

Table 1. Recommended Mitigation Measures for the Brooks Channel Project.

Resource	Potential Impact	Mitigation
Noise	The programmatic analysis in the SEIS (BLM 2004) indicates that there would be either short-term, minor, or no impacts to this resource, and that screening evaluations are not necessary at the project-specific level.	BMPs during construction would be implemented as necessary in accordance with County and City of North Las Vegas applicable statues and permits.
Hazardous Materials	A Phase I Environmental Report was completed by Ninyo & Moore in August 2012. General solid waste debris consisting of wood, plastic, metal, and glass was observed across the project site. No evidence of Aboveground Storage Tanks or Underground Storage Tanks were observed on the project site. Review of environmental databases indicated that 54 facilities in the vicinity (but not adjoining) of the project site have handled hazardous materials or petroleum products and/or have been listed as reported releases of hazardous materials or petroleum products. Based on the distance from the project site, regulatory status of these facilities, and/or assumed groundwater flow direction in the vicinity of the project site, there is a low likelihood that these facilities represent and environmental concern to the project site at this time.	Standard hazardous waste and material management BMPs should be implemented during construction as required by applicable state and federal regulations, to minimize the generation of hazardous waste and ensure its proper disposal.
Land Use & Recreation	The proposed project would not change the existing land use and recreational opportunities found in the neighborhood, so there would be no threat to these resources. The proposed project is not within a wilderness study area.	None required.
Socioeconomics	The programmatic analysis in the SEIS (BLM 2004) indicates that there would be either short-term, minor, or no impacts to this resource, and that screening evaluations are not necessary at the project-specific level.	None required.
Environmental Justice	The programmatic analysis in the SEIS (BLM 2004) indicates that there would be either short-term, minor, or no impacts to this resource, and that screening evaluations are not necessary at the project-specific level.	None required.

CONCLUSIONS

In conclusion, this letter report serves as documentation that the upgrades proposed for the Brooks Channel would have no impacts to any resources providing that appropriate permitting procedures, BMP's, and engineering designs are incorporated into the construction procedures. Per the SEIS (BLM 2004), preparation of an Environmental Assessment is not necessary and this letter report serves as documentation that the proposed project does not require further NEPA documentation.

Sincerely,
NEWFIELDS COMPANIES, LLC

Stephanie Locke
Senior Environmental Scientist

cc: Tim Sutko, CCRFCD

REFERENCES

BLM (Bureau of Land Management) 2004. *Supplemental Programmatic Environmental Impact Statement, Clark County Regional Flood Control District 2002 Master Plan Update, Final September 2004.* SWCA, Inc. Environmental Consultants, Las Vegas, Nevada.

CCRFCD (Clark County Regional Flood Control District) 2007. *Environmental Impact Study Reporting System*. Available online at: http://breccia.ccrfcd.org/eisreport/.

DuBarton, Anne 2014. *Cultural and Architectural Resources Overview for the Brooks Channel Storm Drain Improvements*. NewFields, Las Vegas, Nevada.

GeoTek, Inc. 2010. *Geotechnical Evaluation Report for the Brooks Flood Control Improvements North 5th Street to Interstate 15 North Las Vegas Nevada.* Prepared for the City of North Las Vegas Engineering Services Division.

Appendix F-2

Section 8 Approval Email

Jarah Parke

From: Tim Sutko <TSutko@regionalflood.org>
Sent: Wednesday, March 12, 2014 1:40 PM
To: Jill Reilly; Jarah Parke; Steve Parrish
Cc: Stephanie Locke (slocke@newfields.com); Sean Milne; Jennifer Doody; Shaun Fisher; Ken MacDonald
Subject: Brooks Channel Section 8 analysis

I have reviewed the Section 8 Environmental Screening Report prepared by NewFields for MWH Global on behalf of the City of North Las Vegas for the Brooks Channel and find it acceptable. The Brooks Channel includes 2013 MPU facilities **LVBR0000, LVBR0005** and **LVBR0011.** This 1000 linear foot project includes an RCB beneath Losee Road, replacement of a deteriorated trapezoidal concrete channel with a rectangular concrete channel, a new and enlarged culvert beneath the UPRR tracks, and a channel confluence section at the existing Central Freeway Channel. The proposed project also includes a 400 linear foot storm drain within the Losee Road alignment north of Brooks Channel.

The following resources may require mitigation:

Geology & Soils – standard engineering design and construction practices are expected to provide adequate mitigation.

Groundwater - standard engineering design and construction practices are expected to provide adequate mitigation.

Air Quality – The construction contractor will be required to comply with all mitigation measures stipulated on ground disturbance/grading permits obtained from the Clark County Department of Air Quality and Environmental Management.

Surface Water – Best Management Practices to control storm water quality exiting the construction site should be developed and included in the construction specifications. The proposed project includes fill activities that require a 404 Permit and the Corps Regulatory office should be contacted in this regard. It is anticipated that the Corps will permit this facility using the District's Regional General Permit 7.

Hazardous Materials – Standard hazardous waste and material management BMPs should be implemented during construction as required by applicable state and federal regulations in order to minimize the generation of hazardous waste and ensure its proper disposal.

With the exception of the 404 permit, the District's Policies and Procedures regarding environmental permitting as a pre-requisite for construction funding eligibility have been satisfied. Please provide the District with a copy of the 404 Permit when issued, or documentation that a 404 Permit is not required for this project.

Please don't hesitate to contact me if you have any questions or require additional information.

Thanks

Timothy E. Sutko
Senior Hydrologist/Environmental Mitigation Manager
Clark County Regional Flood Control District
600 S. Grand Central Parkway
Suite 300
Las Vegas, NV 89106

702 685-0000
702 685-0001 (FAX)
TSutko@regionalflood.org

Appendix F-3

U.S. Army Corps of Engineers – 404 Permit

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

June 3, 2014

Regulatory Division SPK-2014-00276-SG

Mr. Dan Le
City of North Las Vegas
2250 Las Vegas Boulevard North
North Las Vegas, Nevada 89030

Dear Mr. Le:

We are responding to your April 7, 2014 request for a Department of the Army permit for the Brooks Channel Flood Control Project. This approximately 795-linear feet (0.5941 acres) project involves activities, including discharges of dredged or fill material, in waters of the United States for installation of an enlarged reinforced concrete box (RCB) beneath Losee Road, removal of the deteriorated trapezoidal concrete channel and construction of a new rectangular channel downstream of Losee Road, construction of upsized storm drain crossing beneath the UPRR, and construction of a channel confluence section within the existing Central Freeway Channel alignment. A local storm drain system is also proposed to be installed within Losee Road north of the Brooks channel crossing to alleviate localized flooding. The project is located on Brooks Channel, Section 14, Township 20 S, Range 61 E, Mount Diablo Meridian, Latitude 36.21254°, Longitude -115.13067°, North Las Vegas, Clark County, Nevada (Enclosure 1).

Based on the information you provided, the proposed activity, resulting in the temporary impacts to approximately 795-linear feet (0.5941 acres) of an existing flood control channel, is authorized by Regional General Permit number #7: CONSTRUCTION AND MAINTENANCE OF FLOOD CONTROL FACILITIES IN CLARK COUNTY, NEVADA. Your work must comply with the general terms and conditions listed on the enclosed Regional General Permit information sheet (Enclosure 2) and the following special conditions:

Special Conditions

1. You shall comply with all terms and condition of the attached April 11, 2014 Section 401 Water Quality Certification (Enclosure 3).

2. Activities may not cause a take of any migratory birds, their parts, nests, eggs, and nestlings. Destruction of riparian vegetation shall be avoided to the maximum extent practicable. Unavoidable vegetation clearing and surface disturbance shall be conducted outside critical breeding, nesting, and fledging seasons. The USFWS recommends that a qualified biologist survey the area prior to land clearing for the presence of Western burrowing

owls. Holes, gaps or hollow spaces in the proposed facilities or structures could cause cavity-nesting migratory birds to enter and become entrapped in these spaces. Holes, as small as 0.75-inch in diameter, could trap birds. We recommend that gaps or narrow open hollow spaces in the proposed facilities or structures be closed during construction to prevent bird entry. In addition, open-ended posts of any material or color used to mark boundaries at construction sites should be capped; however, since caps can deteriorate over time, use of solid posts is preferred. To prevent raptors and other migratory birds from getting their feet trapped in metal sign posts, any exposed holes near the top of posts shall be filled with rivets, bolts or nuts.

You must sign the enclosed Compliance Certification and return it to this office within 30 days after completion of the authorized work (Enclosure 4).

This verification is valid from the date of this letter until the Regional General Permit expires on August 7, 2018 or is modified, reissued, or revoked, whichever comes first. Failure to comply with the General Conditions of this Regional General Permit, or the project-specific Special Conditions of this authorization, may result in the suspension or revocation of your authorization.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Please refer to identification number SPK-2014-00276-SG in any correspondence concerning this project. If you have any questions, please contact me at 196 E Tabernacle Street Room 30, St. George, Utah 84770, by email at *Patricia.L.McQueary@usace.army.mil*, or telephone at 435-986-3979.

Sincerely,

Patricia L. McQueary
Senior Regulatory Project Manager
St. George Regulatory Office
Sacramento District

Enclosures

cc: (w/o encls)
Mr. Tim Sutko, Environmental Mitigation Manager, Clark County Regional Flood Control District, 600 South Grand Central Parkway Suite 300 Las Vegas, NV 89106-4511
Ms. Jean Stone, NDEP, 901 S. Stewart Street Suite 4001, Carson City, Nevada 89701-5249
Mr. Jason Ferrin, NDEP, 901 S. Stewart Street Suite 4001, Carson City, Nevada 89701-5249

COMPLIANCE CERTIFICATION

Permit File Number: SPK-2014-00276-SG

Regional General Permit Number: #7

Permittee: Mr. Dan Le
City of North Las Vegas
2250 Las Vegas Boulevard North
North Las Vegas, Nevada 89030

County: Clark

Date of Verification: June 1, 2014

Within 30 days after completion of the activity authorized by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Sacramento District
St. George Field Office
196 East Tabernacle Street Room 30
St. George, Utah 84770
Patricia.l.mcqueary@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of the permit your authorization may be suspended, modified, or revoked. If you have any questions about this certification, please contact the U.S. Army Corps of Engineers.

* * * * * * * * *

I hereby certify that the work authorized by the above-referenced permit, including all the required mitigation, was completed in accordance with the terms and conditions of the permit verification.

_____ _____
Signature of Permittee Date

Appendix G

MWH

Mayor
John J. Lee

City Manager
Dr. Qiong X. Liu, P.E., PTOE

Council Members
Anita G. Wood
Pamela A. Goynes-Brown
Wade W. Wagner
Isaac E. Barron

Public Works Department
Engineering and Construction Services Division
2250 Las Vegas Boulevard, North • Suite 610 • North Las Vegas, Nevada 89030
Telephone: (702)633-1206 • Fax: (702)633-1158 • TDD: (800)326-6868
www.cityofnorthlasvegas.com

September 17, 2015

Subject: **Brooks Channel Flood Control Project – Conditional Letter of Map Revisions (CLOMR) Request to FEMA**

Dear Property Owner:

You are receiving this letter because your property is adjacent to the limits of Brooks Channel. Brooks Channel is categorized as a Special Flood Hazard Area (SFHA) approximate Zone "A" on the Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency (FEMA). This FIRM is included as an attachment to this letter.

The City of North Las Vegas will construct new channel portion as well as a storm drain sewer system within Losee Road to direct flows towards Interstate-15 (I-15). The improvements will remove the SFHA Zone "A" as flood flows will be captured and conveyed within the proposed channel.

The City of North Las Vegas is processing SFHA modification through a formal Conditional Letter of Map Revision (CLOMR) request to FEMA. Legal notification to all property owners affected by the proposed action is required. This letter shall be considered your legal notification of the proposed changes. If you have any questions regarding this notification, or wish to request additional information regarding the CLOMR request, please contact the City of North Las Vegas Department of Public Works.

Sincerely,

Dan Le, P.E., CFM
Public Works Project Manager
Phone: 702-633-1932
Email: led@cityofnorthlasvegas.com

DL/rvv

Attachment: FEMA FIRM Map

Mayor
John J. Lee

City Manager
Dr. Qiong X. Liu, P.E., PTOE

Council Members
Anita G. Wood
Pamela A. Goynes-Brown
Wade W. Wagner
Isaac E. Barron

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www.cityofnorthlasvegas.com

Septiembre 17, 2015

Subject: **Brooks Channel Flood Control Project – Conditional Letter of Map Revisions (CLOMR) Request to FEMA**

Estimado Dueño de Propiedad:

Usted está recibiendo esta carta porque su propiedad se encuentra junto a los límites del Canal Brooks. Una parte del canal Brooks está clasificado como una Área Especial de Inundaciones de Peligro (SFHA) Zona "A" en el mapa “Flood Insurance Rate Map” (FIRM), publicado por la Agencia Federal de Manejo de Emergencias (FEMA). El mapa “FIRM” se incluye como anexo a esta carta.

La Ciudad de North Las Vegas va a construir un nuevo canal y sistema de drenaje cruzando Losee Road hasta la carretera interestatal 15 (I-15). El sistema de canal y drenaje capturará los flujos de inundación y los transportara por debajo del suelo. El sistem de drenaje retirara la Zona “A” de inundaciones.

La Ciudad de North Las Vegas está procesando la modificación a la Zona “A” de inundaciones través de una solicitud CLOMR para revisar el mapa FIRM. Se requiere la notificación legal a todos los propietarios afectados por la actuación propuesta. Esta carta se considerará la notificación legal de los cambios propuestos. Si usted tiene alguna pregunta acerca de esta notificación, o si desea solicitar información adicional sobre la solicitud CLOMR, por favor póngase en contacto con la Ciudad de North Las Departamento de Obras Públicas Vegas.

Atentamente,

Dan Le, P.E., CFM
Public Works Project Manager
Phone: 702-633-1932
Email: led@cityofnorthlasvegas.com

DL/rvv

Anexo: Mapa “FIRM”

	PARCEL NO.	OWNER NAME:	OWNER MAILING ADDRESS:	PARCEL ADDRESS:
1	139-15-615-002	HARLAN LAND CO.	9010 E TOLLHOUSE RD CLOVIS CA 93619-9751	204 E MAYFLOW AVENUE
2	139-15-615-025	5599 INC.	201 E MAYFLOWER AVE NORTH LAS VEGAS NV 89030-3962	201 E MAYFLOWER AVENUE
3	139-15-603-006	5TH & BROOKS LLC	5180 ROGERS ST LAS VEGAS NV 89118-1543	
4	139-14-201-009	JAVSE CORINTHIAN LLC	15-04 130TH ST COLLEGE POINT NY 11356-2418	570 CORINTHIAN WAY
5	139-14-201-014	JARAMILLO FAMILY TRUST AND JARAMILLO GEORGE & JENNY L TRS	3095 E VIKING RD LAS VEGAS NV 89121-4313	
6	139-14-201-011	PARISH FAMILY TRUST AND MARITAL TR	P O BOX 715 COLMESNEIL TX 75938-0715	2861 LOSEE ROAD
7	139-14-202-005	DEVELOPMENT CO AMERICA	P O BOX 520 WESTMINSTER MD 21158-0520	2860 LOSEE ROAD
9	139-14-202-011	FULLER-HEIN PROPERTIES	P O BOX 759 CARDIFF CA 92007-0759	
10	139-14-202-010	FULLER-HEIN PROPERTIES	P O BOX 759 CARDIFF CA 92007-0759	2900 LOSEE ROAD

Appendix H

MWH

Appendix I

CITY OF
NORTH LAS VEGAS
Your Community of Choice

Brooks Channel Flood Control Project

Addendum #1 to Conditional Letter of Map Revision (CLOMR)

March 2016

3/20/16

CITY OF NORTH LAS VEGAS
DEPARTMENT OF PUBLIC WORKS

MWH

BUILDING A BETTER WORLD

March 20, 2016

Mr. Daven Patel, P.E., CFM
LOMC Clearinghouse
847 South Pickett Street
Alexandria, VA 22304-4605

Attention: Case No. 16-09-014R: Brooks Channel Flood Control Project

Dear Mr. Patel,

Thank you for your detailed review of the City of North Las Vegas Brooks Channel Flood Control Project CLOMR request. MWH provides responses to your comments as follows:

1. The submitted existing conditions and proposed conditions work map's cross-section labels do not match the cross section in the HEC-RAS model for cross section 21 through 83. For example, the workmap shows the culverts to be between cross sections 62 and 63, whereas, per Table 4-3 of the report, these cross sections correspond to cross section 65, and 67 in the model. Please revise and resubmit the topographic work maps, certified by a registered professional engineer, for the entire requested area of revision that reflects all applicable items listed on page 2, Section C, of Application/Certification Form 2, entitled "Riverine Hydrology & Hydraulics Form." Please show this information on a map of suitable scale and topographic definition to provide reasonable accuracy. All items should be labeled for easy cross-referencing to the submitted existing conditions hydraulic models. Please ensure that the topographic maps are referenced to the North American Vertical Datum of 1988 (NAVD).

   The cross section cuts now match the model and the topographic work map(s). To avoid confusion, cross section ID numbers (i.e. 1 through 83) are omitted in the labeling. The cross sections numbering on maps now matches the model cross sections for easy cross referencing.

   The scale of the existing topographic work map has been reduced to provide more definition. Due to the scale decreasing, a match line is provided in the exhibits and the view is split in half (2 exhibits) for the existing topographic work map. The same scale for the proposed condition is submitted since the flow is shown as contained within proposed channel system. Various culvert crossing facilities are now labeled on the topographic work maps.

   The contours depicted on the topographic map are now provided in State Plane coordinate system with NAVD 88 vertical information on a Data CD in SHP format.

3010 West Charleston Blvd
Las Vegas, Nevada 89102
United States

TEL +1 702 878 8010
FAX +1 702 878 7833
www.mwhglobal.com

2. The Federal Insurance and Mitigation Administration Policy, FP 204-078-1, issued November 30, 2015, and titled "Standards for Flood Risk Analysis and Mapping" supersedes all previously effective guidelines and specifications. The policy standard for hydrologic and hydraulic analysis (SID #59) states: "Hydrologic and hydraulic analysis must be calibrated using data from well-documented flood events, if available". Please provide calibration for the HEC-1 precipitation/runoff model.

   Research has been performed with respect to the request for calibration of the HEC-1 model. Unfortunately, neither the Clark County Regional Flood Control District nor the U.S. Geological Survey (USGS) own or operate gage instruments within the project study watershed that could provide actual precipitation data. Furthermore, flooding records are not available for the project limits. The HEC-1 model is not calibrated for this reason.

3. NOAA Atlas 2 has been superseded by Atlas 14, Volume 1. The Atlas 14, 6-hour, 100-year precipitation depth at the project area is 2.26 inches. The depths at the 90% confidence interval are 1.85 and 2.65 inches, suggesting that the Atlas 2 depth, 2.77 inches, overestimates the point precipitation depth for the study area watershed. Please revise the hydrologic modeling using rainfall depth from NOAA Atlas 14, Volume 1.

   It is acknowledged that the NOAA Atlas 2 is a much older reference when compared to NOAA Atlas 14. However, the hydrology and drainage study was prepared in accordance with the local accepted criteria established by the Clark County Regional Flood Control District's Hydrologic Criteria and Drainage Design Manual (HCDDM). The HCDDM requires the use of the NOAA Atlas 2 isopluvial maps for determining the design rainfalls for use in precipitation/runoff models. Furthermore, the HCCDM requires the correction of the NOAA Atlas 2 rainfall depths if the project is located within the McCarran Airport Rainfall Area limits. Since the Brooks Channel Project is indeed located within the McCarran Airport Rainfall Area, the corrected design rainfall depth for the 6-hour, 100-year storm event is 2.77-inches as stipulated in the HCDDM. Reducing the 6-hour, 100-year storm design rainfall depth to anything less than 2.77-inches is not allowable per the local governing criteria (the HCDDM) and for this reason no change is made to this parameter.

4. The submitted hydrologic analysis assumes ultimate watershed development conditions. Please submit a revised hydrologic model using the existing watershed development, so that we can examine the direct impact of the project without consideration for future development.

   A hydrologic analysis assuming existing watershed development conditions is now provided (Basin map and HEC-1 analysis). The existing condition 100-year design flow rate for Brooks Channel is 798-cfs. The hydraulic analysis submitted with this CLOMR addendum is therefore amended to reflect this flow rate. Refer to appendices of this addendum for the exiting condition analysis.

5. Overbank Manning's "n" values are usually higher than channel "n" values. Please revise the existing and proposed conditions hydraulic models from Cross Sections 1 through 26, or provide an explanation why the overbank "n" values are less than the channel "n" values.

Cross sections 1 through 10 are cut through a portion of an asphalt cement (AC) pavement roadway and extend into the concrete sidewalk on both sides as well as a parking lot. The Manning's roughness coefficient for AC pavement is 0.016 based on the local referenced HCDDM. The Manning's roughness for the concrete sidewalk plus curb and gutter is 0.013 based on the local referenced HCDDM. The overbank Manning's roughness values vary to the degree as modeled for this reason, since they are being cut along portions of concrete channel and asphalt within developed areas.

6. Our review revealed water-surface elevations (WSELs) higher than the end points of the cross section at Cross Section 5,6,7,8,9 10,11 and 12 in the existing and proposed conditions HEC- RAS hydraulic models. Please revise the cross section geometry coordinates so that the endpoints of all cross sections are equal to or extend higher than the corresponding WSELs.

   The hydraulic cross sections have been extended so that the geometry points is higher than the computed WSELs.

7. Floodplain top widths shown in the submitted proposed conditions model should correspond to the floodplain top widths shown on the topographic work map, within a 5-percent tolerance. Top width discrepancies for the base (1 percent-annual-chance) floodplain exist at Cross Section 3248.92(7) and 3148.92 (15). Please provide an explanation for these discrepancies, or submit revised hydraulic analyses and/or work maps as appropriate.

   Topographic maps have been amended to match the computed floodplain widths from the HEC-RAS Analysis.

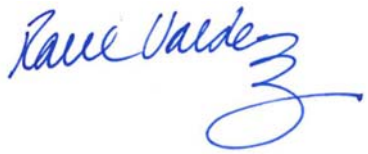
8. Effective February 20, 2015, the Federal Emergency Management Agency / FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. A copy of the notice summarizing the current fee schedule, which was published in the Federal Register, is enclosed for your information. In accordance with this schedule, the fee for your request is $6,750 and must be submitted before we can continue processing your request.

   Payment in the amount of $6,750 is included with this response package.

Should you have additional comments or require more information, please do not hesitate to contact me at 702-821-4376.

Sincerely,

MWH Americas, Inc.



Raul Valdez, P.E.
Project Engineer

Encl.:Addendum No.1 to Brooks Channel Flood Control Project CLOMR Request

CC: Mr. Dan Le, PE, CFM
Mr. Jarah Parke, PE, CFM

NATIONAL FLOOD INSURANCE PROGRAM
FEMA PRODUCTION AND TECHNICAL SERVICES CONTRACTOR

January 12, 2016

Mr. Raul Valdez , P.E., C.F.M
MWH Americas Inc.
3010 West Charleston Blvd
Las Vegas , NV 89102

IN REPLY REFER TO:
Case No.: 16-09-0140R
Community: City of North Las Vegas, NV
Community No.: 320007

316-AD

Dear Mr. Valdez:

This responds to your request dated October 14, 2015 that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for the City of North Las Vegas, Clark County, Nevada. Pertinent information about the request is listed below.

Identifier:	Brooks Channel Flood Control Project
Flooding Source:	Unnamed
FIRM Panel(s) Affected:	32003C2160F

The data required to complete our review, which must be submitted within 90 days of the date of this letter, are listed on the enclosed summary.

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register,* is enclosed for your information.

FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period. Therefore, we are unable to grant extensions for the submission of required data/fee for revision requests. If a requester is informed by letter that additional data are required to complete our review of a request, the data/fee **must** be submitted within 90 days of the date of the letter.

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Information Exchange (FMIX), toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please contact your case reviewer, Mr. Abadir Yimam, by e-mail at Abadir.Yimam@atkinsglobal.com or by telephone at (240)

264-8077, or the Revisions Coordinator for your request, Mr. Scott Yi at Scott.Yi@atkinsglobal.com or at (240) 264-8082.

Sincerely,

Daven Patel

Daven Patel, P.E., CFM
MT-2 Technical Manager
STARR II

cc:

Mr. Dan Lee, P.E., C.F.M
City of North Las Vegas, NV
2250 Las Vegas Blvd, North
North Las Vegas, NV 89030
Led@cityofnorthllasvegas.com
702-633-1932

NATIONAL FLOOD INSURANCE PROGRAM
FEMA PRODUCTION AND TECHNICAL SERVICES CONTRACTOR

Summary of Additional Data Required to Support a
Conditional Letter of Map Revision (CLOMR)

Case No.: 16-09-0140R

Requestor: Mr. Raul Valdez , P.E., C.F.M

Community: City of North Las Vegas, NV

Community No.: 320007

The issues listed below must be addressed before we can continue the review of your request.

1. The submitted existing conditions and proposed conditions work map's cross-section labels do not match the cross section in the HEC-RAS model for cross section 21 through 83. For example, the workmap shows the culverts to be between cross sections 62 and 63, whereas, per Table 4-3 of the report, these cross sections correspond to cross section 65, and 67 in the model. Please revise and resubmit the topographic work maps, certified by a registered professional engineer, for the entire requested area of revision that reflects all applicable items listed on page 2, Section C, of Application/Certification Form 2, entitled "Riverine Hydrology & Hydraulics Form." Please show this information on a map of suitable scale and topographic definition to provide reasonable accuracy. All items should be labeled for easy cross-referencing to the submitted existing conditions hydraulic models. Please ensure that the topographic maps are referenced to the North American Vertical Datum of 1988 (NAVD).

2. The Federal Insurance and Mitigation Administration Policy, FP 204-078-1, issued November 30, 2015, and titled "Standards for Flood Risk Analysis and Mapping" supersedes all previously effective guidelines and specifications. The policy standard for hydrologic and hydraulic analysis (SID #59) states: "Hydrologic and hydraulic analysis must be calibrated using data from well-documented flood events, if available". Please provide calibration for the HEC-1 precipitation/runoff model.

3. NOAA Atlas 2 has been superseded by Atlas 14, Volume 1. The Atlas 14, 6-hour, 100-year precipitation depth at the project area is 2.26 inches. The depths at the 90% confidence interval are 1.85 and 2.65 inches, suggesting that the Atlas 2 depth, 2.77 inches, overestimates the point precipitation depth for the study area watershed. Please revise the hydrologic modeling using rainfall depth from NOAA Atlas 14, Volume 1.

4. The submitted hydrologic analysis assumes ultimate watershed development conditions. Please submit a revised hydrologic model using the existing watershed development, so that we can examine the direct impact of the project without consideration for future development.

5. Overbank Manning's "n" values are usually higher than channel "n" values. Please revise the existing and proposed conditions hydraulic models from Cross Sections 1 through 26, or provide an explanation why the overbank "n" values are less than the channel "n" values.

6. Our review revealed water-surface elevations (WSELs) higher than the end points of the cross section at Cross Section 5,6,7,8,9 10,11 and 12 in the existing and proposed conditions HEC-RAS hydraulic models. Please revise the cross section geometry coordinates so that the endpoints of all cross sections are equal to or extend higher than the corresponding WSELs.

7. Floodplain top widths shown in the submitted proposed conditions model should correspond to the floodplain top widths shown on the topographic work map, within a 5-percent tolerance. Top width discrepancies for the base (1 percent-annual-chance) floodplain exist at Cross Section 3248.92(7) and 3148.92 (15). Please provide an explanation for these discrepancies, or submit revised hydraulic analyses and/or work maps as appropriate.

Effective February 20, 2015, the Federal Emergency Management Agency / FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. A copy of the notice summarizing the current fee schedule, which was published in the Federal Register, is enclosed for your information. In accordance with this schedule, the fee for your request is $6,750 and must be submitted before we can continue processing your request. Payment of this fee must be made in the form of a check or money order, payable in U.S. funds to the National Flood Insurance Program, or a credit card payment (Visa or MasterCard only). For identification purposes, the case number referenced above must be included on the check or money order. We will not perform a detailed technical review of your request until we receive this payment. Note that your request for fee waiver based on "Map changes based on detailed hydrologic and hydraulic studies conducted by federal, state or local agencies to replace approximate studies conducted by FEMA and shown on the effective Flood Insurance Rate Map (FIRM)"does not apply for this request . Since the proposed projects are not yet implemented, approval of this CLOMR will not lead to replacing the current information shown on the effective Flood Insurance Rate Map, which is a condition on the above stated basis of fee waiver.

Please send the required fee and data directly to us at the address shown at the bottom of the first page attention to Mr. Abadir Yimam, STARR II. For identification purposes, please include the case number referenced above on all correspondence.

FEDERAL EMERGENCY MANAGEMENT AGENCY

PAYMENT INFORMATION FORM

Community Name: CITY OF NORTH LAS VEGAS

Project Identifier: BROOKS CHANNEL FLOOD CONTROL PROJECT

THIS FORM MUST BE MAILED, ALONG WITH THE APPROPRIATE FEE, TO THE ADDRESS BELOW OR FAXED TO THE FAX NUMBER BELOW.

Type of Request:

☒ MT-1 application
☒ MT-2 application
☐ EDR application

FEMA Project Library
847 South Pickett St.
Alexandria, VA 22304
FAX (703) 212-4090

Request No.: Case # 16-09-014R (if known)

Amount: $6,750

☒ INITIAL FEE* ☐ FINAL FEE ☐ FEE BALANCE** ☐ MASTER CARD ☐ VISA ☐ CHECK ☐ MONEY ORDER

*Note: Check only for EDR and/or Alluvial Fan requests (as appropriate).

**Note: Check only if submitting a corrected fee for an ongoing request.

COMPLETE THIS SECTION ONLY IF PAYING BY CREDIT CARD

CARD NUMBER

				—				—				—			
1	2	3	4		5	6	7	8	9	10	11	12	13	14	15	16

EXP. DATE

		—	
Month			Year

Date

Signature

NAME *(AS IT APPEARS ON CARD)*:
(please print or type)

ADDRESS:
(*for your credit card receipt-please print or type*)

DAYTIME PHONE:

CITY OF NORTH LAS VEGAS
2250 LAS VEGAS BLVD. N., SUITE 710
NORTH LAS VEGAS, NEVADA 89030

PAYEE PLEASE DETACH AND RETAIN THIS STUB FOR YOUR RECORDS ATTACHED CHECK IS PAYMENT FOR THE ITEMS LISTED HEREON.

560928

DATE 13-JAN-2016

VENDOR NUMBER 37033

INVOICE NO.	DATE	DESCRIPTION	NET AMOUNT
16-09-0140R-01/16	12-JAN-2016	COMMUNITY# 320007	6,750.00
			$ 6,750.00

FOLD FOLD

City of North Las Vegas
NORTH LAS VEGAS, NEVADA
GENERAL OPERATING ACCOUNT

Bank of America
Nevada
NORTH LAS VEGAS, NEVADA
94-72/1224

CHECK NO **560928**

DATE
13-JAN-2016

Amount
***$6,750.00

PAY Six Thousand Seven Hundred Fifty Dollars And Zero Cents****

TO THE ORDER OF
NATIONAL FLOOD INSURANCE PROGRAM
FEMA
FEE CHARGE SYSTEM ADMINISTRATOR
HANOVER,MD 21076 US

VOID IF NOT CASHED WITHIN 180 DAYS

VOID VOID VOID

Appendix A

Appendix A-1

Hydrologic Basin/Soil Figures

FOR CONTINUATION OF WATERSHED REFER TO REFERENCED FIGURE 4-1 (DRAINAGE STUDY FOR N. 5TH STREET IMPROVEMENTS, BY LBG)

BROOKS FLOOD CONTROL CHANNEL

Legend

- Hydrograph Combination Pts
- Basin Boundary
- Referenced Basin Boundary
- County Topography 5-ft
- Flow Arrows
- Ex Storm Drain

SUB BASIN FLOW SUMMARY

BASIN ID	AREA (AC)	(Q100) CFS	(Q10) CFS
OFF1	22.10	50	22
OFF2	29.09	63	27
OFF3	10.81	27	14
OFF4	25.09	54	25
OFF5	23.34	58	28
LOS1	1.33	4	2
LOS2	2.36	6	3
MAYF4A	48.88	131	67
MAYF4B	17.01	30	10
ECP3	313.60	495	225
ECP3A	332.80	500	230
ECP3B	332.80	501	231
CP4	38.40	71	24
CP5	64.00	121	44
CP6	435.20	689	305
CP6A	435.20	697	309
CP7	486.40	798	353

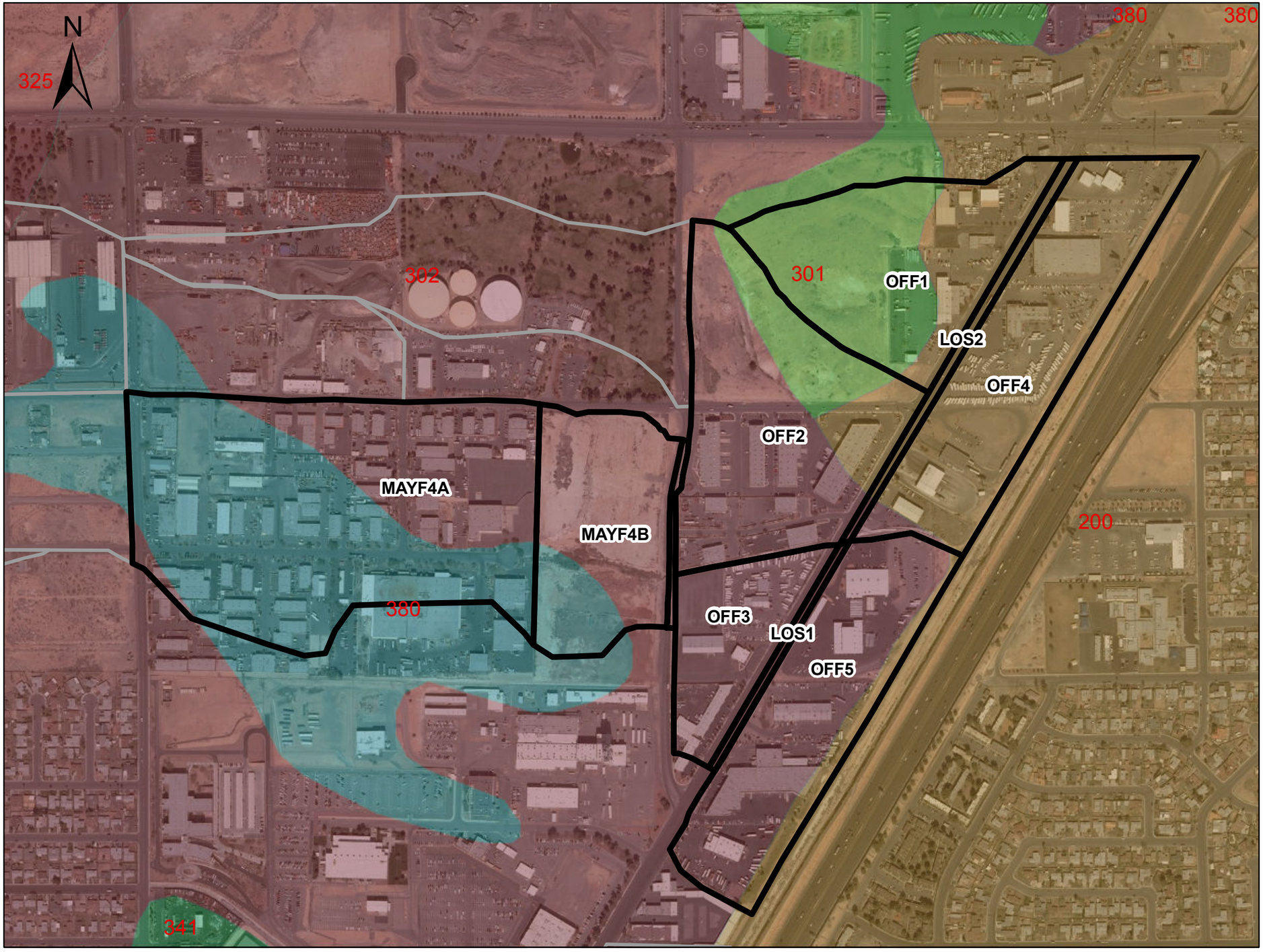
200 100 0 200 400 600 Feet

SCALE: 1" = 200'

CITY OF NORTH LAS VEGAS
Your Community of Choice

MWH

FIGURE 5: EXISTING CONDITION DRAINAGE BASIN MAP



Legend

- Delineated Basin Boundary
- Referenced Basin Boundary

Soil Types

- 200 Glencarb silt loam
- 301 Las Vegas-Gravelly fine sandy loam
- 302 Las Vegas-McCarran - Grapevine complex
- 307 Las Vegas - Skyhaven complex
- 325 Las Vegas - McCarran - Fine Sandy Loam
- 341 Paradise silt loam
- 380 Skyhaven, very fine sandy loam

MWH
BUILDING A BETTER WORLD

Scale:	1" = 500'	Drawn By:	SM
Job #:	BROOKS CHAN	Checked By:	RV
Date:	08/06/12	Designed By:	N/A

City of North Las Vegas
Brooks Flood Control Channel

Figure 3:
Existing Drainage Basins - Soils Map

Appendix A-2

Hydrologic Calculations

TRAVEL TIME CALCULATIONS

DEVELOPMENT: CNLV Brooks Flood Control Channel
W.O. # **CALCULATED BY:** SM

$$Velocity = CS^{1/2}$$

C1 applies to the first 500 feet of travel distance
C2 applies to the remaining travel distance

Existing:		Developed	
C1=14.8	C2=29.4	C1=20.2	C2=30.6

					First 500 feet		Remaining Travel Distance	
Basin	**Length** (ft)	**High Elev** (ft)	**Low Elev** (ft)	**Slope** (ft/ft)	**C1**	**V1** (fps)	**C2**	**V2** (fps)
OFF1	**3726**	**1981**	**1922**	0.016	20.2	2.5	30.6	3.9
OFF2	2194	1950	1927	0.010	20.2	2.1	30.6	3.1
OFF3	936	1932	1927	0.005	20.2	1.5	30.6	2.2
OFF4A	2255	1938	1927	0.005	20.2	1.4	30.6	2.1
OFF4B	2255	1938	1927	0.005	20.2	1.4	30.6	2.1
OFF5A	1827	1920	1900	0.011	20.2	2.1	30.6	3.2
OFF5B	1827	1920	1900	0.011	20.2	2.1	30.6	3.2
LOS1	1333	1935	1920	0.011	20.2	2.1	30.6	3.2
LOS2	2320	1930	1920	0.004	20.2	1.3	30.6	2.0
MAYF4A	2545	2015	1970	0.018	20.2	2.7	30.6	4.1
MAYF4B	1165	1985	1940	0.039	14.8	2.9	20.2	4.0
PMAY4B	677	1965	1940	0.037	20.2	3.9	30.6	5.9
PMAY5	1284	1985	1940	0.035	20.2	3.8	30.6	5.7
POFF1	3726	1981	1922	0.016	20.2	2.5	30.6	3.9
POFF2	2194	1950	1927	0.010	20.2	2.1	30.6	3.1
POFF3	936	1932	1927	0.005	20.2	1.5	30.6	2.2

STANDARD FORM 4

PROJECT: CNLV Brooks Flood Control Channel

JOB # _____ **CALCULATED BY:** SM

V1 applies to the first 500 feet of travel distance
V2 applies to the remaining travel distance

Existing:		Developed	
$V1 = 148 * S^{1/2}$	$V2 = 294 * S^{1/2}$	$V1 = 202 * S^{1/2}$	$V2 = 306 * S^{1/2}$

$$T_i = \frac{1.8(1.1-k)L^{1/2}}{S^{1/3}} \qquad T_t = \frac{L}{60V}$$

$$k = 0.0132 C_n - 0.39 \qquad T_c = T_i + T_t$$

SUB-BASIN DATA					INITIAL/OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc CHECK (URBANIZED BASINS)		FINAL Tc	LAG TIME	REMARKS
DESIG. (1)	Cn	K (2)	AREA Ac. (3)	AREA Mi^2	LENGTH Ft (4)	SLOPE % (5)	Ti Min. (6)	LENGTH Ft. (7)	SLOPE % (8)	V1 fps (9a)	V2 fps (9b)	Tt Min. (10)	TOTAL LENGTH (11)	Tc Min. (12)	Min.	TLAG Hr.	
OFF1	88.1	0.772	**39.46**	0.0617	500	2.8	9.35	3726	1.6	2.5	3.9	17.24	4226	33.48	26.59	0.266	Desert/Imp Road/Business
OFF2	89.9	0.797	**29.09**	0.0455	328	10.7	4.49	2194	1.0	2.1	3.1	13.04	2522	24.01	17.53	0.175	Desert/Imp Road/Business
OFF3	94.4	0.856	**10.81**	0.0169	500	0.6	11.64	936	0.5	1.5	2.2	8.89	1436	17.98	17.98	0.180	Imp Road/Business
OFF4A	92.6	0.832	**13.66**	0.0213	157	9.6	2.85	2255	0.5	1.4	2.1	19.59	2412	23.40	22.44	0.224	Gravel Road/Business
OFF4B	92.5	0.831	**13.66**	0.0213	157	9.6	2.86	2255	0.5	1.4	2.1	19.59	2412	23.40	22.45	0.225	Gravel Road/Business
OFF5A	93.2	0.841	**11.67**	0.0182	361	4.5	5.39	1827	1.1	2.1	3.2	10.85	2188	22.16	16.24	0.162	Gravel Road/Business
OFF5B	92.9	0.836	**11.67**	0.0182	361	4.5	5.49	1827	1.1	2.1	3.2	10.85	2188	22.16	16.34	0.163	Gravel Road/Business
LOS1	98.0	0.904	**1.33**	0.0021	20	2.0	1.25	1333	1.1	2.1	3.2	8.17	1353	17.52	9.42	0.094	Imp Road
LOS2	98.0	0.904	**2.54**	0.0040	20	2.0	1.25	2320	0.4	1.3	2.0	21.38	2340	23.00	22.64	0.226	Imp Road
MAYF4A	94.5	0.857	**48.88**	0.0764	50	2.0	2.45	2545	1.8	2.7	4.1	11.48	2595	24.42	13.93	0.139	Imp Road/Business
MAYF4B	81.9	0.690	**17.01**	0.0266	310	40.0	3.80	1165	3.9	2.9	4.0	5.66	1475	18.19	9.45	0.095	Desert/Imp Road
PMAY4B	93.9	0.850	**5.02**	0.0078	50	2.0	2.52	677	3.7	3.9	5.9	2.65	727	14.04	5.17	0.052	Imp Road/Business
PMAY5	94.6	0.858	**11.91**	0.0186	50	2.0	2.44	1284	3.5	3.8	5.7	4.48	1334	17.41	6.92	0.069	Imp Road/Business
POFF1	94.6	0.858	**39.46**	0.0617	500	2.8	6.90	3726	1.6	2.5	3.9	17.24	4226	33.48	24.14	0.241	Imp Road/Business
POFF2	94.5	0.857	**29.09**	0.0455	328	10.7	3.60	2194	1.0	2.1	3.1	13.04	2522	24.01	16.64	0.166	Imp Road/Business
POFF3	94.4	0.856	**10.18**	0.0159	500	0.6	11.64	936	0.5	1.5	2.2	8.89	1436	17.98	17.98	0.180	Imp Road/Business

Existing Condition Basins Min Tc = 10 Minutes
Developed Condition Basins Min Tc = 5 Minutes

CURVE NUMBER CALCULATIONS FOR SOILS

PROJECT: CNLV Brooks Flood Control Channel

CALCULATED BY: SM

CHECKED BY: RV

Soil #: 200		Glencarb silt loam								
Soil	Percent	Group	Natural Desert[1]	Gravel Roads[2]	Impervious[3]	Business[4]				
Bluepoint	3%	A	63	76	98	89				
Glencarb	85%	B	77	85	98	92				
McCarran	3%	B	77	85	98	92				
Land	9%	D	88	91	98	95				
Total	**100%**		**78**	**86**	**98**	**93**				

Soil #: 301		Las Vegas gravelly fine sandy loam, 2 to 4 percent slopes								
Soil	Percent	Group	Natural Desert[1]	Gravel Roads[2]	Impervious[3]	Business[4]				
Destazo	5%	B	77	85	98	92				
Las Vegas	95%	D	88	91	98	95				
Total	**100%**		**88**	**91**	**98**	**95**				

Soil #: 302		Las Vegas - McCarran - Grapevine complex, 0 to 4 percent slopes								
Soil	Percent	Group	Natural Desert[1]	Gravel Roads[2]	Impervious[3]	Business[4]				
Bluepoint	5%	A	63	76	98	89				
Bracken	5%	B	77	85	98	92				
Grapevine	20%	B	77	85	98	92				
McCarran	25%	B	77	85	98	92				
Badland	5%	D	88	91	98	95				
Las Vegas	40%	D	88	91	98	95				
Total	**100%**		**82**	**88**	**98**	**94**				

Soil #: 380		Skyhaven very fine sandy loam, 0 to 4 percent slopes								
Soil	Percent	Group	Natural Desert[1]	Gravel Roads[2]	Impervious[3]	Business[4]				
Skyhaven	85%	B	77	85	98	92				
Destazo	5%	B	77	85	98	92				
Glencarb	5%	B	77	85	98	92				
Las Vegas	5%	D	88	91	98	95				
Total	**100%**		**78**	**86**	**98**	**93**				

Notes:

1- Referenced from Table 602 (1 of 4), Natural Desert
2- Referenced from Table 602 (1 of 4), Impervious, Streets and Roads: Gravel
3- Referenced from Table 602 (1 of 4), Impervious, Streets and Roads
4- Referenced from Table 602 (1 of 4), Urban District: Business (Heavy Industrial)

CURVE NUMBER CALCULATIONS FOR BASINS

		Soil Breakdown				Land Use Break Down						
Basin	**Land Use Type**	**Soil #200**	**Soil #301**	**Soil #302**	**Soil #380**	**Natural Desert**	**Gravel Roads**	**Imp. Roadway**	**Business**			**Composite CN**
OFF1	Desert/Imp Road/Business	**28%**	**47%**	25%		**62%**		**10%**	**28%**			88.1
OFF2	Desert/Imp Road/Business	**13%**	**20%**	**67%**		**40%**		**10%**	**50%**			89.9
OFF3	Imp Road/Business			**100%**				**10%**	**90%**			94.4
OFF4A	Gravel Road/Business	**94%**		**6%**			**7%**		**93%**			92.6
OFF4B	Gravel Road/Business	**100%**		**0%**			**7%**		**93%**			92.5
OFF5A	Gravel Road/Business	**0%**		**100%**			**13%**		**87%**			93.2
OFF5B	Gravel Road/Business	**32%**		**68%**			**13%**		**87%**			92.9
LOS1	Imp Road			**100%**				**100%**				98.0
LOS2	Imp Road	**65%**		**35%**				**100%**				98.0
MAYF4A	Imp Road/Business			**34%**	**66%**			**25%**	**75%**			94.5
MAYF4B	Desert/Imp Road			**75%**	**25%**	**95%**		**5%**				81.9
PMAY4B	Imp Road/Business			**23%**	**77%**			**15%**	**85%**			93.9
PMAY5	Imp Road/Business			**98%**	**2%**			**15%**	**85%**			94.6
POFF1	Imp Road/Business	**28%**	**47%**	**25%**				**10%**	**90%**			94.6
POFF2	Imp Road/Business	**13%**	**20%**	**67%**				**10%**	**90%**			94.5
POFF3	Imp Road/Business			**100%**				**10%**	**90%**			94.4

Appendix A-3

Hydrology

Model

```
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *             JUN   1998            *
 *          VERSION 4.1              *
 *                                   *
 *  RUN DATE   13AUG12  TIME  21:08:33   *
 *                                   *
 *************************************
```


```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS     *
*    HYDROLOGIC ENGINEERING CENTER    *
*         609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616       *
*           (916) 756-1104            *
*                                   *
*************************************
```


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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                        *DIAGRAM
 *** FREE ***
             1          ID   ---------------------------------------------------------------------------
             2          ID   Project: BROOKS CHANNEL

             3          ID   Model: Exsisting-100 yr Model
             4          ID   Design Storm: 100-YR 6-Hr, SDN3 Distribution
             5          ID   Precipitation:  CCRFCD-HCDDM of McCarran Airport Rainfall Area
             6          ID
             7          ID   DARF VALUES USED : CCRFCD HCDDM
             8          ID
             9          ID              AREA(Sq.mi)          DARF
            10          ID                 0.00 - 0.49       1.000
            11          ID                 0.50 - 0.71       0.980
            12          ID                 0.72 - 0.78       0.976
            13          ID                 0.79              0.974
            14          ID   ---------------------------------------------------------------------------
                        *
            15          IT       5       0       0     300
            16          IO       5       0       0
            17          IN       5       0       0
            18          JR    PREC       1   0.980   0.976   0.974
                        *

            19          KK   MAYF1
            20          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
            21          BA  0.3263
            22          PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
            23          PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
            24          PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
            25          PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
            26          PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
            27          PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
            28          PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
            29          PC   0.998   0.999   1.000
            30          PB    2.77
            31          LS    0.00    92.7
            32          UD   0.385
                        *

            33          KKRMAYF1-3
            34          KM   **REF ROUTE FROM 5TH STRT TDS BY LBG**
            35          KM   Route MAYF1 to MAYF3
            36          RD  1405.0 0.01281   0.016       0    TRAP      50
                        *

            37          KK   MAYF3
            38          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
            39          BA   0.026
            40          LS    0.00    94.2
            41          UD   0.101
                        *
```



```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            42          KK C1-MAYF
            43          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
            44          KM   Combine MAYF1 and MAYF3
            45          HC       2
                        *

            46          KKRC1-MAYF
            47          KM   **REF ROUTE FROM 5TH STRT TDS BY LBG**
            48          KM   Route C1-MAYF to ECP3
            49          RD    1275 0.04235   0.016       0    TRAP      50
                        *
```

```
  50          KK   MAYF2
  51          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
  52          BA   0.060
  53          LS    0.00    90.2
  54          UD   0.107
              *

  55          KK  RMAYF2
  56          KM   **REF ROUTE FROM 5TH STRT TDS BY LBG**
  57          KM   Route MAYF2 to MAYF4A
  58          RD    2016 0.02480   0.016       0    TRAP      50
              *

  59          KK  MAYF4A
  60          KM   BASIN MAYF4A
  61          KM   BASIN DELIN. BY MWH
  62          BA  0.0764
  63          LS    0.00    94.5
  64          UD   0.139
              *

  65          KK    ECP3
  66          KM   Combine MAYF2, MAYF4A
  67          HC       3
              *

  68          KK   RECP3
  69          KM   ROUTE THROUGH BROOKS CHAN
  70          RD     676 0.03700   0.035       0    TRAP       5
              *

  71          KK  MAFY4B
  72          KM   BASIN MAYF4B
  73          KM   BASIN DELIN. BY MWH
  74          BA  0.0266
  75          LS    0.00    81.9
  76          UD   0.095
              *
```

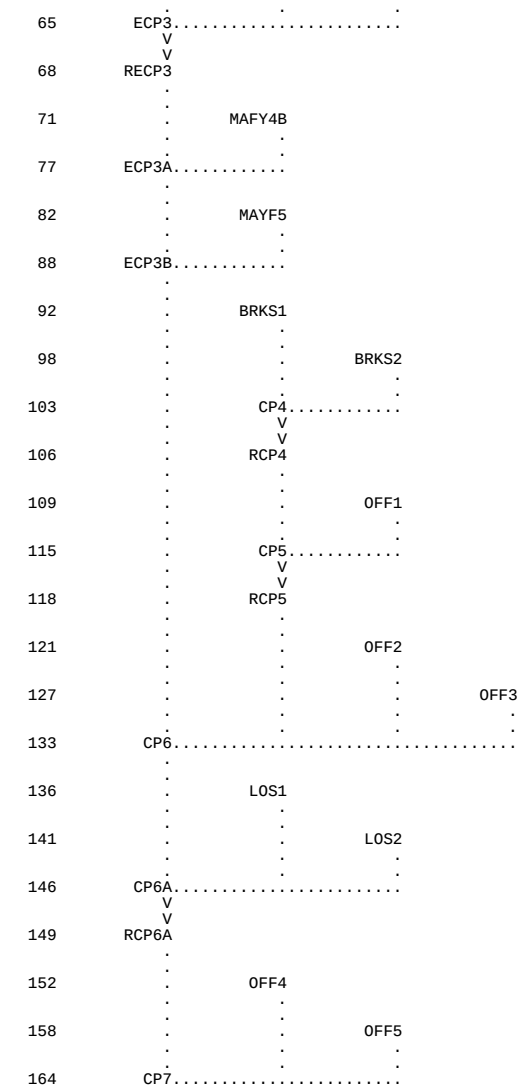


```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  77          KK   ECP3A
  78          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
  79          KM   Combine R-C1-MAYF and C2-MAYF
  80          KM   Flows to 12'x 4' RCB, then to concrete channel
  81          HC       2
              *

  82          KK   MAYF5
  83          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
  84          KM   FLOWS TO LOW POINT ON EAST SIDE OF N 5TH STREET
  85          BA  0.0012
  86          LS    0.00    98.0
  87          UD   0.067
              *

  88          KK   ECP3B
  89          KM   **REF POINT FROM 5TH STRT TDS BY LBG**
  90          KM   COMBINE FLOWS IN 12'X4' RCB
  91          HC       2
              *

  92          KK   BRKS1
  93          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
  94          KM   Flows to an 18" HDPE culvert
  95          BA   0.048
  96          LS    0.00    82.3
  97          UD   0.115
              *

  98          KK   BRKS2
  99          KM   **REF BASIN FROM 5TH STRT TDS BY LBG**
 100          BA   0.016
 101          LS    0.00    82.4
 102          UD   0.101
              *

 103          KK     CP4
 104          KM   COMBINE BRKS1, BRKS2
 105          HC       2
              *

 106          KK    RCP4
 107          KM   CP4 ROUTE THROUGH BROOKS AVE
 108          RD    1063  0.0141   0.016       0    TRAP      40       6
              *

 109          KK    OFF1
 110          KM   BASIN OFF1
 111          KM   BASIN DELIN. BY MWH
 112          BA  0.0345
 113          LS    0.00    89.1
 114          UD   0.120
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 115          KK     CP5
 116          KM   COMBINE CP4, OFF1
 117          HC       2
              *
```

```
            118           KK    RCP5
            119           KM   CP5 ROUTE THROUGH LOSSEE AVE
            120           RD     791  0.0050   0.016       0    TRAP      80       6
                          *

            121           KK    OFF2
            122           KM   BASIN OFF2
            123           KM   BASIN DELIN. BY MWH
            124           BA  0.0455
            125           LS    0.00    89.9
            126           UD   0.175
                          *

            127           KK    OFF3
            128           KM   BASIN OFF3
            129           KM   BASIN DELIN. BY MWH
            130           BA  0.0169
            131           LS    0.00    94.4
            132           UD   0.180
                          *

            133           KK     CP6
            134           KM   COMBINE ECP3B, CP5, OFF2, OFF3
            135           HC       4
                          *

            136           KK    LOS1
            137           KM   LOSSEE STRT BASIN
            138           BA  0.0021
            139           LS    0.00    98.0
            140           UD   0.094
                          *

            141           KK    LOS2
            142           KM   LOSSEE STRT BASIN
            143           BA  0.0037
            144           LS    0.00    98.0
            145           UD   0.209
                          *

            146           KK    CP6A
            147           KM   COMBINE CP6, LOS1, LOS2
            148           HC       3
                          *
1                                                HEC-1 INPUT                                                PAGE  5

           LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            149           KK   RCP6A
            150           KM   ROUTE CP6 THROUGH BROOKS CHAN
            151           RD     600 0.01667   0.025       0    TRAP      20       3
                          *

            152           KK    OFF4
            153           KM   BASIN OFF4
            154           KM   BASIN DELIN. BY MWH
            155           BA  0.0392
            156           LS    0.00    92.5
            157           UD   0.225
                          *

            158           KK    OFF5
            159           KM   BASIN OFF5
            160           KM   BASIN DELIN. BY MWH
            161           BA  0.0365
            162           LS    0.00    93.0
            163           UD   0.163
                          *

            164           KK     CP7
            165           KM   COMBINE CP6, OFF4, OFF5
            166           HC       3
                          *
            167           ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK

 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    19       MAYF1
                V
                V
    33    RMAYF1-3
                .
                .
    37              .       MAYF3
                    .           .
                    .           .
    42     C1-MAYF.............
                V
                V
    46    RC1-MAYF
                .
                .
    50              .       MAYF2
                    .           V
                    .           V
    55              .      RMAYF2
                    .           .
                    .           .
    59              .           .      MAYF4A
                    .           .           .
```



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *             JUN   1998                *
 *            VERSION 4.1                *
 *                                       *
 *  RUN DATE   13AUG12  TIME  21:08:33   *
 *                                       *
 *****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

Project: BROOKS CHANNEL

Model: Exsisting-100 yr Model
Design Storm: 100-YR 6-Hr, SDN3 Distribution
Precipitation: CCRFCD-HCDDM of McCarran Airport Rainfall Area

DARF VALUES USED : CCRFCD HCDDM

AREA(Sq.mi)	DARF
0.00 - 0.49	1.000
0.50 - 0.71	0.980
0.72 - 0.78	0.976
0.79	0.974

---

16 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

```
                    NMIN           5  MINUTES IN COMPUTATION INTERVAL
                   IDATE      1    0  STARTING DATE
                   ITIME        0000  STARTING TIME
                      NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE      2    0  ENDING DATE
                  NDTIME        0055  ENDING TIME
                  ICENT          19  CENTURY MARK

               COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE   24.92 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

     JP          MULTI-PLAN OPTION
                      NPLAN           1  NUMBER OF PLANS

     JR          MULTI-RATIO OPTION
                    RATIOS OF PRECIPITATION
                   1.00       .98       .98       .97
1

               PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                          TIME TO PEAK IN HOURS


                                                                    RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2  RATIO 3  RATIO 4
                                                        1.00      .98      .98      .97

 HYDROGRAPH AT
+                  MAYF1       .33     1   FLOW         355.     346.     344.     343.
                                             TIME        3.83     3.83     3.83     3.83

 ROUTED TO
+                RMAYF1-3      .33     1   FLOW         353.     344.     343.     342.
                                             TIME        3.83     3.83     3.83     3.83

 HYDROGRAPH AT
+                  MAYF3       .03     1   FLOW          47.      46.      46.      46.
                                             TIME        3.50     3.50     3.50     3.50

  2 COMBINED AT
+                 C1-MAYF      .35     1   FLOW         368.     359.     358.     357.
                                             TIME        3.83     3.83     3.83     3.83

 ROUTED TO
+                RC1-MAYF      .35     1   FLOW         367.     358.     356.     355.
                                             TIME        3.83     3.83     3.83     3.83

 HYDROGRAPH AT
+                  MAYF2       .06     1   FLOW          93.      90.      90.      90.
                                             TIME        3.50     3.50     3.50     3.50

 ROUTED TO
+                 RMAYF2       .06     1   FLOW          92.      90.      89.      89.
                                             TIME        3.58     3.58     3.58     3.58

 HYDROGRAPH AT
+                 MAYF4A       .08     1   FLOW         131.     128.     128.     127.
                                             TIME        3.58     3.58     3.58     3.58

  3 COMBINED AT
+                   ECP3       .49     1   FLOW         495.     482.     480.     478.
                                             TIME        3.67     3.67     3.67     3.67

 ROUTED TO
+                  RECP3       .49     1   FLOW         494.     481.     478.     477.
                                             TIME        3.67     3.67     3.67     3.67

 HYDROGRAPH AT
+                 MAFY4B       .03     1   FLOW          30.      29.      29.      29.
                                             TIME        3.50     3.50     3.50     3.50

  2 COMBINED AT
+                  ECP3A       .52     1   FLOW         513.     500.     497.     496.
                                             TIME        3.67     3.67     3.67     3.67

 HYDROGRAPH AT
+                  MAYF5       .00     1   FLOW           3.       3.       3.       3.
                                             TIME        3.50     3.50     3.50     3.50

  2 COMBINED AT
+                  ECP3B       .52     1   FLOW         514.     501.     498.     497.
                                             TIME        3.67     3.67     3.67     3.67

 HYDROGRAPH AT
+                  BRKS1       .05     1   FLOW          53.      51.      51.      51.
                                             TIME        3.58     3.58     3.58     3.58

 HYDROGRAPH AT
+                  BRKS2       .02     1   FLOW          18.      17.      17.      17.
                                             TIME        3.50     3.50     3.50     3.50

  2 COMBINED AT
+                    CP4       .06     1   FLOW          71.      68.      68.      68.
                                             TIME        3.58     3.58     3.58     3.58

 ROUTED TO
```

+	RCP4	.06	1	FLOW	70.	68.	67.	67.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	OFF1	.03	1	FLOW	50.	49.	49.	49.
				TIME	3.58	3.58	3.58	3.58
2 COMBINED AT								
+	CP5	.10	1	FLOW	121.	117.	116.	116.
				TIME	3.58	3.58	3.58	3.58
ROUTED TO								
+	RCP5	.10	1	FLOW	115.	110.	110.	110.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	OFF2	.05	1	FLOW	63.	61.	61.	61.
				TIME	3.58	3.58	3.58	3.58
HYDROGRAPH AT								
+	OFF3	.02	1	FLOW	27.	26.	26.	26.
				TIME	3.58	3.58	3.58	3.58
4 COMBINED AT								
+	CP6	.68	1	FLOW	708.	689.	686.	683.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	LOS1	.00	1	FLOW	4.	4.	4.	4.
				TIME	3.50	3.50	3.50	3.50
HYDROGRAPH AT								
+	LOS2	.00	1	FLOW	6.	6.	6.	6.
				TIME	3.58	3.58	3.58	3.58
3 COMBINED AT								
+	CP6A	.68	1	FLOW	716.	697.	694.	692.
				TIME	3.67	3.67	3.67	3.67
ROUTED TO								
+	RCP6A	.68	1	FLOW	716.	696.	693.	691.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	OFF4	.04	1	FLOW	54.	52.	52.	52.
				TIME	3.67	3.67	3.67	3.67
HYDROGRAPH AT								
+	OFF5	.04	1	FLOW	58.	57.	56.	56.
				TIME	3.58	3.58	3.58	3.58
3 COMBINED AT								
+	CP7	.76	1	FLOW	820.	798.	794.	792.
				TIME	3.67	3.67	3.67	3.67

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= .00									
RMAYF1-3	MANE	2.06	353.95	228.72	2.01	5.00	352.82	230.00	2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3493E+02 EXCESS= .0000E+00 OUTFLOW= .3494E+02 BASIN STORAGE= .2594E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RMAYF1-3	MANE	2.08	345.41	228.92	1.96	5.00	344.28	230.00	1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3402E+02 EXCESS= .0000E+00 OUTFLOW= .3403E+02 BASIN STORAGE= .2473E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RMAYF1-3	MANE	2.09	343.66	229.38	1.94	5.00	343.02	230.00	1.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3384E+02 EXCESS= .0000E+00 OUTFLOW= .3384E+02 BASIN STORAGE= .2755E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RMAYF1-3	MANE	2.09	342.55	229.62	1.94	5.00	342.25	230.00	1.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3375E+02 EXCESS= .0000E+00 OUTFLOW= .3375E+02 BASIN STORAGE= .2581E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RC1-MAYF	MANE	1.29	367.33	230.40	2.02	5.00	366.52	230.00	2.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3790E+02 EXCESS= .0000E+00 OUTFLOW= .3790E+02 BASIN STORAGE= .1652E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RC1-MAYF	MANE	1.30	358.28	230.06	1.96	5.00	358.15	230.00	1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3692E+02 EXCESS= .0000E+00 OUTFLOW= .3692E+02 BASIN STORAGE= .1519E-02 PERCENT ERROR= .0

```
          FOR PLAN = 1  RATIO=  .00
          RC1-MAYF  MANE         1.30    357.01    230.40      1.95      5.00    356.12    230.00        1.96

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3672E+02 EXCESS= .0000E+00 OUTFLOW= .3672E+02 BASIN STORAGE= .1567E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RC1-MAYF  MANE         1.30    356.12    230.60      1.95      5.00    355.01    230.00        1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3662E+02 EXCESS= .0000E+00 OUTFLOW= .3662E+02 BASIN STORAGE= .1505E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RMAYF2  MANE         3.50     92.31    217.00      1.80      5.00     92.15    215.00        1.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5735E+01 EXCESS= .0000E+00 OUTFLOW= .5746E+01 BASIN STORAGE= .3303E-02 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
            RMAYF2  MANE         3.50     89.99    217.00      1.75      5.00     89.70    215.00        1.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5573E+01 EXCESS= .0000E+00 OUTFLOW= .5584E+01 BASIN STORAGE= .3266E-02 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
            RMAYF2  MANE         3.50     89.53    217.00      1.74      5.00     89.20    215.00        1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5541E+01 EXCESS= .0000E+00 OUTFLOW= .5552E+01 BASIN STORAGE= .3258E-02 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
            RMAYF2  MANE         3.50     89.30    217.00      1.73      5.00     88.96    215.00        1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5525E+01 EXCESS= .0000E+00 OUTFLOW= .5536E+01 BASIN STORAGE= .3255E-02 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
             RECP3  MANE          .40    494.59    220.71      2.02      5.00    493.51    220.00        2.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5254E+02 EXCESS= .0000E+00 OUTFLOW= .5254E+02 BASIN STORAGE= .5378E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RECP3  MANE          .41    481.87    220.60      1.96      5.00    480.70    220.00        1.96

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5117E+02 EXCESS= .0000E+00 OUTFLOW= .5117E+02 BASIN STORAGE= .5338E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RECP3  MANE          .41    479.57    220.61      1.95      5.00    478.40    220.00        1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5090E+02 EXCESS= .0000E+00 OUTFLOW= .5090E+02 BASIN STORAGE= .5410E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RECP3  MANE          .41    478.41    220.43      1.95      5.00    477.30    220.00        1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5076E+02 EXCESS= .0000E+00 OUTFLOW= .5076E+02 BASIN STORAGE= .5282E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RCP4  MANE         2.83     70.57    215.29      1.22      5.00     70.22    215.00        1.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4170E+01 EXCESS= .0000E+00 OUTFLOW= .4171E+01 BASIN STORAGE= .8255E-03 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
              RCP4  MANE         2.86     68.00    214.80      1.18      5.00     67.87    215.00        1.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4023E+01 EXCESS= .0000E+00 OUTFLOW= .4024E+01 BASIN STORAGE= .9597E-03 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
              RCP4  MANE         2.87     67.70    215.28      1.17      5.00     67.34    215.00        1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3995E+01 EXCESS= .0000E+00 OUTFLOW= .3996E+01 BASIN STORAGE= .8634E-03 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
              RCP4  MANE         2.87     67.46    215.52      1.17      5.00     66.93    215.00        1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3980E+01 EXCESS= .0000E+00 OUTFLOW= .3982E+01 BASIN STORAGE= .8191E-03 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
              RCP5  MANE         3.03    117.51    218.09      1.39      5.00    114.90    215.00        1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7309E+01 EXCESS= .0000E+00 OUTFLOW= .7311E+01 BASIN STORAGE= .1894E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
```

```
     RCP5  MANE         3.06    113.83    217.43      1.35      5.00    109.99    215.00        1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7067E+01 EXCESS= .0000E+00 OUTFLOW= .7069E+01 BASIN STORAGE= .1543E-02 PERCENT ERROR=   -.1


   FOR PLAN = 1  RATIO=  .00
     RCP5  MANE         3.07    113.34    217.95      1.34      5.00    110.18    215.00        1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7020E+01 EXCESS= .0000E+00 OUTFLOW= .7022E+01 BASIN STORAGE= .1402E-02 PERCENT ERROR=   -.1


   FOR PLAN = 1  RATIO=  .00
     RCP5  MANE         3.07    111.92    218.31      1.33      5.00    109.55    215.00        1.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6992E+01 EXCESS= .0000E+00 OUTFLOW= .6994E+01 BASIN STORAGE= .1907E-02 PERCENT ERROR=   -.1


   FOR PLAN = 1  RATIO=  .00
    RCP6A  MANE          .78    716.11    219.99      1.89      5.00    716.09    220.00        1.89

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6874E+02 EXCESS= .0000E+00 OUTFLOW= .6874E+02 BASIN STORAGE= .4777E-03 PERCENT ERROR=    .0


   FOR PLAN = 1  RATIO=  .00
    RCP6A  MANE          .78    696.25    219.59      1.84      5.00    696.06    220.00        1.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6689E+02 EXCESS= .0000E+00 OUTFLOW= .6689E+02 BASIN STORAGE= .4728E-03 PERCENT ERROR=    .0


   FOR PLAN = 1  RATIO=  .00
    RCP6A  MANE          .79    693.30    219.92      1.83      5.00    693.19    220.00        1.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6652E+02 EXCESS= .0000E+00 OUTFLOW= .6652E+02 BASIN STORAGE= .5126E-03 PERCENT ERROR=    .0


   FOR PLAN = 1  RATIO=  .00
    RCP6A  MANE          .79    691.03    220.13      1.82      5.00    690.99    220.00        1.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6632E+02 EXCESS= .0000E+00 OUTFLOW= .6632E+02 BASIN STORAGE= .4941E-03 PERCENT ERROR=    .0



*** NORMAL END OF HEC-1 ***
```

Appendix B

Appendix B-1 Existing Condition

HEC RAS Model Output

-Standard Table 1

- Profile

- Cross Sections

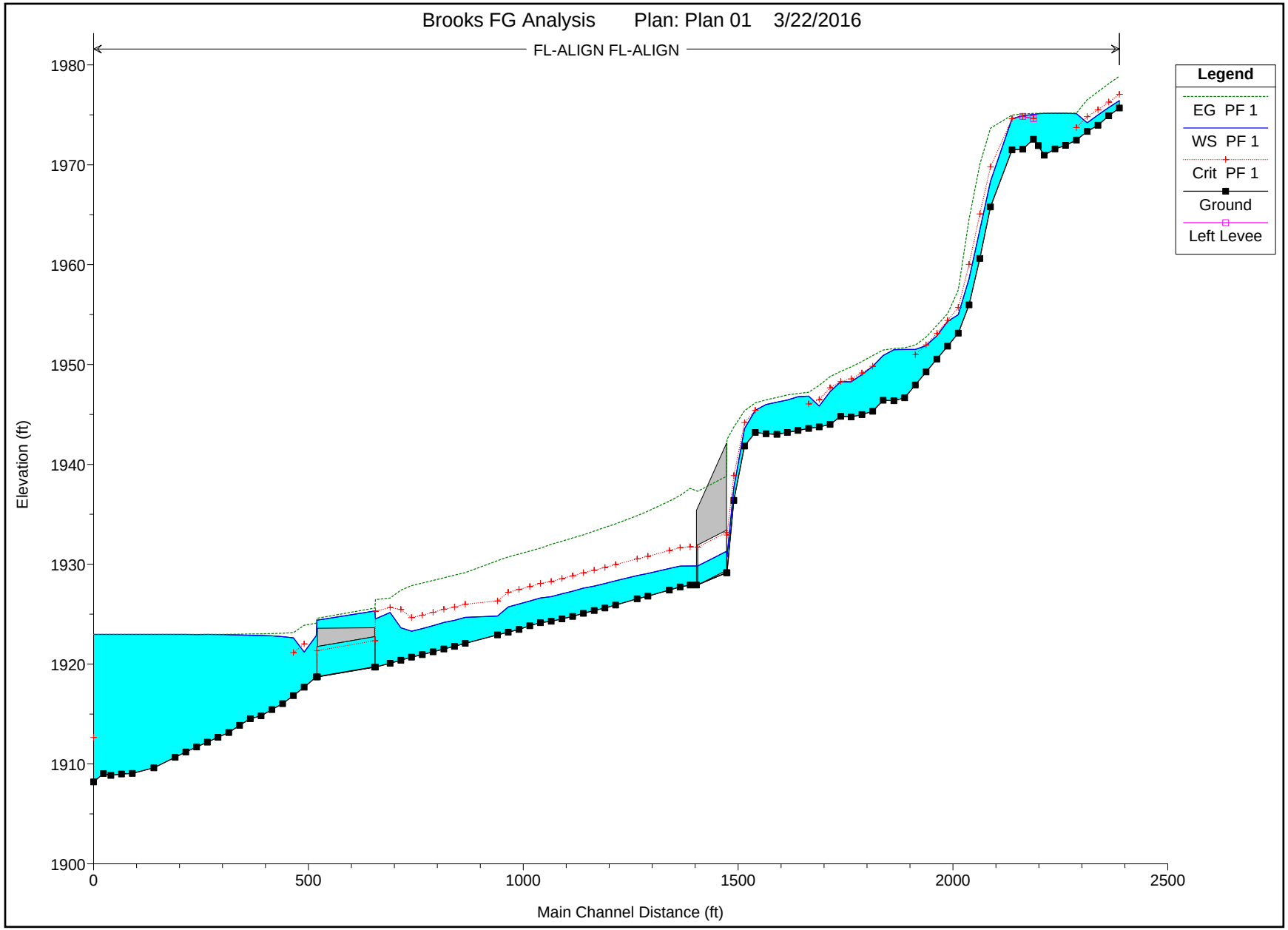
- Output Report

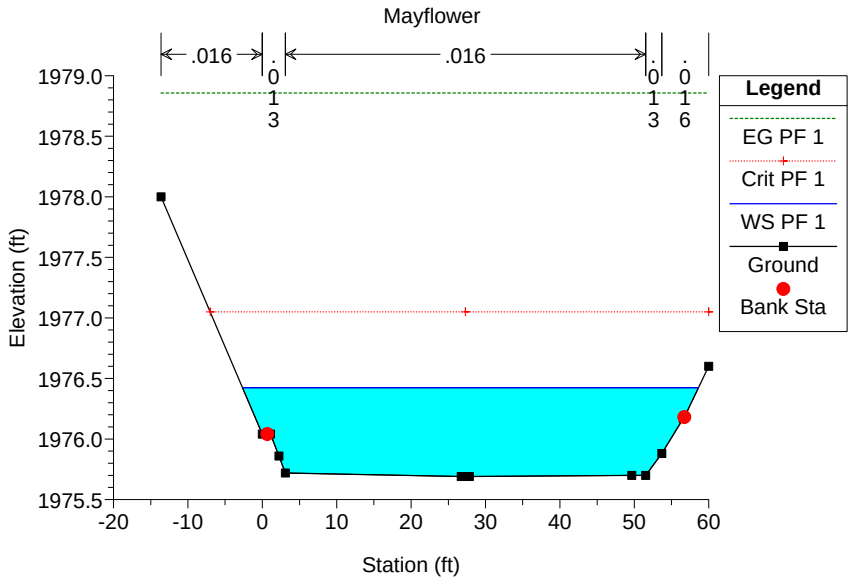
HEC-RAS Plan: P-7 River: FL-ALIGN Reach: FL-ALIGN Profile: PF 1

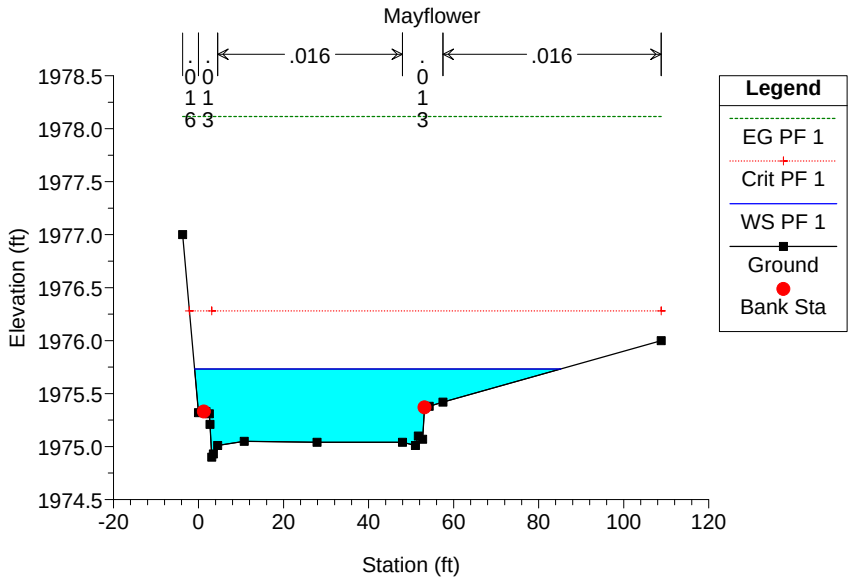
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
FL-ALIGN	3398.92	PF 1	495.00	1975.69	1976.42	1977.05	1978.86	0.028593	12.58	39.87	61.30	2.66
FL-ALIGN	3373.92	PF 1	495.00	1974.90	1975.73	1976.28	1978.12	0.029455	12.78	42.06	86.11	2.72
FL-ALIGN	3348.92	PF 1	495.00	1973.95	1974.99	1975.50	1977.31	0.034126	12.77	43.08	91.87	2.80
FL-ALIGN	3323.92	PF 1	495.00	1973.34	1974.20	1974.82	1976.51	0.029547	12.43	41.65	69.02	2.69
FL-ALIGN	3298.92	PF 1	495.00	1972.47	1975.12	1973.72	1975.18	0.000143	1.95	276.67	147.43	0.23
FL-ALIGN	3273.6	PF 1	495.00	1971.94	1975.15		1975.16	0.000030	1.06	489.18	196.96	0.11
FL-ALIGN	3248.92	PF 1	495.00	1971.58	1975.15		1975.16	0.000022	0.98	533.61	200.00	0.10
FL-ALIGN	3223.92	PF 1	495.00	1970.95	1975.14		1975.16	0.000036	1.30	457.04	197.95	0.12
FL-ALIGN	3210.22	PF 1	495.00	1971.92	1975.11		1975.16	0.000530	1.60	289.31	215.08	0.21
FL-ALIGN	3198.92	PF 1	495.00	1972.55	1975.03	1974.63	1975.14	0.001620	1.81	197.11	184.85	0.31
FL-ALIGN	3173.92	PF 1	495.00	1971.56	1974.92	1974.84	1975.09	0.002228	2.89	154.27	172.32	0.46
FL-ALIGN	3148.92	PF 1	495.00	1971.49	1974.61	1974.61	1974.98	0.006242	4.65	106.07	172.80	0.63
FL-ALIGN	3098.95	PF 1	495.00	1965.77	1968.34	1969.78	1973.66	0.130864	18.51	26.75	19.47	2.78
FL-ALIGN	3073.97	PF 1	495.00	1960.62	1963.48	1965.08	1970.04	0.150087	20.56	24.08	16.21	2.97
FL-ALIGN	3048.96	PF 1	495.00	1955.97	1958.58	1960.02	1964.55	0.324953	19.62	25.24	19.56	3.04
FL-ALIGN	3023.98	PF 1	495.00	1953.14	1954.99	1955.71	1957.47	0.186674	12.65	39.14	39.80	2.25
FL-ALIGN	2998.98	PF 1	495.00	1951.84	1954.31	1954.41	1955.10	0.040129	7.12	69.48	52.75	1.09
FL-ALIGN	2973.99	PF 1	495.00	1950.54	1952.87	1953.11	1953.91	0.053824	8.19	60.44	46.35	1.26
FL-ALIGN	2948.99	PF 1	495.00	1949.25	1951.90	1951.97	1952.75	0.036984	7.43	66.67	44.62	1.07
FL-ALIGN	2923.99	PF 1	495.00	1947.95	1951.51	1950.98	1951.95	0.014781	5.33	92.93	51.34	0.70
FL-ALIGN	2898.97	PF 1	495.00	1946.67	1951.51		1951.68	0.004549	3.30	150.20	70.33	0.40
FL-ALIGN	2874.04	PF 1	495.00	1946.37	1951.48		1951.60	0.001825	2.50	179.95	94.34	0.26
FL-ALIGN	2849.1	PF 1	495.00	1946.42	1950.90		1951.44	0.013647	5.90	83.87	36.24	0.68
FL-ALIGN	2824.82	PF 1	495.00	1945.32	1949.82	1949.82	1950.90	0.032063	8.37	59.16	27.48	1.01
FL-ALIGN	2799.78	PF 1	495.00	1944.99	1948.99	1949.16	1950.29	0.018328	9.16	54.02	25.04	1.10
FL-ALIGN	2774.63	PF 1	495.00	1944.75	1948.26	1948.57	1949.77	0.022222	9.83	50.33	24.36	1.21
FL-ALIGN	2750.44	PF 1	495.00	1944.81	1948.28	1948.30	1949.31	0.015158	8.16	60.68	29.93	1.01
FL-ALIGN	2725.42	PF 1	495.00	1944.00	1947.28	1947.67	1948.79	0.025208	9.87	50.13	27.29	1.28
FL-ALIGN	2700.17	PF 1	495.00	1943.75	1945.84	1946.50	1947.91	0.044624	11.54	42.88	28.84	1.67
FL-ALIGN	2675.8	PF 1	495.00	1943.60	1946.83	1946.05	1947.22	0.004898	5.04	98.16	43.64	0.59
FL-ALIGN	2650.79	PF 1	495.00	1943.40	1946.78		1947.10	0.003675	4.54	108.98	45.67	0.52
FL-ALIGN	2626.19	PF 1	495.00	1943.20	1946.44		1946.95	0.006987	5.77	85.85	40.63	0.70
FL-ALIGN	2601.78	PF 1	495.00	1943.00	1946.23		1946.71	0.014083	5.53	89.47	44.77	0.69
FL-ALIGN	2576.59	PF 1	495.00	1943.06	1945.99		1946.46	0.007262	5.50	89.97	47.36	0.70
FL-ALIGN	2551.36	PF 1	495.00	1943.20	1945.41	1945.41	1946.16	0.016101	6.96	71.14	48.12	1.01
FL-ALIGN	2526.44	PF 1	495.00	1941.83	1943.58	1944.17	1945.36	0.060724	10.72	46.18	44.28	1.85
FL-ALIGN	2501.48	PF 1	495.00	1936.39	1937.70	1938.88	1943.74	0.039199	19.72	25.10	30.52	3.83
FL-ALIGN	2485.61	PF 1	500.00	1929.15	1930.71	1932.93	1942.49	0.044560	27.54	18.15	12.44	4.02
FL-ALIGN	2484.00		Culvert									
FL-ALIGN	2399.9	PF 1	525.00	1927.92	1929.83	1931.75	1937.60	0.026051	22.38	22.35	11.78	2.86
FL-ALIGN	2376.49	PF 1	525.00	1927.72	1929.82	1931.66	1936.89	0.019835	21.34	24.60	11.96	2.62
FL-ALIGN	2351.49	PF 1	525.00	1927.42	1929.58	1931.38	1936.32	0.018001	20.83	25.20	11.87	2.52
FL-ALIGN	2301.49	PF 1	525.00	1926.80	1929.08	1930.80	1935.31	0.015917	20.03	26.21	11.82	2.37
FL-ALIGN	2276.48	PF 1	525.00	1926.54	1928.87	1930.54	1934.86	0.015077	19.65	26.72	11.81	2.30
FL-ALIGN	2226.48	PF 1	525.00	1925.91	1928.34	1929.96	1934.05	0.013874	19.17	27.39	11.63	2.20
FL-ALIGN	2201.48	PF 1	525.00	1925.62	1928.07	1929.67	1933.68	0.013573	19.01	27.61	11.59	2.17
FL-ALIGN	2176.48	PF 1	525.00	1925.37	1927.81	1929.39	1933.32	0.013244	18.83	27.88	11.57	2.14
FL-ALIGN	2151.48	PF 1	525.00	1925.08	1927.60	1929.15	1932.94	0.012563	18.54	28.32	11.47	2.08
FL-ALIGN	2126.48	PF 1	525.00	1924.77	1927.30	1928.84	1932.63	0.012549	18.52	28.35	11.52	2.08
FL-ALIGN	2101.47	PF 1	525.00	1924.52	1927.04	1928.56	1932.30	0.012367	18.41	28.51	11.54	2.06
FL-ALIGN	2076.46	PF 1	525.00	1924.29	1926.76	1928.27	1931.99	0.012567	18.35	28.60	11.92	2.09
FL-ALIGN	2051.45	PF 1	525.00	1924.15	1926.62	1928.08	1931.62	0.011740	17.94	29.26	11.88	2.01
FL-ALIGN	2026.52	PF 1	525.00	1923.84	1926.31	1927.77	1931.32	0.011797	17.95	29.24	11.99	2.03
FL-ALIGN	2001.52	PF 1	525.00	1923.47	1926.02	1927.47	1931.03	0.011746	17.96	29.23	11.88	2.02
FL-ALIGN	1976.52	PF 1	525.00	1923.20	1925.73	1927.19	1930.73	0.011740	17.95	29.24	11.92	2.02
FL-ALIGN	1951.52	PF 1	525.00	1922.92	1924.82	1926.33	1930.36	0.014052	18.89	27.79	23.68	2.45
FL-ALIGN	1876.56	PF 1	525.00	1922.08	1924.67	1925.99	1929.16	0.010063	17.00	30.88	12.02	1.87
FL-ALIGN	1851.56	PF 1	525.00	1921.78	1924.38	1925.72	1928.91	0.010166	17.06	30.77	11.99	1.88
FL-ALIGN	1826.56	PF 1	525.00	1921.52	1924.16	1925.48	1928.64	0.010728	16.97	30.93	11.92	1.86
FL-ALIGN	1801.56	PF 1	525.00	1921.23	1923.85	1925.19	1928.37	0.010072	17.07	30.76	11.85	1.87
FL-ALIGN	1776.56	PF 1	525.00	1920.94	1923.55	1924.90	1928.11	0.010222	17.14	30.63	11.79	1.87
FL-ALIGN	1751.58	PF 1	525.00	1920.70	1923.30	1924.65	1927.86	0.010245	17.14	30.63	11.86	1.88
FL-ALIGN	1726.57	PF 1	525.00	1920.39	1923.64	1925.47	1927.41	0.007421	15.58	33.70	10.60	1.54
FL-ALIGN	1701.57	PF 1	652.00	1920.08	1925.17	1925.66	1926.61	0.002794	10.86	103.36	155.78	0.86
FL-ALIGN	1667.4	PF 1	652.00	1919.70	1924.53	1925.30	1926.45	0.003182	11.81	76.05	91.01	0.95
FL-ALIGN	1660		Culvert									
FL-ALIGN	1529.8	PF 1	697.00	1918.72	1922.84		1924.10	0.001939	9.02	72.30	25.11	0.94
FL-ALIGN	1501.53	PF 1	697.00	1917.68	1921.21	1922.02	1923.88	0.004630	13.12	53.11	22.68	1.51
FL-ALIGN	1476.5	PF 1	697.00	1916.84	1922.63	1921.15	1923.16	0.000556	5.86	120.80	37.99	0.55
FL-ALIGN	1451.37	PF 1	697.00	1916.04	1922.75		1923.09	0.000252	4.71	156.43	53.28	0.38
FL-ALIGN	1426.37	PF 1	697.00	1915.44	1922.82		1923.05	0.000152	3.94	207.50	75.13	0.30
FL-ALIGN	1401.35	PF 1	697.00	1914.82	1922.86		1923.03	0.000101	3.41	248.43	83.82	0.25
FL-ALIGN	1376.2	PF 1	697.00	1914.53	1922.88		1923.02	0.000092	3.31	278.33	98.99	0.23
FL-ALIGN	1351.17	PF 1	697.00	1913.87	1922.93		1923.00	0.000041	2.37	417.74	125.59	0.16
FL-ALIGN	1326.16	PF 1	697.00	1913.15	1922.94		1922.99	0.000028	2.05	512.38	164.69	0.13

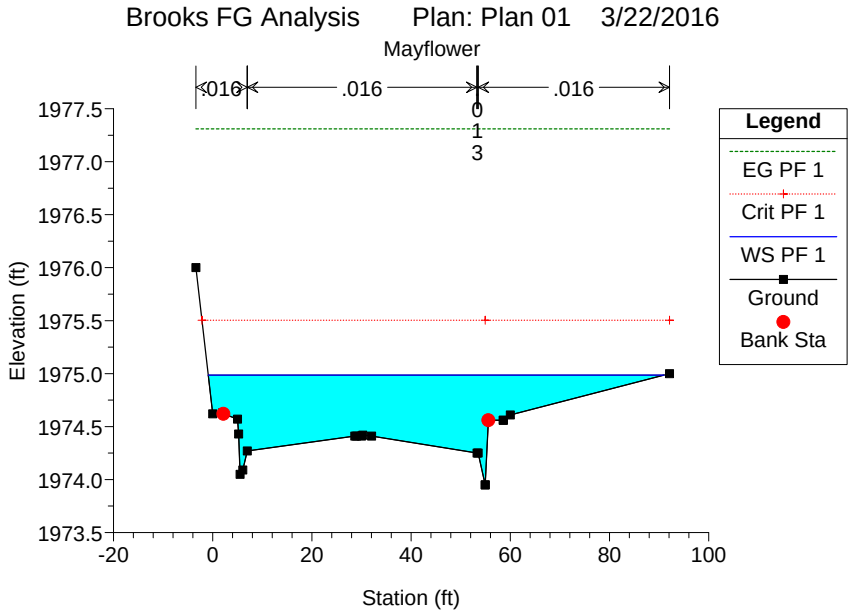
HEC-RAS Plan: P-7 River: FL-ALIGN Reach: FL-ALIGN Profile: PF 1 (Continued)

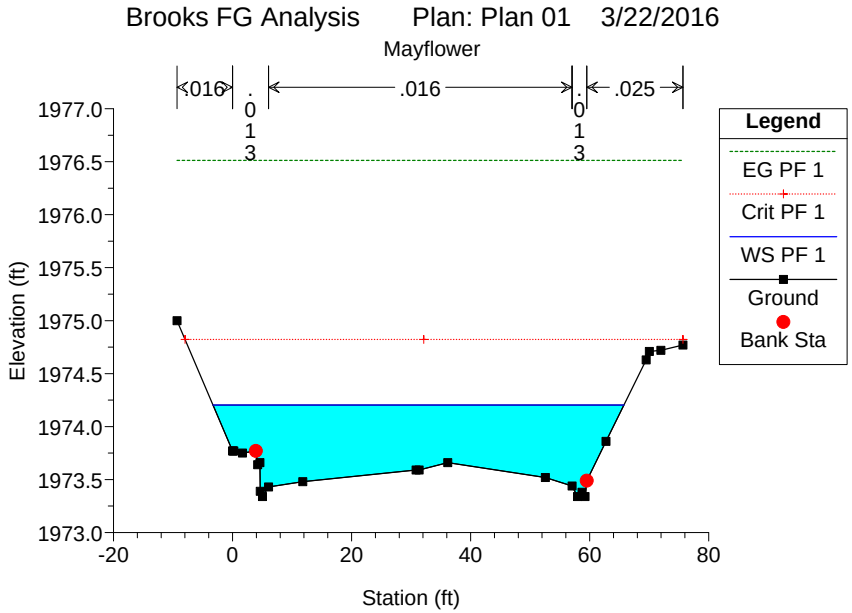
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
FL-ALIGN	1301.14	PF 1	697.00	1912.67	1922.97		1922.98	0.000007	1.07	1255.90	484.54	0.07
FL-ALIGN	1276.14	PF 1	697.00	1912.19	1922.97		1922.98	0.000004	0.85	1552.50	515.94	0.05
FL-ALIGN	1251.15	PF 1	697.00	1911.70	1922.96		1922.98	0.000008	1.19	1182.95	507.48	0.07
FL-ALIGN	1226.18	PF 1	697.00	1911.20	1922.97		1922.97	0.000002	0.69	1905.18	552.03	0.04
FL-ALIGN	1201.34	PF 1	697.00	1910.67	1922.97		1922.97	0.000002	0.60	2171.41	630.99	0.04
FL-ALIGN	1151.6	PF 1	798.00	1909.61	1922.97		1922.97	0.000001	0.55	2828.43	763.07	0.03
FL-ALIGN	1101.71	PF 1	798.00	1909.06	1922.97		1922.97	0.000001	0.27	3256.67	792.10	0.02
FL-ALIGN	1076.62	PF 1	798.00	1909.00	1922.97		1922.97	0.000002	0.29	3205.92	851.23	0.02
FL-ALIGN	1051.67	PF 1	798.00	1908.86	1922.97		1922.97	0.000004	0.43	2363.14	883.41	0.02
FL-ALIGN	1034.38	PF 1	798.00	1909.04	1922.97		1922.97	0.000001	0.29	3961.28	918.74	0.02
FL-ALIGN	1011.5	PF 1	798.00	1908.20	1922.97	1912.67	1922.97	0.000001	0.26	4345.49	1019.07	0.01

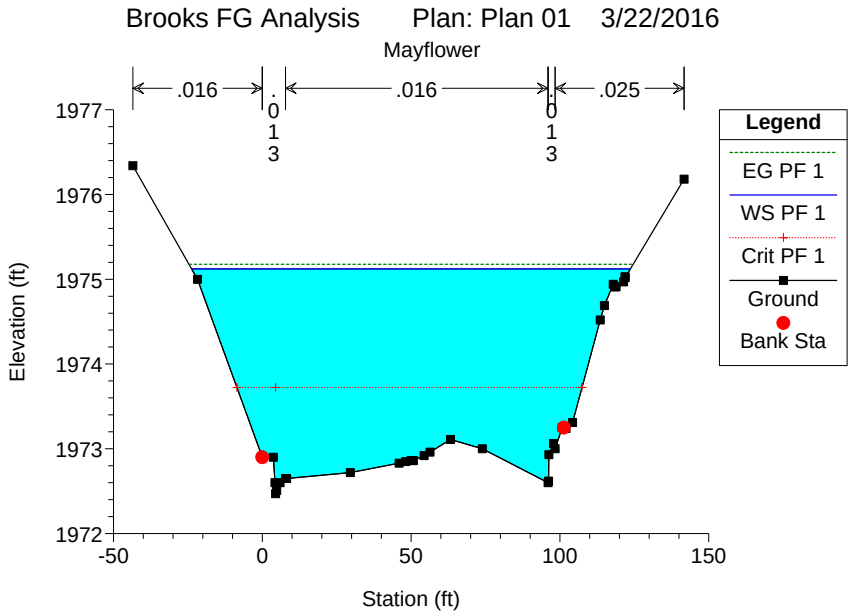

Brooks FG Analysis Plan: Plan 01 3/22/2016
FL-ALIGN FL-ALIGN
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Left Levee
Elevation (ft)
1980
1970
1960
1950
1940
1930
1920
1910
1900
0
500
1000
1500
2000
2500
Main Channel Distance (ft)

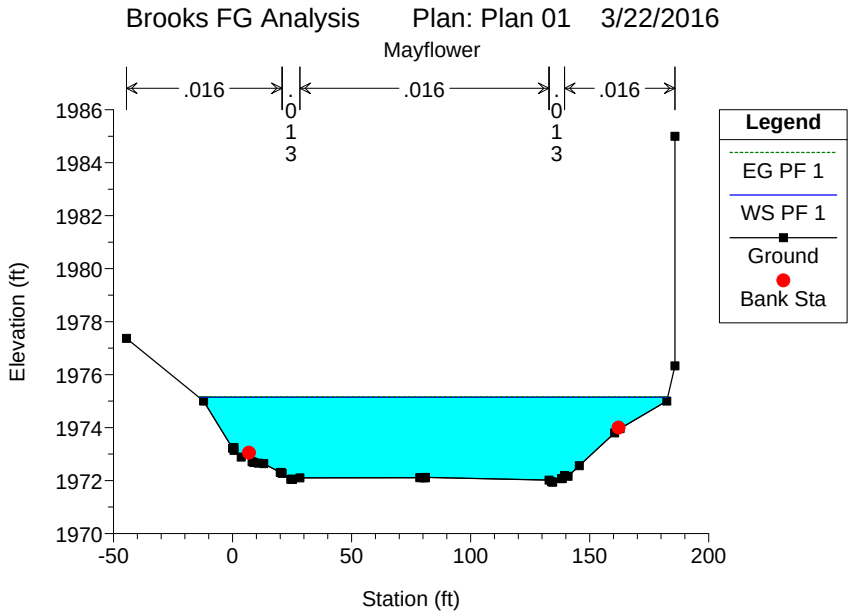

Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.013
.013
.016
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

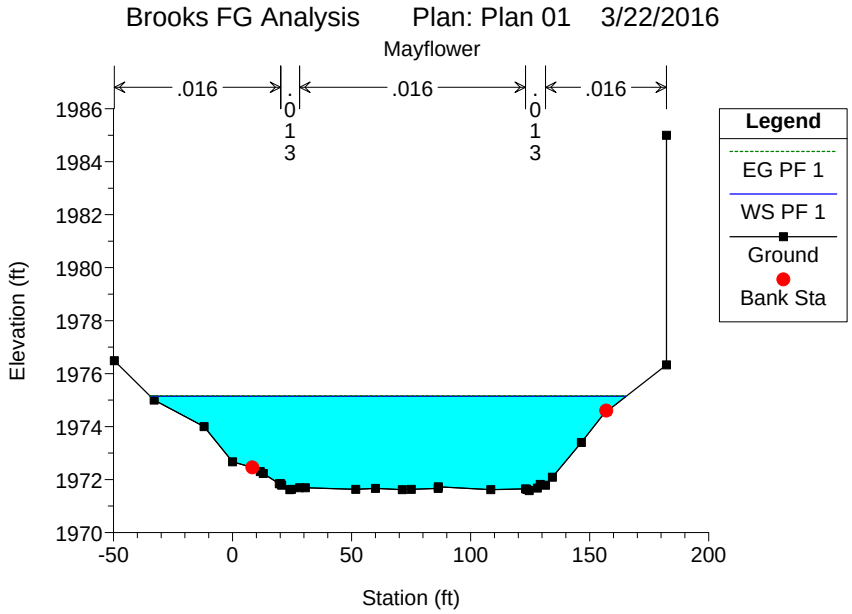

Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.016
.013
.013
.016
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

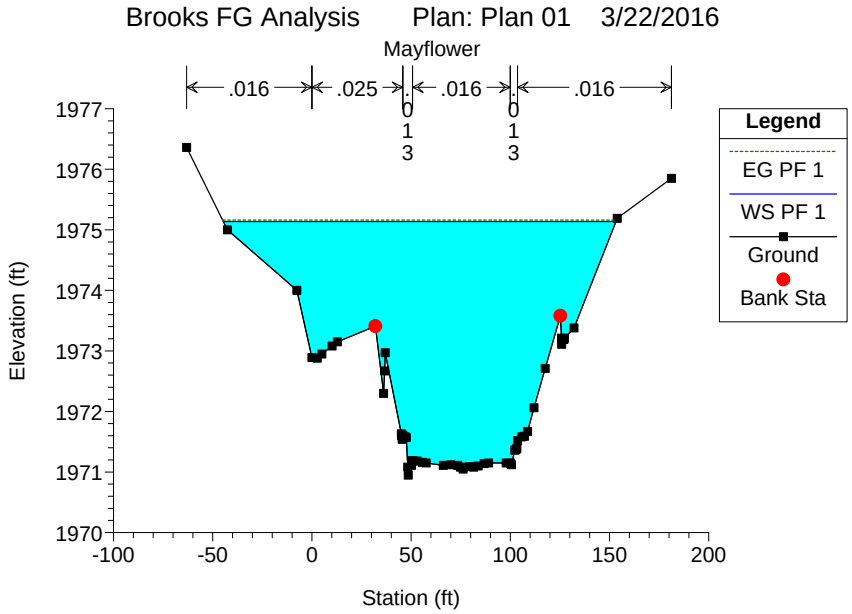

Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.016
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

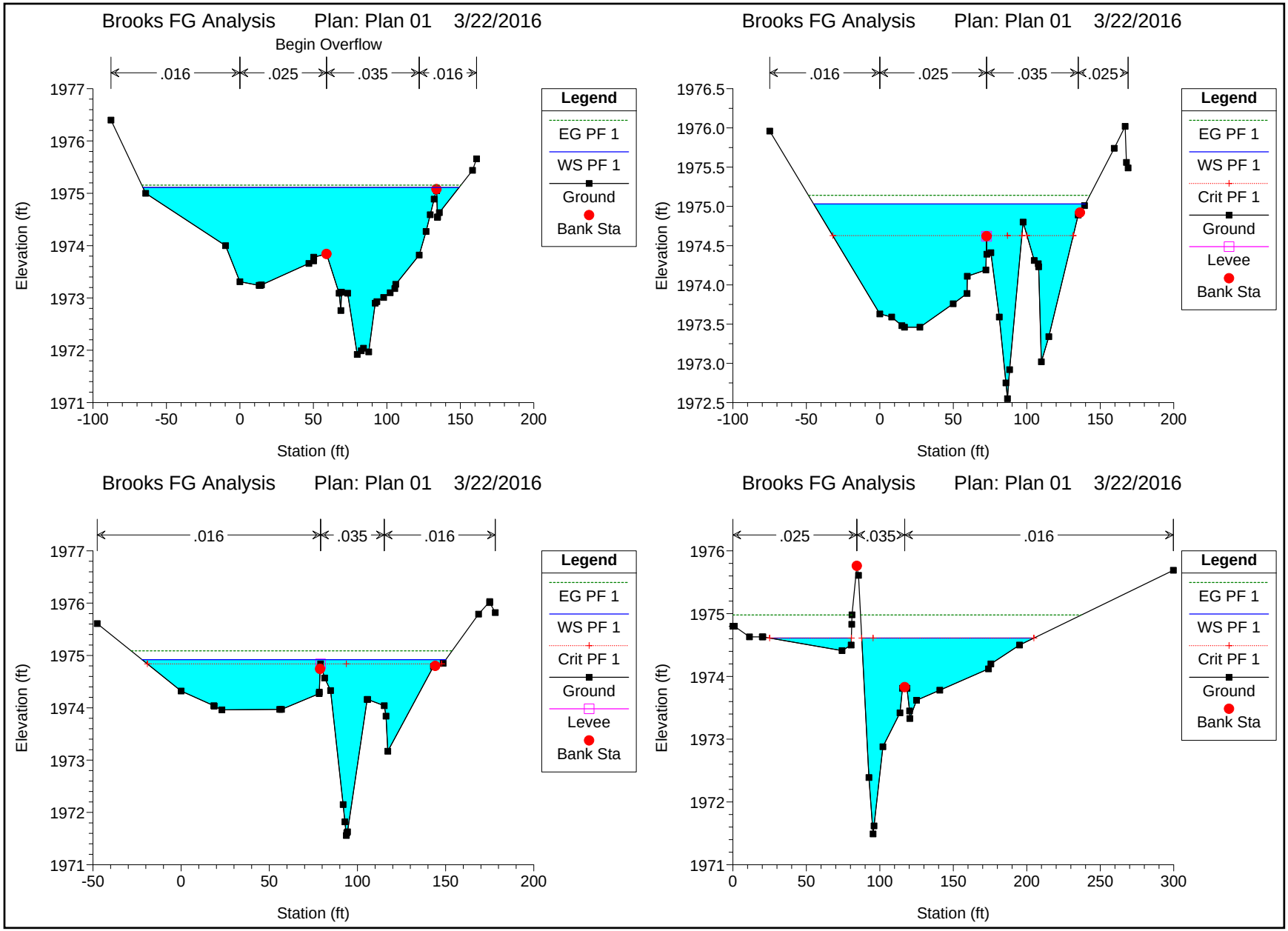

Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.025
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

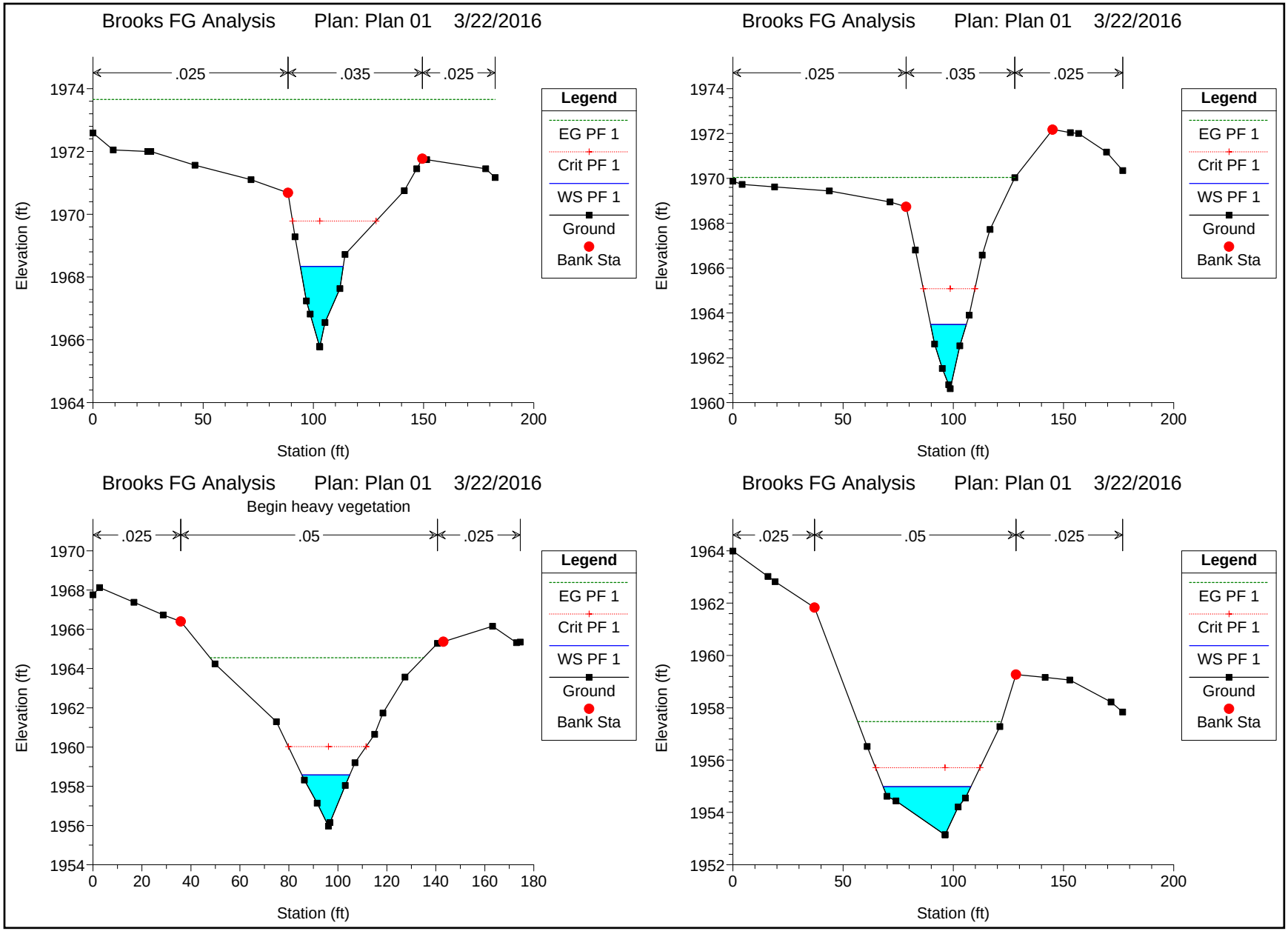

Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.025
0.013
0.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

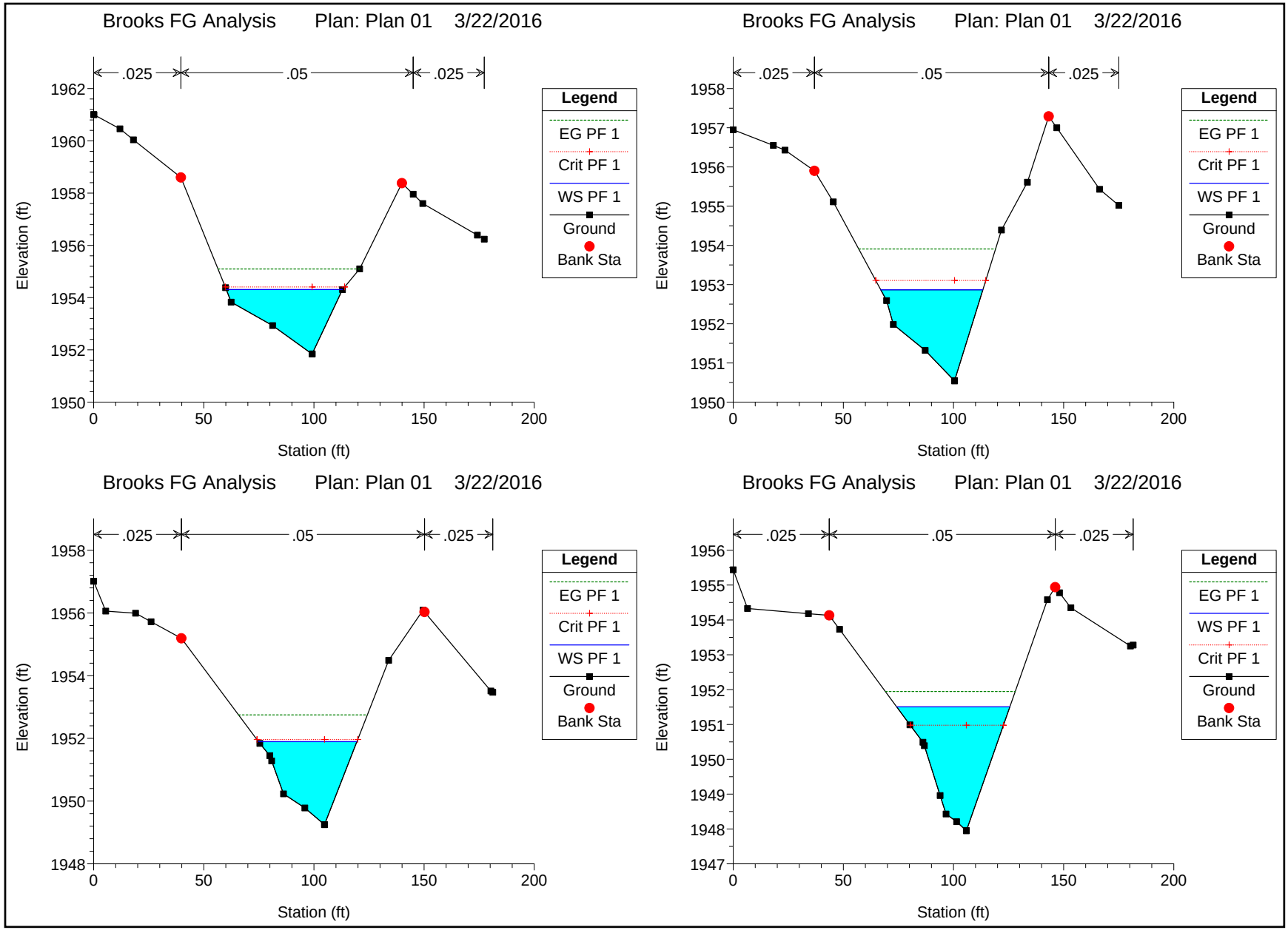

Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.016
0.013
0.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

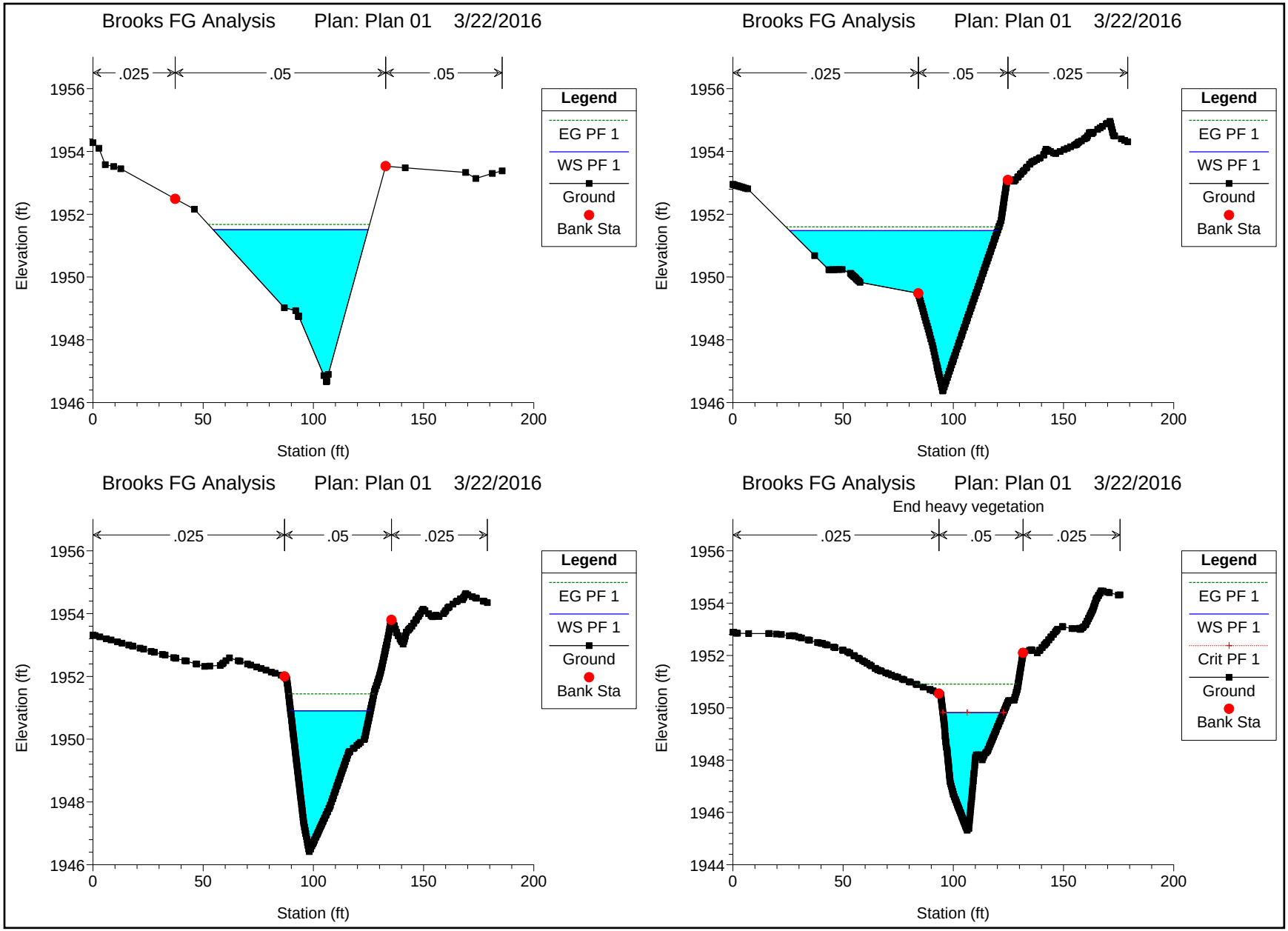

Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.016
0.013
0.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.025
.016
.016
0.013
0.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Brooks FG Analysis Plan: Plan 01 3/22/2016
Begin Overflow
.016
.025
.035
.016
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.016
.035
.016
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.016
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Begin heavy vegetation
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.05
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1956
1954
1952
1950
1948
1946
0
50
100
150
200
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Legend
EG PF 1
WS PF 1
Ground
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Station (ft)
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End heavy vegetation
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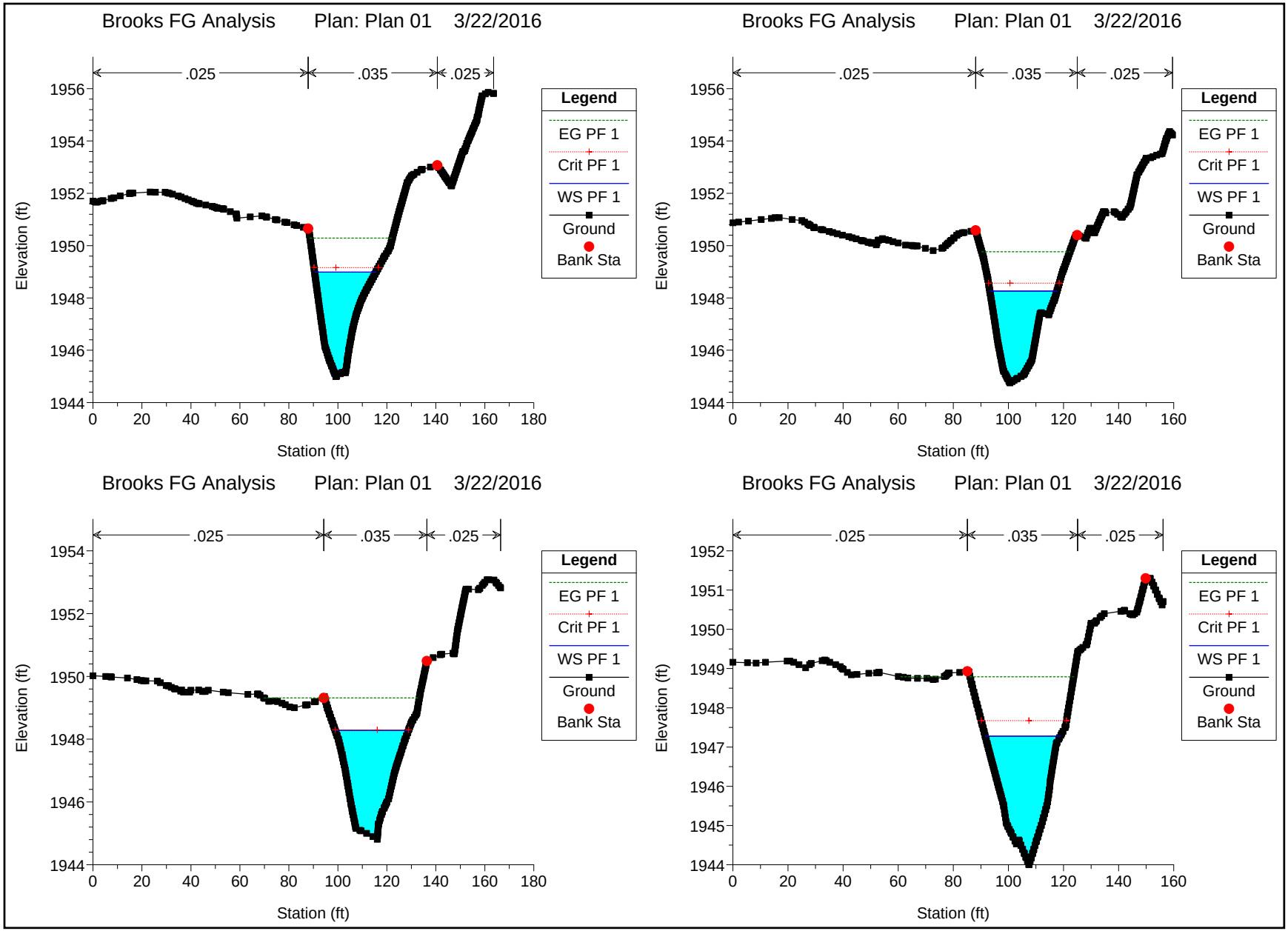
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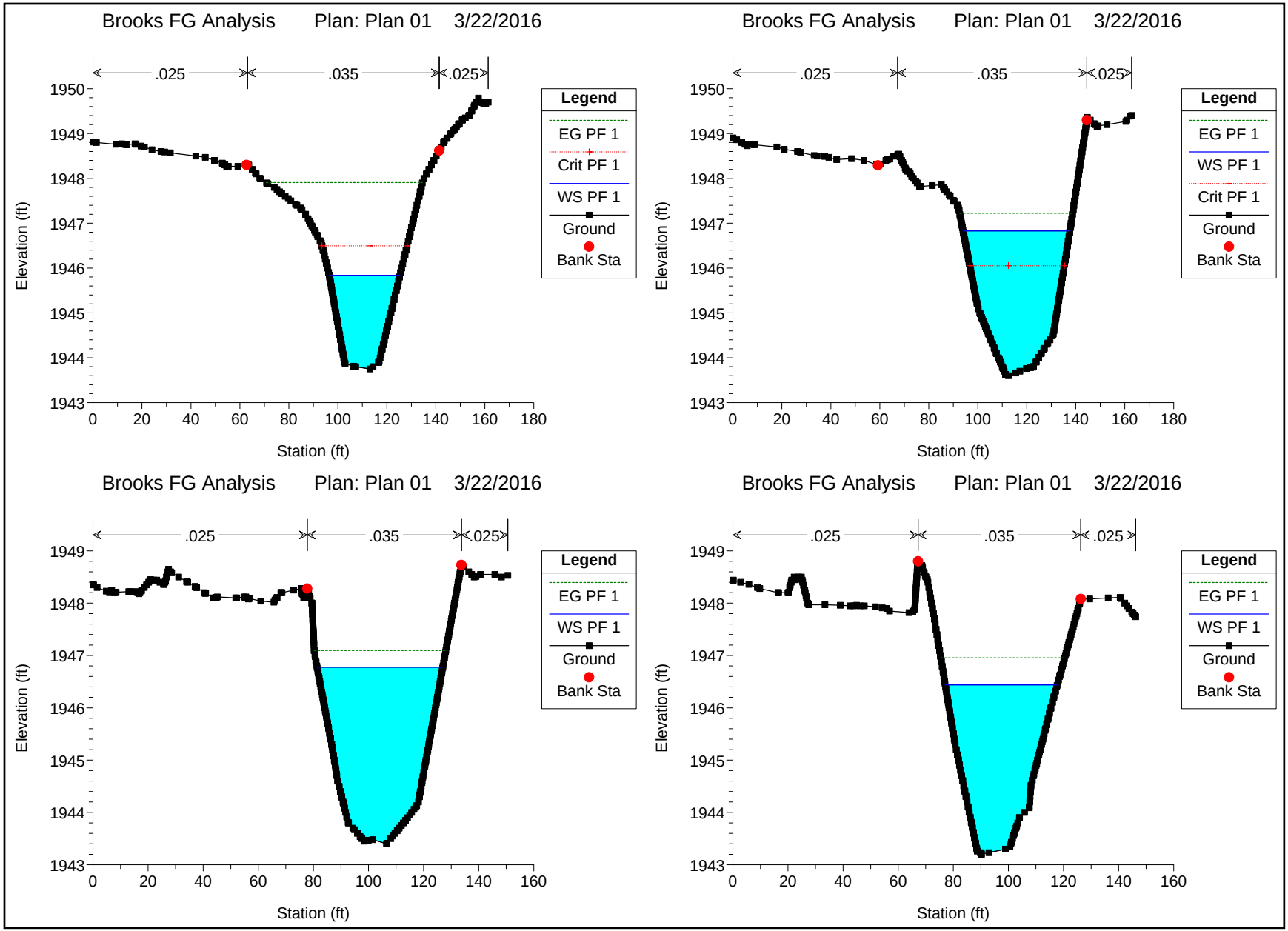
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Elevation (ft)
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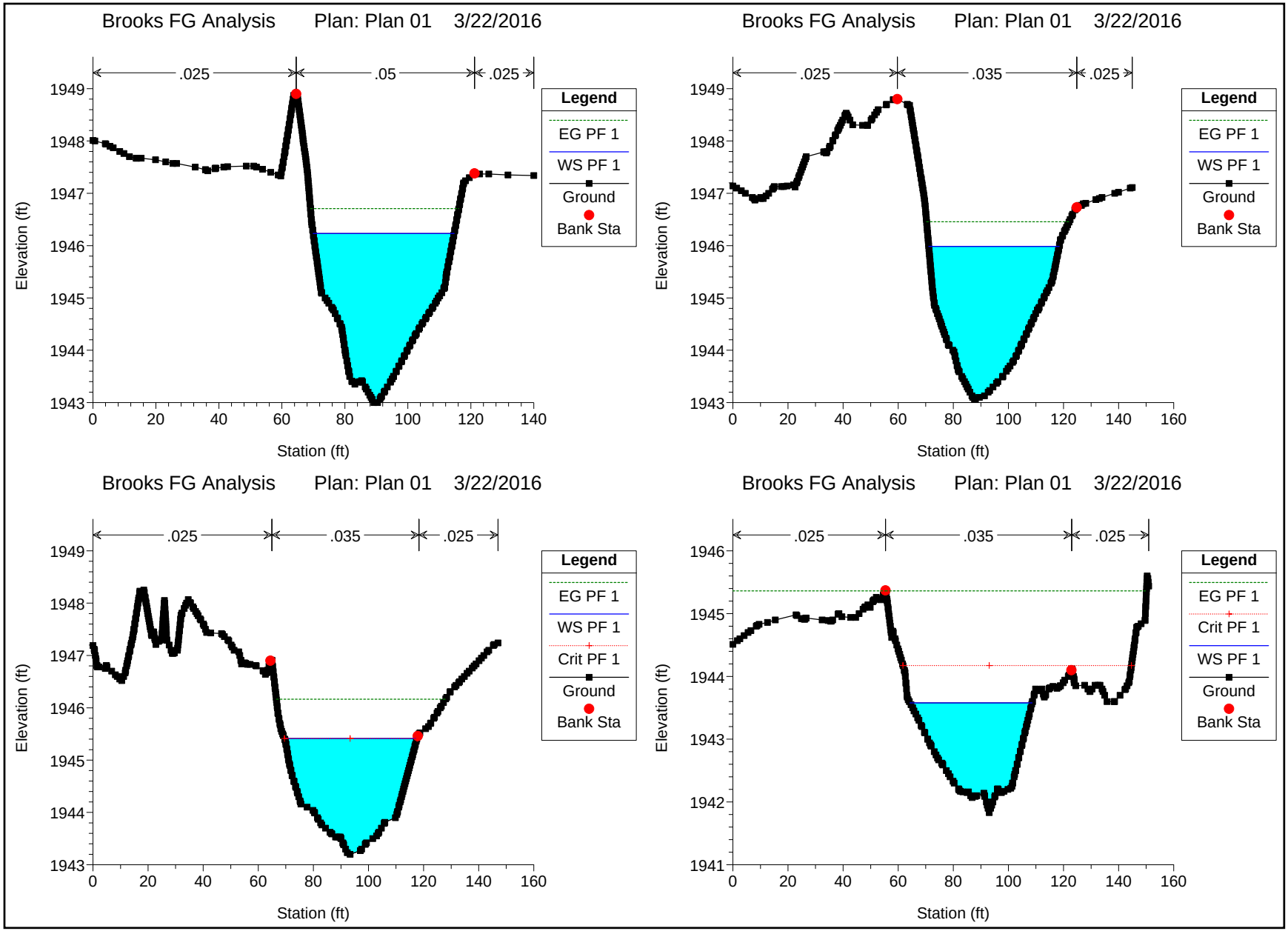
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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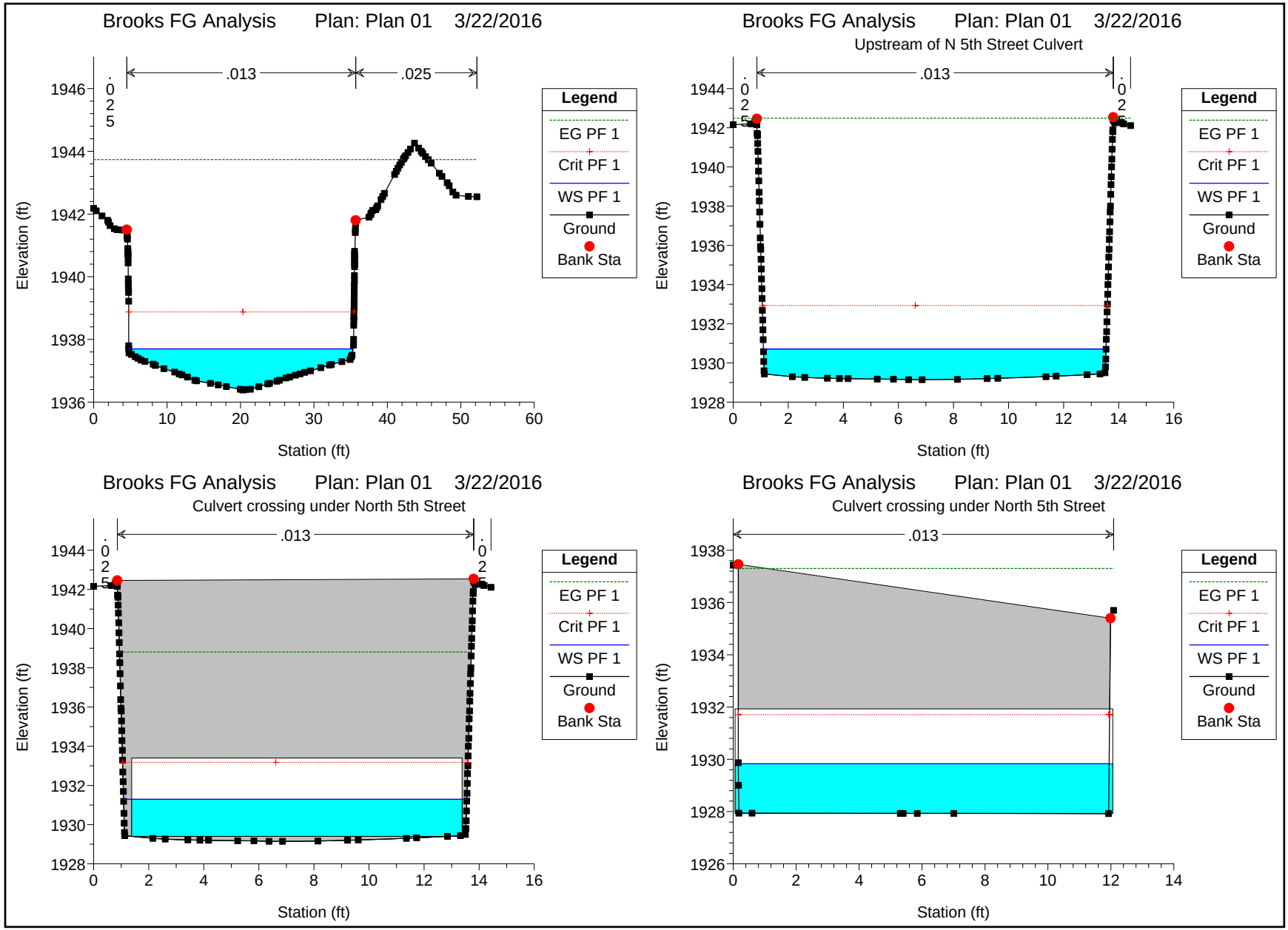
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Upstream of N 5th Street Culvert
.025
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Culvert crossing under North 5th Street
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.013
.025
Elevation (ft)
Station (ft)
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WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Culvert crossing under North 5th Street
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Station (ft)
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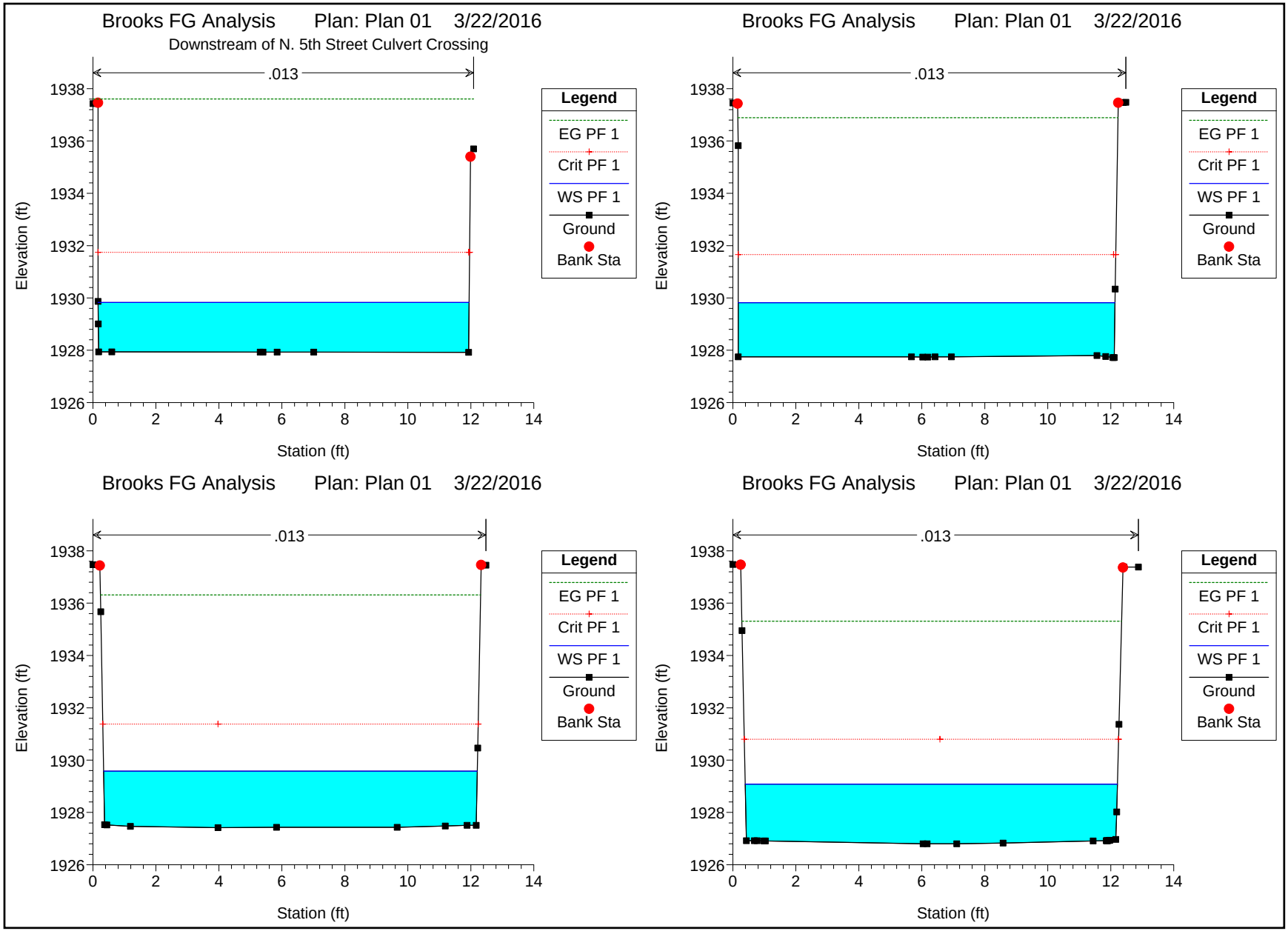
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Downstream of N. 5th Street Culvert Crossing
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WS PF 1
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
Legend
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Crit PF 1
WS PF 1
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Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
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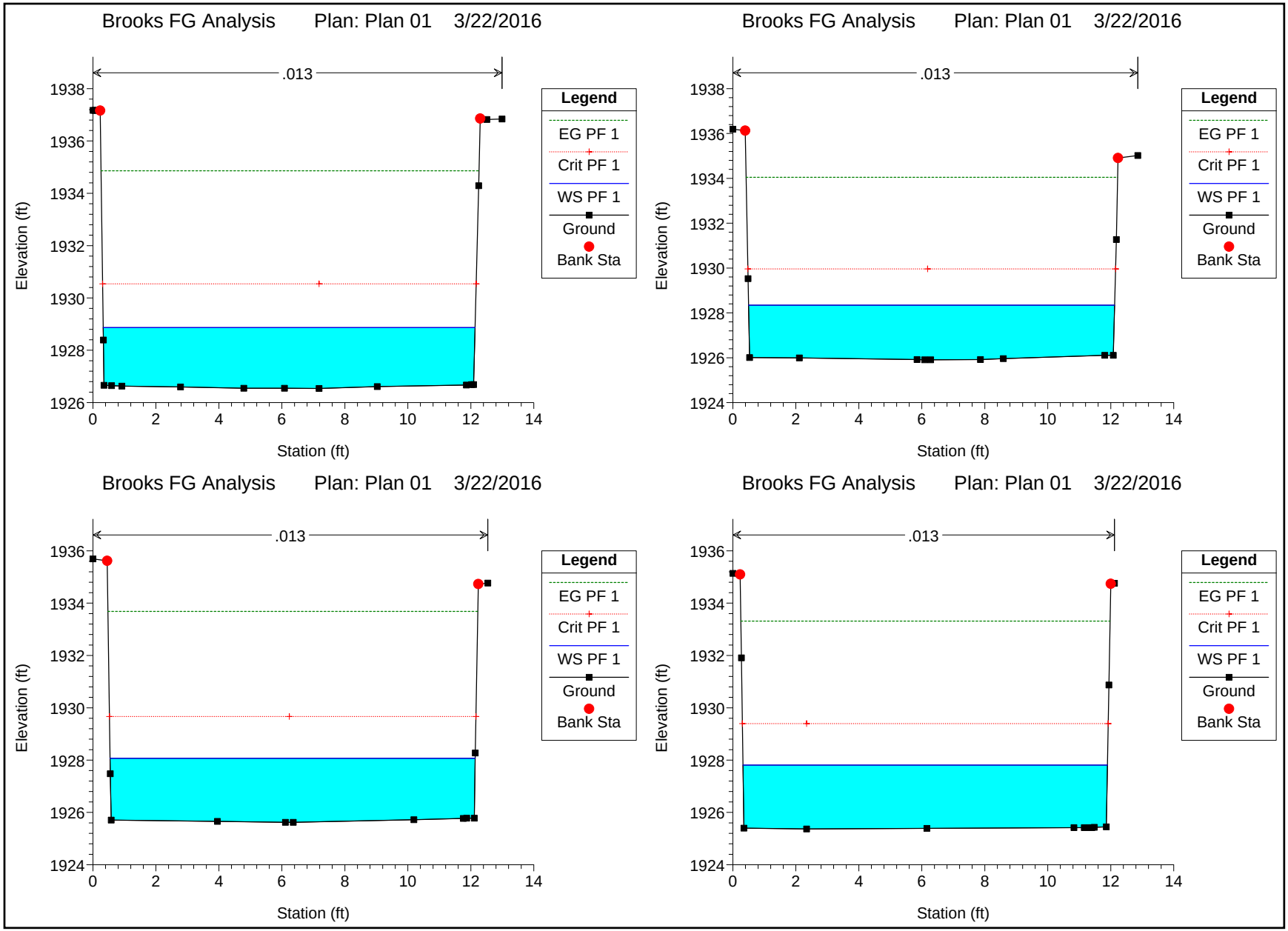
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Elevation (ft)
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EG PF 1
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
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EG PF 1
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Elevation (ft)
Station (ft)
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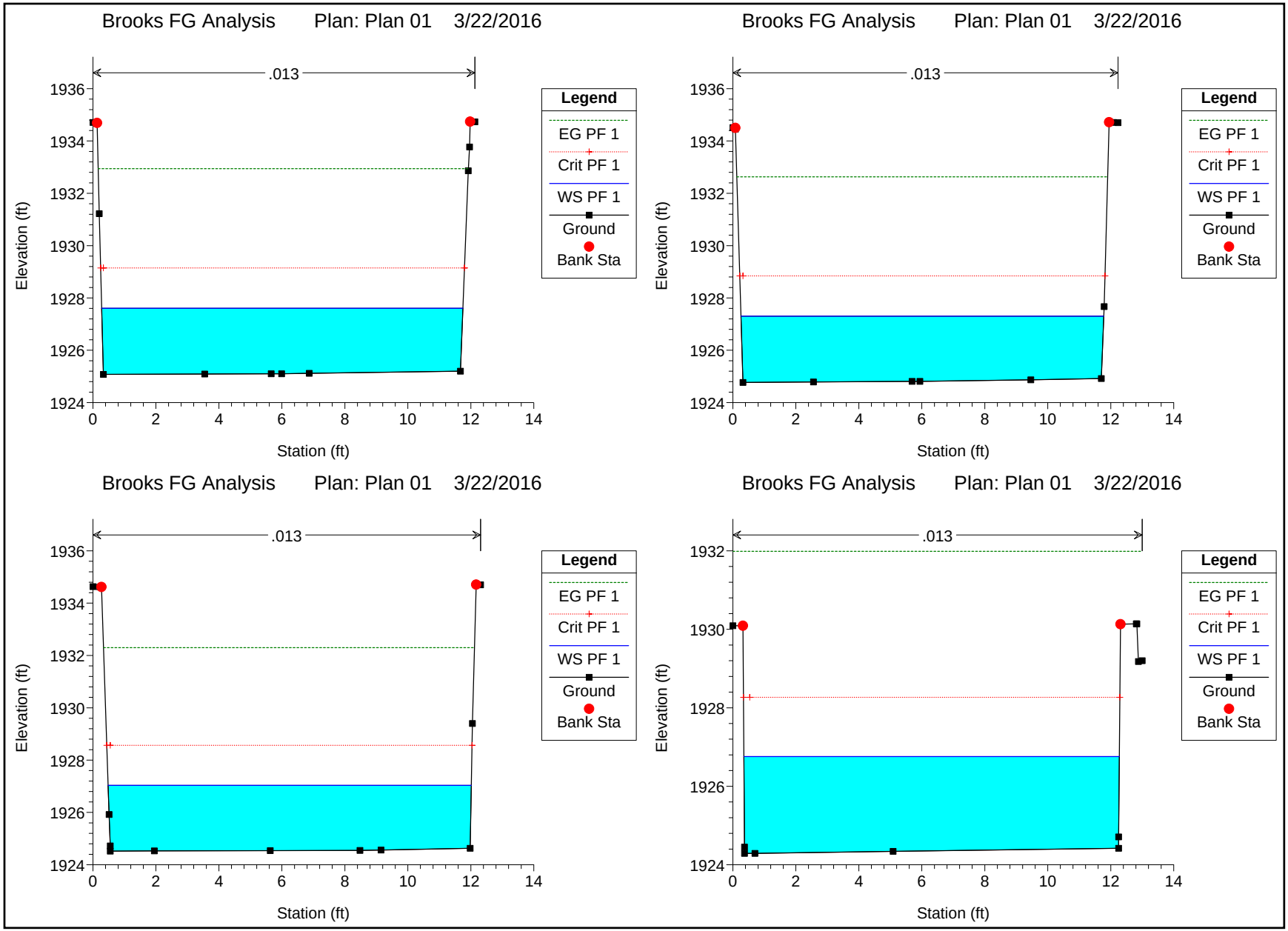
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Elevation (ft)
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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EG PF 1
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WS PF 1
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Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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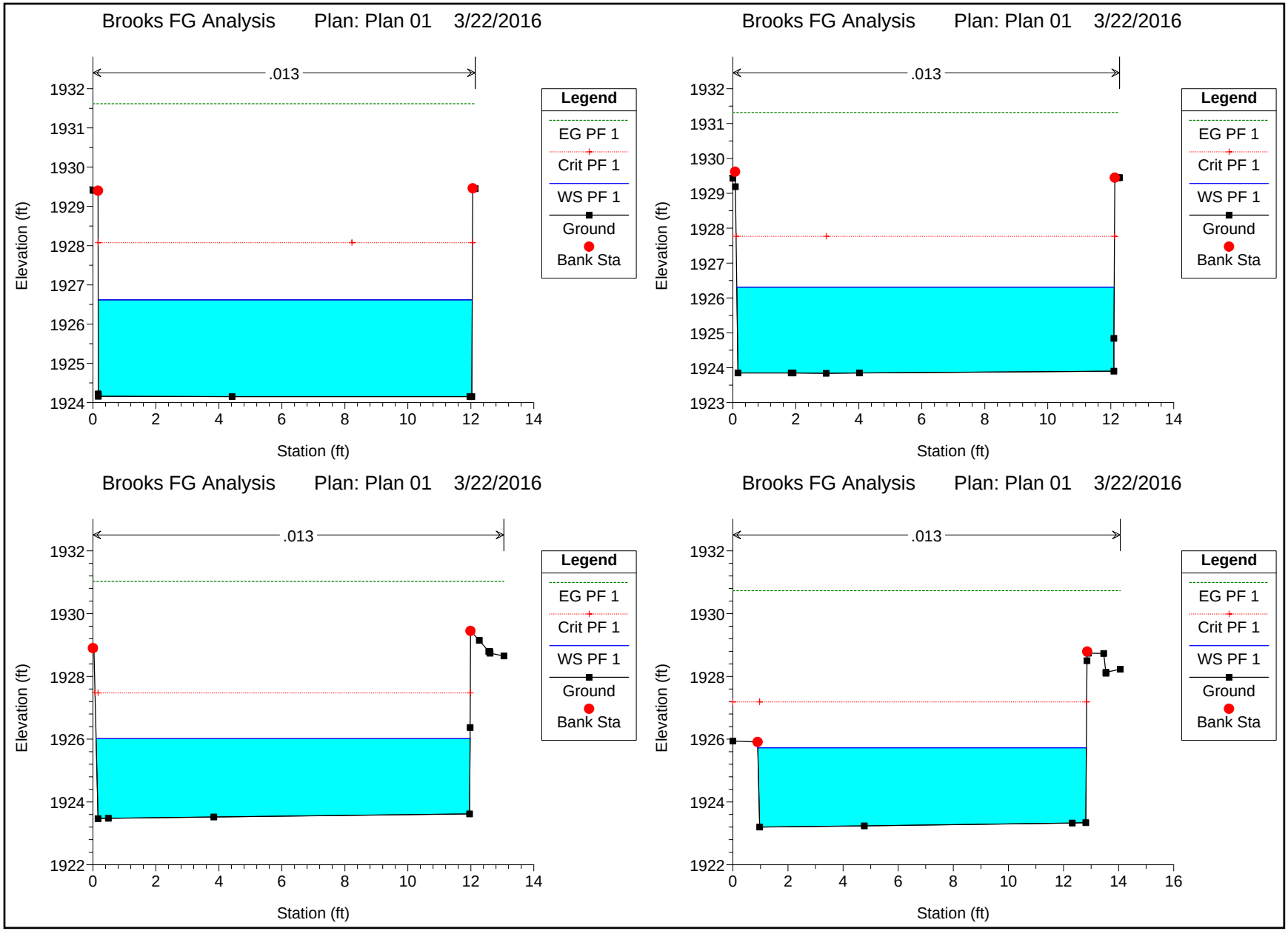
Bank Sta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WS PF 1
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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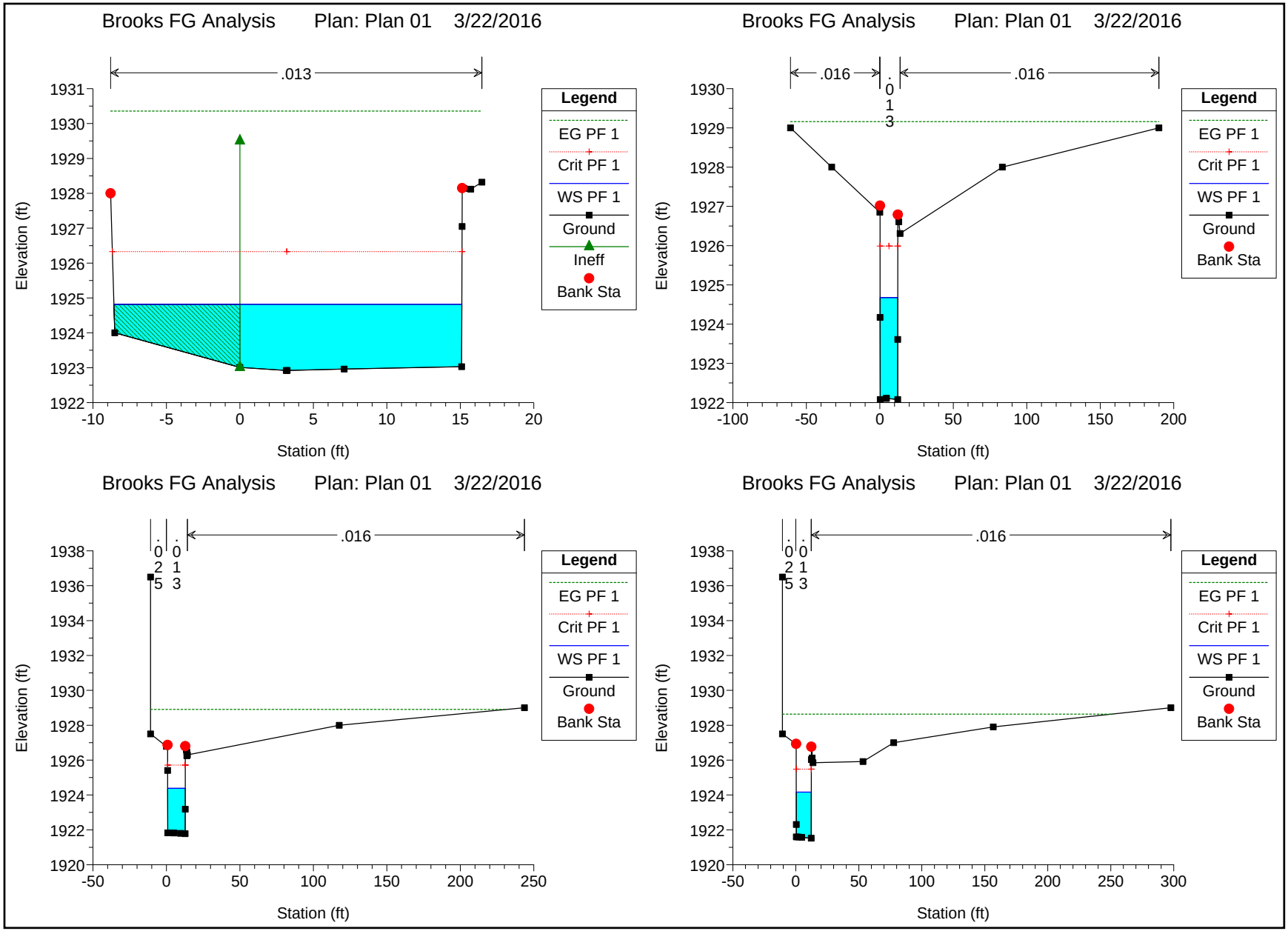
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
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Brooks FG Analysis Plan: Plan 01 3/22/2016
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Station (ft)
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WS PF 1
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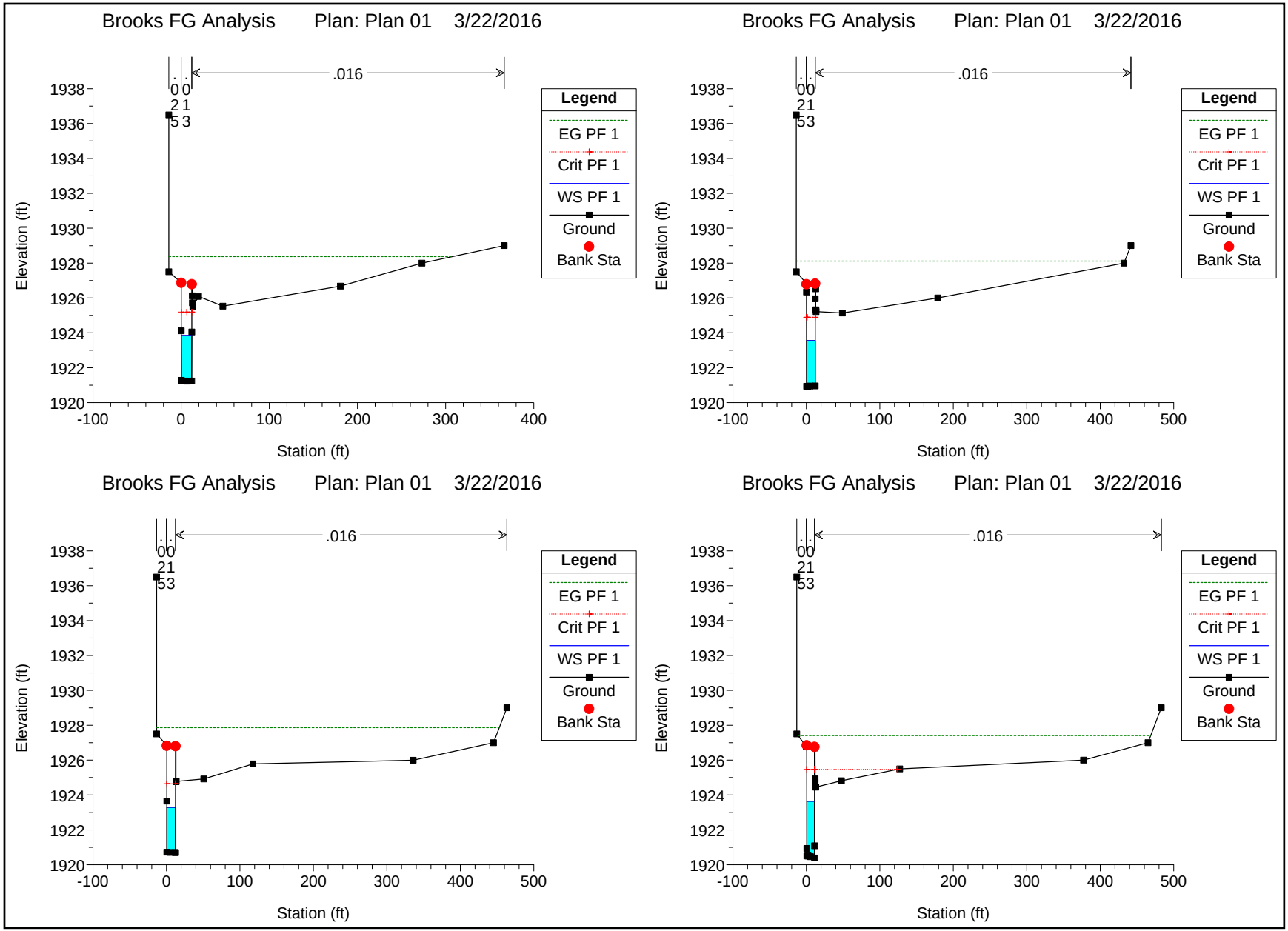
Bank Sta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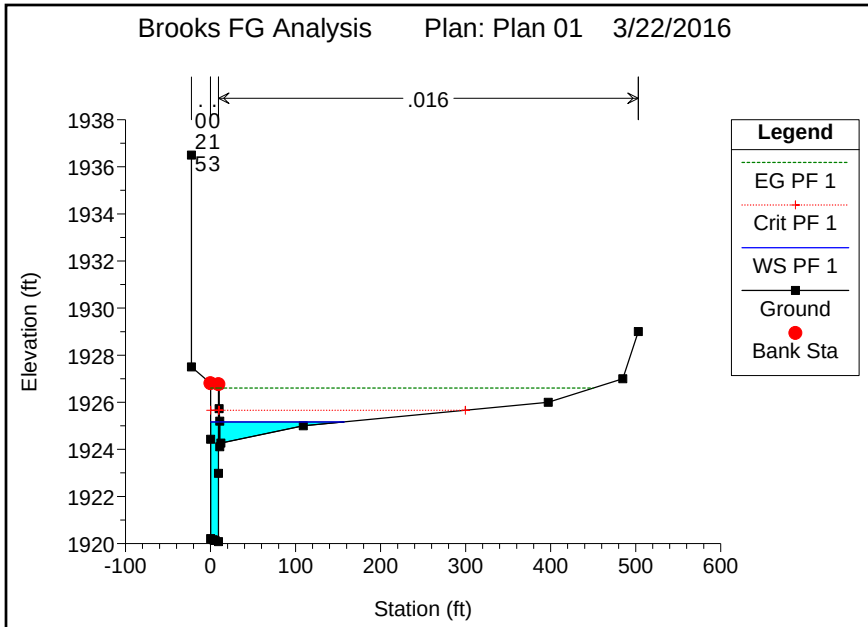
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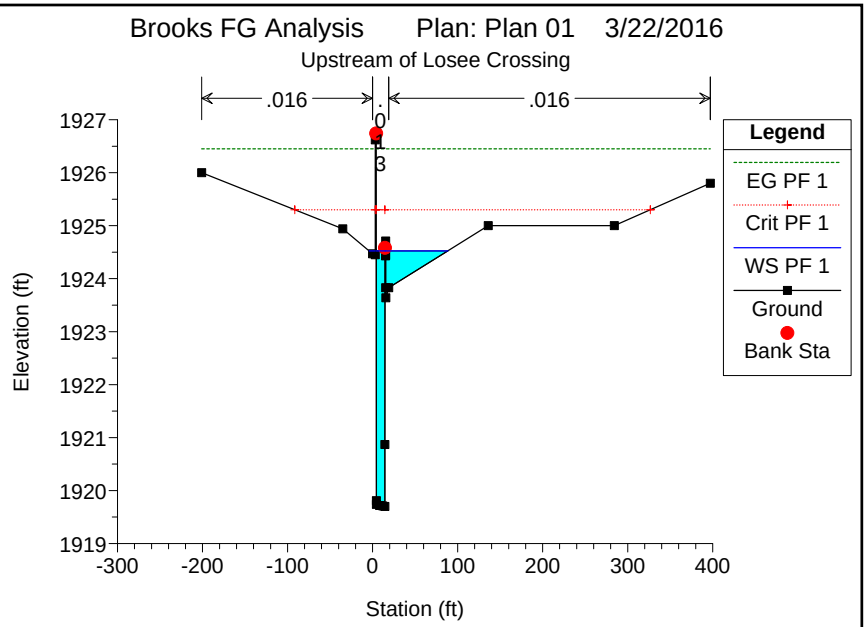
Station (ft)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Upstream of Losee Crossing
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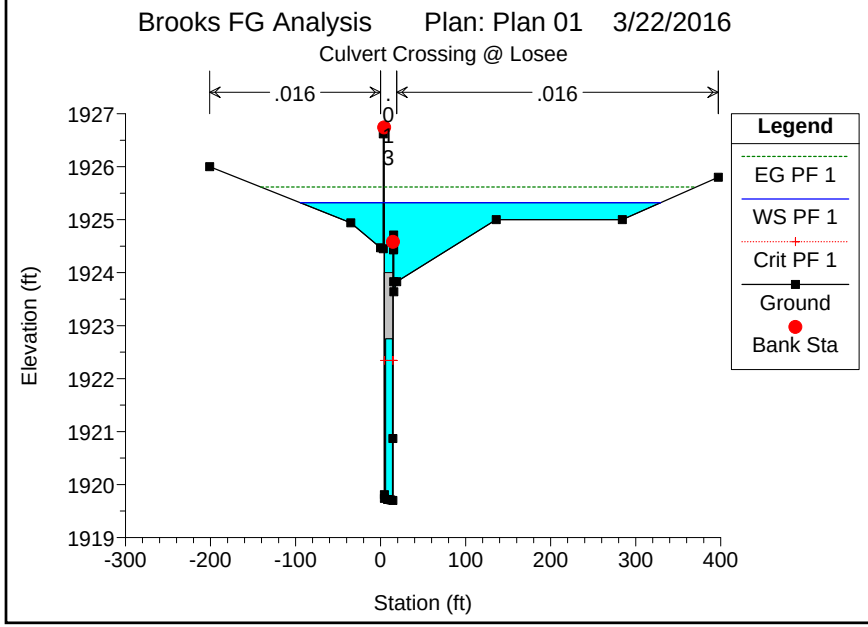
Bank Sta
Elevation (ft)
Station (ft)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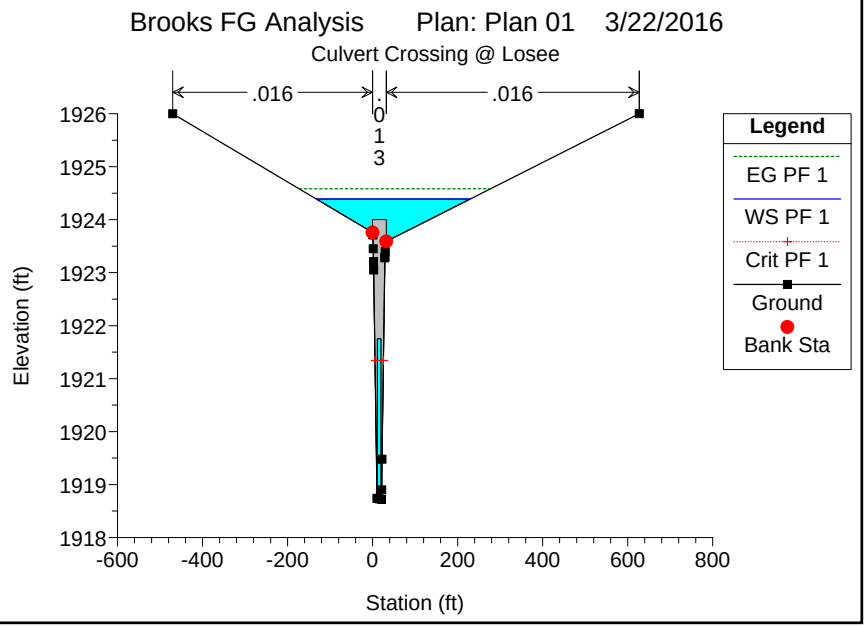
Bank Sta
Elevation (ft)
Station (ft)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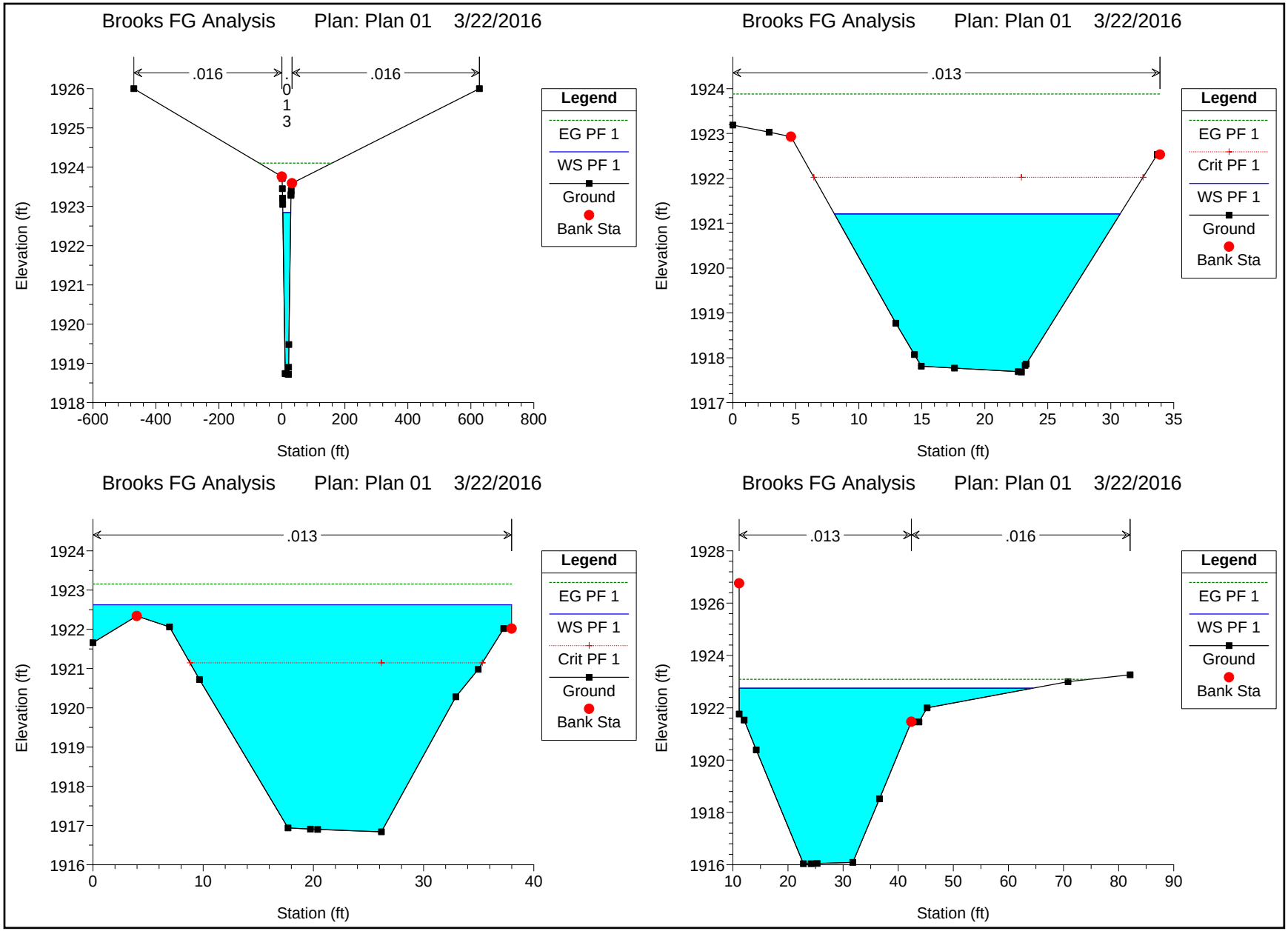
Station (ft)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Brooks FG Analysis Plan: Plan 01 3/22/2016
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Ground
Bank Sta
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Crit PF 1
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Ground
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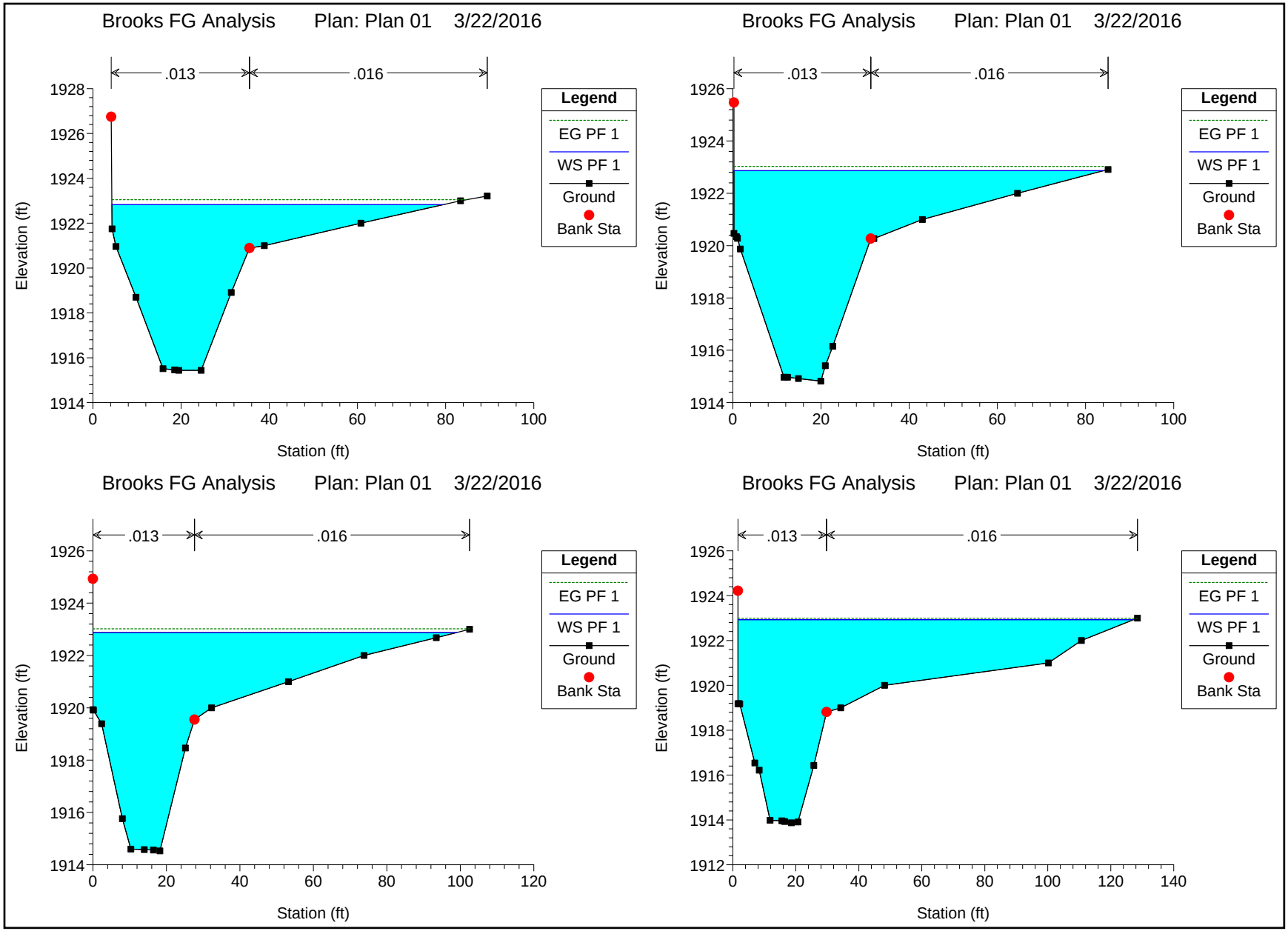
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Elevation (ft)
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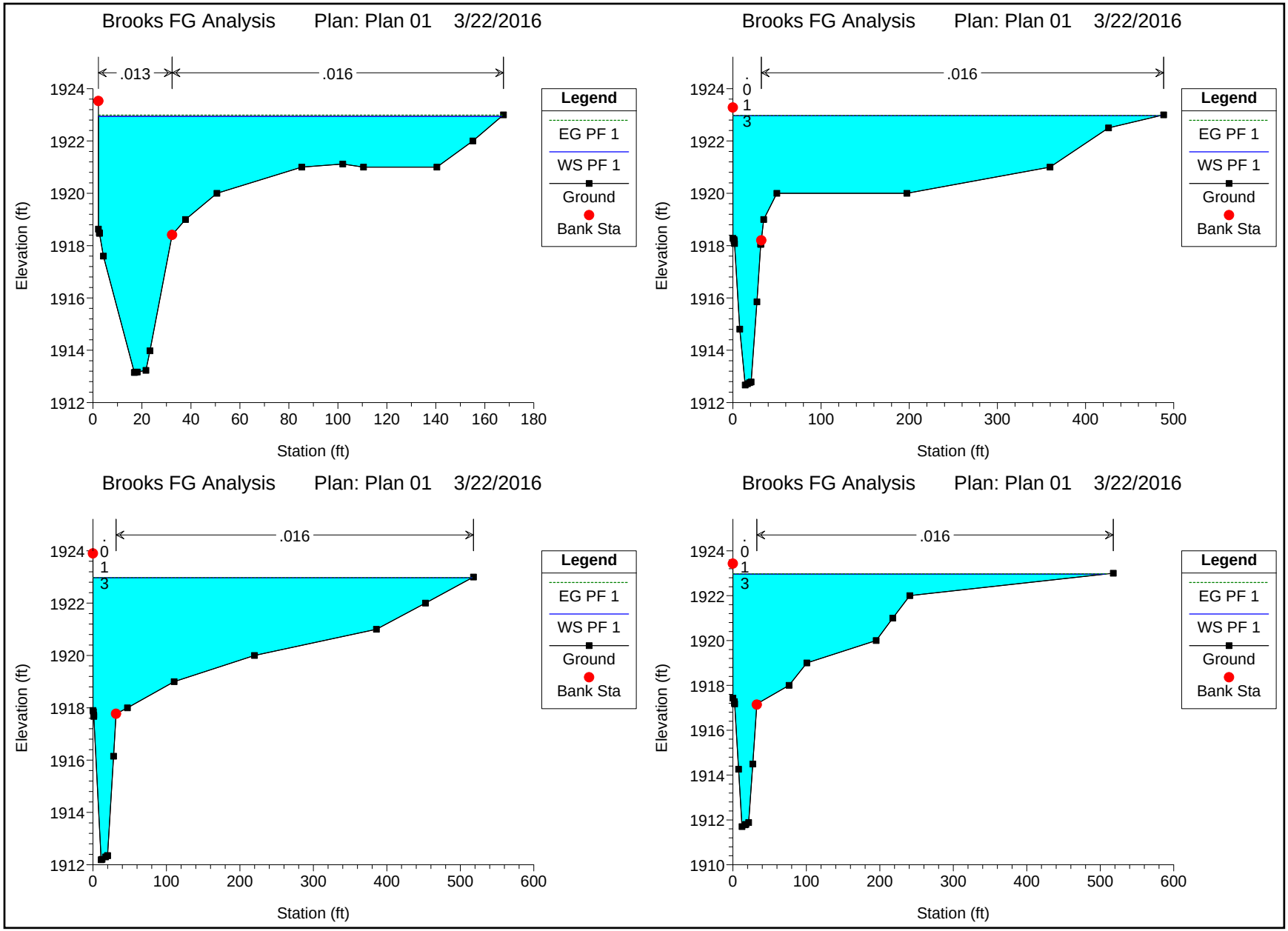
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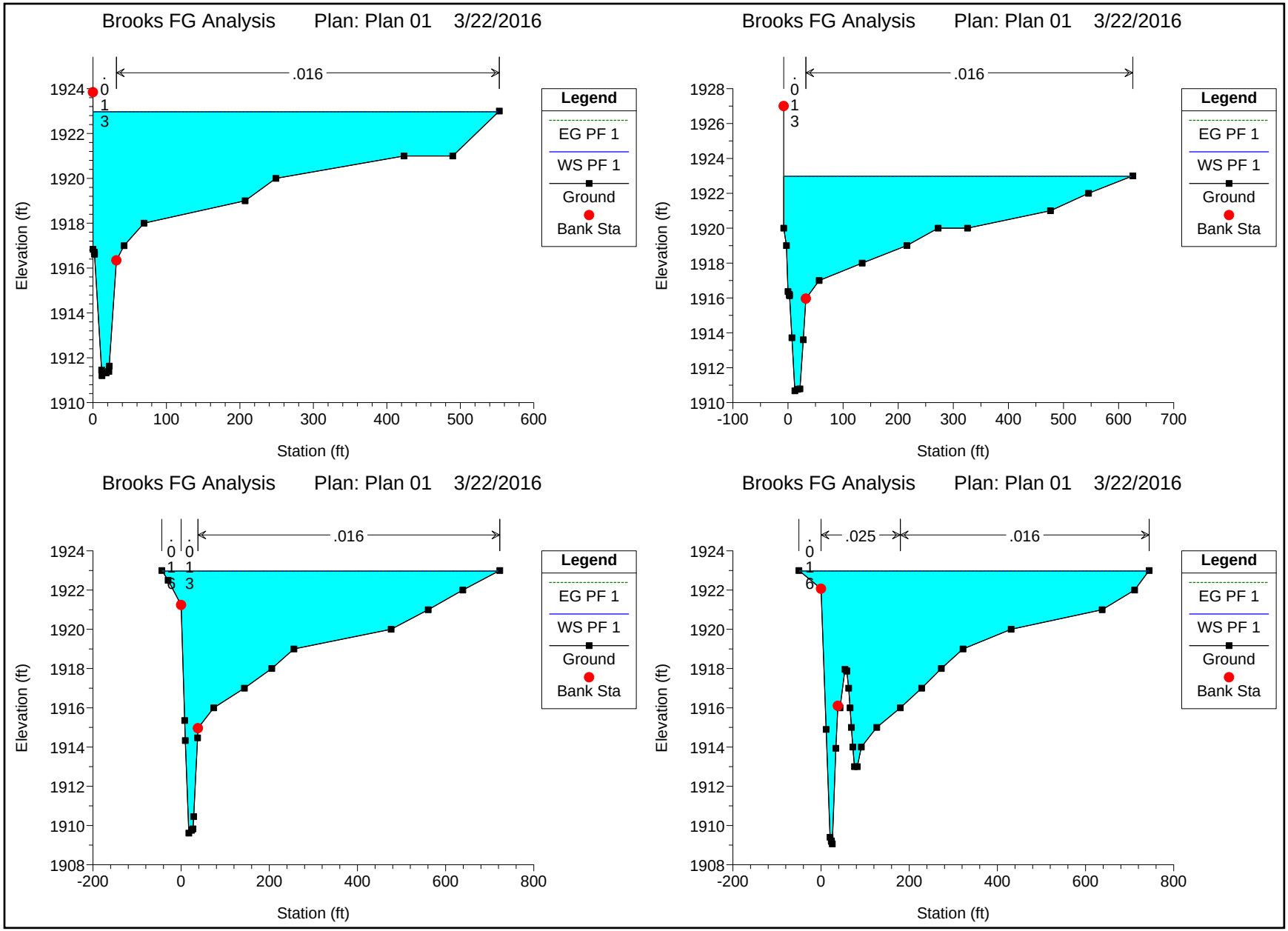
Bank Sta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Elevation (ft)
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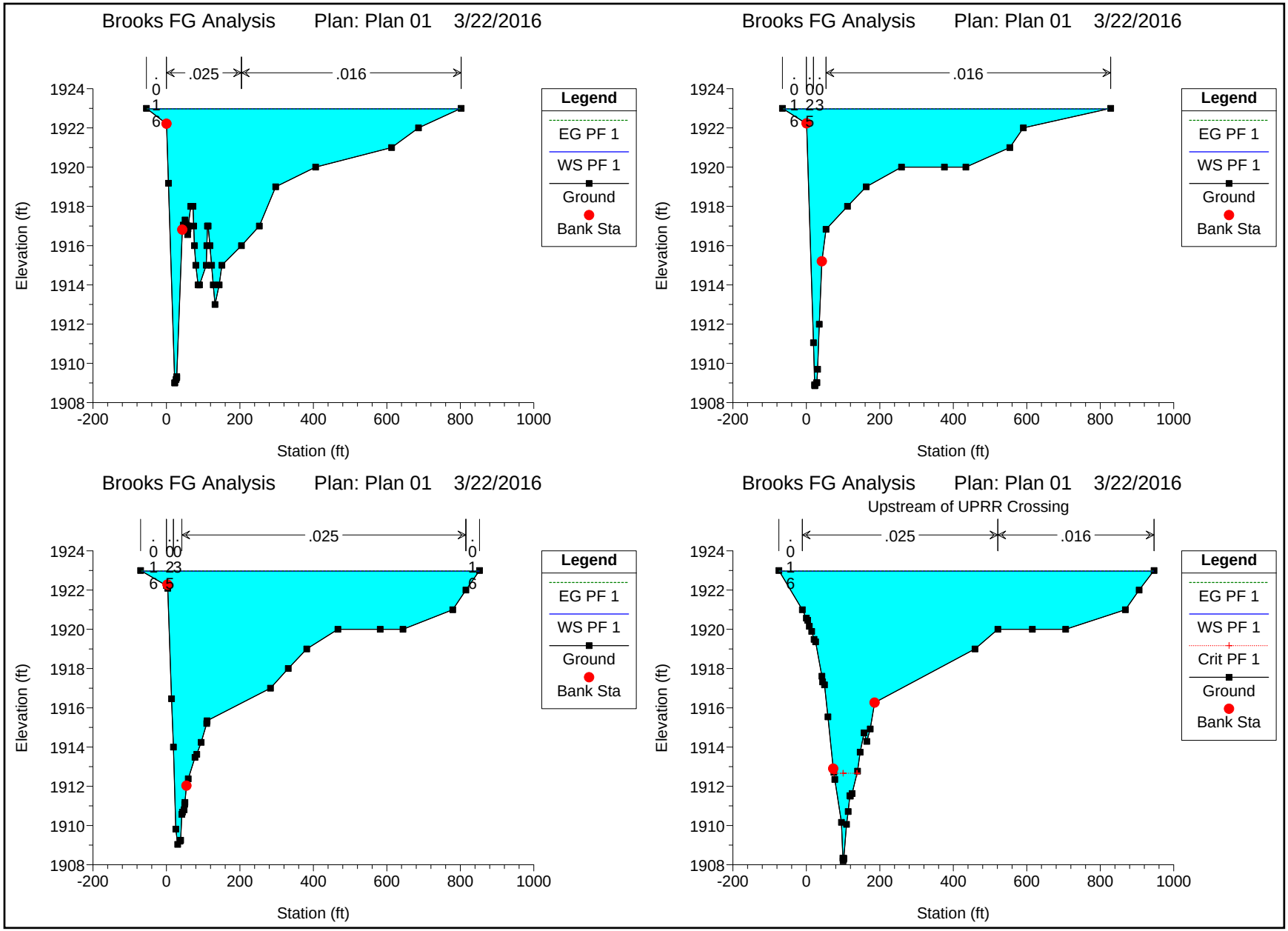
Elevation (ft)
Station (ft)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Station (ft)
Legend
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Bank Sta
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Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
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Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Upstream of UPRR Crossing
.025
.016
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta

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

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PROJECT DATA
Project Title: Brooks FG Analysis
Project File : BrooksFGAnalysis.prj
Run Date and Time: 3/22/2016 11:55:39 AM

Project in English units

PLAN DATA

Plan Title: Plan 01
Plan File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.p01

Geometry Title: EX TOPO
Geometry File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.g01

Flow Title : Flow-Existing Condition
Flow File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.f06

Plan Summary Information:
Number of: Cross Sections = 84 Multiple Openings = 0
Culverts = 2 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

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

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

FLOW DATA

Flow Title: Flow-Existing Condition
Flow File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.f06

Flow Data (cfs)

River	Reach	RS	PF 1
FL-ALIGN	FL-ALIGN	3398.92	495
FL-ALIGN	FL-ALIGN	2998.98	495
FL-ALIGN	FL-ALIGN	2485.61	500
FL-ALIGN	FL-ALIGN	2399.9	525
FL-ALIGN	FL-ALIGN	1701.57	652
FL-ALIGN	FL-ALIGN	1529.8	697
FL-ALIGN	FL-ALIGN	1151.6	798

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
FL-ALIGN	FL-ALIGN	PF 1	Normal S = 0.0285714	Known WS = 1922.97

GEOMETRY DATA

Geometry Title: EX TOPO
Geometry File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.g01

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3398.92

INPUT
Description: Mayflower
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-13.61	1978	0	1976.04	6800003	1976.04	1.09	1976.04	2.230003	1975.86
3.100002	1975.72	26.74	1975.69	27.83	1975.69	49.65	1975.7	51.53	1975.7
53.7	1975.88	56.57	1976.17	56.74	1976.18	60	1976.6		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-13.61	.016	0	.0133.100002		.016	51.53	.013	53.7	.016

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
.6800003	56.74	25.01	25	25.02	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3373.92

INPUT
Description: Mayflower
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3.75	1977	0	1975.32	1.27	1975.331.740002		1975.332.529999		1975.31
2.689999	1975.213.110001		1974.9	3.48	1974.934.509998		1975.01	10.74	1975.05
27.86	1975.04	47.98	1975.04	51	1975.01	51.71	1975.1	52.7	1975.07
53.18	1975.37	54.27	1975.38	57.5	1975.42	108.84	1976		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3.75	.016	0	.0134.509998		.016	47.98	.013	57.5	.016

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
1.27	53.18	25.03	25	25.05	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3348.92

INPUT
Description: Mayflower
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3.39	1976	0	1974.62	1.98	1974.63	2.16	1974.62	5	1974.57
5.22	1974.43	5.53	1974.05	6.06	1974.09	6.97	1974.27	28.63	1974.41
29	1974.41	30	1974.41	30.27	1974.42	32.04	1974.41	53.28	1974.25
53.51	1974.25	54.94	1973.95	54.95	1973.95	55.58	1974.56	58.55	1974.56
58.61	1974.56	60	1974.61	92.11	1975				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3.39	.016	6.97	.016	53.28	.013	53.51	.016

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
2.16	55.58	25.18	25	26.53	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3323.92

INPUT
Description: Mayflower
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-9.32	1975	0	1973.77	.08	1973.77	.21	1973.77	1.68	1973.75
3.92	1973.77	4.23	1973.64	4.61	1973.66	4.65	1973.39	5.04	1973.34
6.05	1973.43	11.79	1973.48	30.82	1973.59	31.35	1973.59	36.15	1973.66
52.56	1973.52	57.03	1973.44	57.97	1973.34	58.71	1973.38	59.23	1973.34
59.52	1973.49	62.73	1973.86	69.49	1974.63	70.03	1974.71	71.96	1974.72
75.67	1974.77								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-9.32	.016	0	.013	6.05	.016	57.03	.013	59.52	.025

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
3.92	59.52	27.48	25	31.71	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3298.92

INPUT
Description: Mayflower
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-43.51	1976.34	-21.78	1975	0	1972.9	3.69	1972.9	4.23	1972.6
4.45	1972.47	4.86	1972.51	5.98	1972.6	7.81	1972.65	8.17	1972.65
29.58	1972.72	45.97	1972.83	48.21	1972.85	50	1972.86	50.77	1972.86
54.36	1972.92	56.32	1972.96	63.24	1973.11	73.93	1973	96.04	1972.6
96.17	1972.62	96.28	1972.93	97.84	1973.06	98.41	1973	100.74	1973.25
101.35	1973.25	102.05	1973.24	104.25	1973.31	113.55	1974.52	114.95	1974.69
117.89	1974.94	118.33	1974.91	118.89	1974.91	121.38	1974.97	121.87	1975.03
121.96	1975.02	141.7	1976.18						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-43.51	.016	0	.013	7.81	.016	96.04	.013	98.41	.025

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
0	101.35	28.27	25.32	26.5	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3273.6

```
INPUT
Description: Mayflower
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -44.56 1977.37  -12.17    1975       0 1973.22      .6 1973.25     .63 1973.14
     3.6 1972.89    6.93 1973.05    8.18 1972.71    8.92 1972.68   10.75 1972.66
   13.09 1972.64   20.05 1972.31   20.45 1972.31    20.8 1972.27   24.44 1972.05
   25.07 1972.05   25.17 1972.05   28.27  1972.1   78.62 1972.11   79.94 1972.11
   80.69 1972.11   80.95 1972.11   81.04 1972.12  132.93 1972.02  133.93 1971.96
  134.46 1971.94  138.17 1972.07  138.51 1972.08  139.43 1972.19  140.93 1972.16
  145.61 1972.56  160.51  1973.8  162.19    1974  162.74 1973.96   182.4    1975
  185.83 1976.33  185.83    1985

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  -44.56    .016    20.8    .013   28.27    .016  132.93    .013  139.43    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          6.93  162.19               26   24.68   24.56             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3248.92

INPUT
Description: Mayflower
Station Elevation Data    num=      33
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -49.64 1976.49  -32.94    1975  -11.98    1974       0 1972.67    8.33 1972.46
   11.62  1972.3   12.89 1972.23   19.64 1971.84    20.2 1971.84   20.64 1971.79
   24.08 1971.62   24.75 1971.63   28.19 1971.69   30.58 1971.69   51.74 1971.63
   60.02 1971.67   71.31 1971.62   75.05 1971.63   86.38 1971.67    86.4 1971.73
  108.46 1971.62  123.04 1971.65  123.63 1971.63  124.58 1971.58  128.02 1971.68
  129.24 1971.82  131.45 1971.79  134.32 1972.09  146.48  1973.4  156.98  1974.6
  157.29 1974.58 182.273 1976.33 182.273    1985

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  -49.64    .016    20.2    .013   28.19    .016  123.04    .013  131.45    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          8.33  156.98              25.13      25   30.09             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3223.92

INPUT
Description: Mayflower
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -63.12 1976.36  -42.58    1975    -7.6    1974       0 1972.89    2.64 1972.88
    4.98 1972.95   10.16 1973.08   12.81 1973.15   31.99 1973.41    36.1  1972.3
    36.7 1972.67    36.9 1972.97   45.08 1971.63   45.22  1971.6   45.45 1971.54
    45.8 1971.61   47.03 1971.58    47.6 1971.57   48.33 1971.08   48.58 1970.95
   50.18 1971.11   50.69 1971.18   50.79 1971.19   53.03 1971.18   55.74 1971.16
   57.61 1971.15   66.19 1971.11   69.97 1971.12   73.49 1971.11   74.86 1971.08
   76.21 1971.05   79.38 1971.09   81.57 1971.08   83.76  1971.1   86.76 1971.14
   89.06 1971.15   97.88 1971.15   99.96 1971.15   100.6 1971.12  102.25 1971.36
  102.86 1971.37  103.33 1971.39  103.65 1971.52   105.8 1971.58  107.13 1971.59
  108.67 1971.67  111.91 1972.06  117.59 1972.71  125.27 1973.58  125.78 1973.21
   125.9 1973.11  127.02 1973.19  127.28 1973.21  132.07 1973.38  153.91 1975.19
  181.23 1975.85

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  -63.12    .016       0    .025    45.8    .013   50.69    .016   99.96    .013
  103.65    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         31.99  125.27              14.07    13.7   14.32             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3210.22

INPUT
Description: Begin Overflow
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -87.76  1976.4  -64.08    1975   -9.73    1974       0 1973.31   13.09 1973.24
   13.44 1973.24   13.87 1973.24   14.66 1973.25   46.96 1973.66   50.19 1973.71
   50.26 1973.78   58.98 1973.84   67.54 1973.09   68.72 1972.76   69.12 1973.11
   73.29 1973.09    79.8 1971.92   82.62 1971.99   84.08 1972.04   87.65 1971.97
   92.06  1972.9   93.25 1972.93   97.84 1973.01  102.24  1973.1  105.43 1973.18
  106.03 1973.26  122.03 1973.82  126.66 1974.27  129.48 1974.59  132.16 1974.89
  133.82 1975.08  133.86 1975.05  134.44 1974.54  134.54 1974.55  135.74 1974.63
   158.3 1975.44  161.05 1975.66

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  -87.76    .016       0    .025   58.98    .035  122.03    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         58.98  133.82              11.65    11.3   11.82             .1       .3

CROSS SECTION
```

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3198.92

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-74.88	1975.96	0	1973.63	8.1	1973.59	15.04	1973.48	16.77	1973.46
27.28	1973.46	49.92	1973.76	59.33	1973.89	59.55	1974.11	72.15	1974.19
72.7	1974.62	72.83	1974.39	75.57	1974.41	81.28	1973.59	85.77	1972.75
86.82	1972.55	88.33	1972.92	97.51	1974.8	105.11	1974.31	107.86	1974.27
108.07	1974.23	109.94	1973.02	115.03	1973.34	135.02	1974.89	136.19	1974.92
139.25	1975.01	159.54	1975.74	166.95	1976.02	167.79	1975.56	168.97	1975.49

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-74.88	.016	0	.025	72.7	.035	135.02	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
72.7	136.19	25.32	25	25.98	.1	.3

Left Levee Station= 72.7 Elevation= 1974.62

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3173.92

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-47.55	1975.61	0	1974.32	18.53	1974.04	18.78	1974.03	23.09	1973.96
55.89	1973.97	56.9	1973.97	78.31	1974.27	78.35	1974.3	78.81	1974.741
78.83	1974.77	79.12	1974.84	81.36	1974.57	84.72	1974.33	91.84	1972.15
92.88	1971.82	93.69	1971.56	93.93	1971.61	94.36	1971.63	105.51	1974.16
105.77	1974.16	115.22	1974.04	116.21	1973.84	117.23	1973.17	143.08	1974.79
144.14	1974.8	148.6	1974.85	168.7	1975.79	175	1976.03	175.03	1976.01
178.17	1975.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-47.55	.016	79.12	.035	115.22	.016

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
78.8	144.14	25.43	25	25.55	.1	.3

Left Levee Station= 79.12 Elevation= 1974.84

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3148.92

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1974.8	1	1974.8	11.31	1974.63	19.98	1974.63	20.37	1974.63
74.31	1974.41	80.46	1974.5	80.91	1974.83	81.07	1974.98	84.32	1975.76
85.50999	1975.61	92.57	1972.39	95.39	1971.4996.03999		1971.62	102.06	1972.88
113.67	1973.42	115.4	1973.81	116.97	1973.83	118.45	1973.81	120.21	1973.45
120.4	1973.33	125.04	1973.62	140.82	1973.78	173.95	1974.12	175.59	1974.2
195.09	1974.5	299.74	1975.69						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	84.32	.035	116.97	.016

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
84.32	116.97	55.38	49.97	47.04	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3098.95

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1972.599.200012		1972.0524.82001		197226.23001		197246.29001		1971.56
71.74001	1971.1	88.52	1970.6891.68001		1969.2896.85001		1967.2498.57001		1966.82
102.82	1965.79	102.9	1965.77	105.28	1966.55	112.02	1967.63	114.36	1968.72
141.22	1970.75	146.9	1971.45	149.45	1971.77	151.4	1971.74	178.18	1971.45
182.49	1971.17								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	88.52	.035	149.45	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
88.52	149.45	20.29	24.98	28.02	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3073.97

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1969.874.190002		1969.73	18.92	1969.6243.78999		1969.44	71.29	1968.95

```
   78.58 1968.73    82.8  1966.8   91.51 1962.61   94.99 1961.52   97.89  1960.8
   98.59 1960.62  102.94 1962.53  107.22  1963.9   113.1 1966.58  116.65 1967.72
  127.92 1970.03  145.05 1972.17  145.14 1972.18  153.13 1972.04  156.84    1972
  169.54 1971.17  176.89 1970.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   78.58    .035  127.92    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.58  145.05               25   25.01   25.07             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3048.96

INPUT
Description: Begin heavy vegetation
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1967.762.729996 1968.13   16.75 1967.3828.71001 1966.73   35.86  1966.4
   49.83 1964.24   74.92 1961.29    86.3 1958.32   91.55 1957.14   96.16 1955.97
   96.77 1956.15  103.04 1958.04  106.99  1959.2     115 1960.65  118.41 1961.73
  127.38 1963.57  140.65 1965.28  143.06 1965.37  163.14 1966.16  172.93 1965.32
  174.47 1965.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   35.86     .05  140.65    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.86  143.06              28.34   24.98   23.09             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3023.98

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1963.99   15.92 1963.02   19.13 1962.82   37.04 1961.83   60.94 1956.52
   69.89 1954.62   73.99 1954.44   96.24 1953.14    96.3 1953.15  102.18 1954.21
  105.46 1954.55  121.15 1957.28  128.42 1959.27  141.65 1959.16  152.84 1959.06
  171.55 1958.22  176.84 1957.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   37.04     .05  128.42    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         37.04  128.42              21.46      25   27.03             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2998.98

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1961.01     .14    1961   11.93 1960.46   18.09 1960.04   39.61  1958.6
   59.87 1954.38    62.4 1953.83   81.23 1952.93   99.17 1951.84    99.2 1951.85
  112.96 1954.31  120.74  1955.1  139.95 1958.38  145.06 1957.96  149.42  1957.6
  174.19 1956.39  177.33 1956.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   39.61     .05  145.06    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.61  139.95              28.33   24.99   23.13             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2973.99

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1956.9518.21001 1956.55   23.47 1956.43   36.89  1955.945.45001 1955.11
   69.63 1952.59    72.7 1951.9887.14001 1951.32  100.48 1950.54  100.48 1950.55
  121.76 1954.39  133.54 1955.61  143.25 1957.29  146.88    1957  166.34 1955.43
  175.07 1955.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   36.89     .05  143.25    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         36.89  143.25               23.9      25   25.86             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2948.99
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```
INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1957.015.490005 1956.0619.01001 1955.99   26.09 1955.72   39.85 1955.19
   75.44 1951.84   79.95 1951.4580.81001 1951.28   86.18 1950.23   95.88 1949.78
  104.76 1949.25  104.78 1949.25   133.9 1954.49  149.52 1956.09  150.21 1956.03
  180.31 1953.51  181.19 1953.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   39.85     .05  150.21    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.85  150.21            26.22      25   25.08             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2923.99

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1955.44    6.48 1954.33   34.13 1954.18   43.59 1954.1343.71999 1954.12
   43.95  1954.1   48.28 1953.7380.23999 1950.9986.14999 1950.4986.74999 1950.39
93.93999 1948.9696.59999 1948.43  101.42 1948.21  105.79 1947.95  105.84 1947.95
  142.63 1954.58   146.2 1954.94  148.14 1954.78  153.26 1954.35  180.31 1953.25
  181.54 1953.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   43.59     .05   146.2    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         43.59   146.2            15.83   25.02   30.98             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2898.97

INPUT
Description:
Station Elevation Data    num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1954.28     2.7  1954.1    5.61 1953.58    9.42 1953.52   12.66 1953.45
   37.32 1952.49   46.03 1952.16   86.81 1949.02   92.01 1948.93   93.25 1948.74
   93.29 1948.7593.32001 1948.75   93.36 1948.76  104.78 1946.86  105.88 1946.68
  105.89 1946.68   105.9 1946.68  105.91 1946.68  105.92 1946.69  105.93 1946.69
  105.94 1946.69  105.96 1946.67  106.77  1946.9  132.79 1953.53  141.66 1953.48
  169.11 1953.33  173.73 1953.14   181.2  1953.3  185.66 1953.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   37.32     .05  132.79     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         37.32  132.79            17.15   24.93   30.48             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2874.04

INPUT
Description:
Station Elevation Data    num=     274
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1952.95.1199951 1952.95.6300049 1952.941.179993 1952.921.779999 1952.91
2.429993  1952.93.139999 1952.883.910004 1952.874.759995 1952.855.699997 1952.83
6.740005 1952.81   37.08 1950.6843.53999 1950.2344.24001 1950.2345.03999 1950.23
   45.94 1950.23   46.98 1950.24   48.17 1950.24   49.56 1950.24   53.31 1950.12
   53.65  1950.1      54 1950.07   54.38 1950.05   54.78 1950.02    55.2    1950
   55.64 1949.97   56.11 1949.93   56.61  1949.9   57.14 1949.87   57.71 1949.83
   84.12 1949.48   84.43  1949.4   84.75 1949.32   85.07 1949.24   85.39 1949.16
   85.73 1949.07   86.06 1948.99   86.41  1948.9   86.76 1948.81   87.11 1948.72
   87.48 1948.62   87.84 1948.53   88.22 1948.43    88.6 1948.34   88.99 1948.24
   89.39 1948.14   89.79 1948.03    90.2 1947.93   90.61 1947.82   90.92 1947.72
   91.24 1947.62   91.56 1947.51   91.88 1947.41    92.2 1947.31   92.52  1947.2
   92.71 1947.14   92.84  1947.1   92.85  1947.1   93.16    1947   93.17    1947
   93.48  1946.9   93.49  1946.9   93.79 1946.81   93.81  1946.8   94.11 1946.71
   94.13  1946.7   94.43 1946.61   94.46  1946.6   94.75 1946.51   94.78  1946.5
   95.08 1946.41    95.1  1946.4    95.2 1946.37   95.36  1946.4   95.38  1946.4
   95.84  1946.5   95.87 1946.51   96.32  1946.6   96.78 1946.69   96.81  1946.7
   97.26  1946.8   97.29  1946.8   97.75  1946.9   97.77  1946.9   98.23    1947
   98.25    1947   98.71  1947.1   98.73  1947.1    99.2  1947.2   99.21  1947.2
   99.68  1947.3    99.7  1947.3   99.95 1947.35  100.16  1947.4  100.18  1947.4
  100.65  1947.5  100.66  1947.5  101.13  1947.6  101.14  1947.6  101.62  1947.7
   102.1  1947.8  102.11  1947.8  102.58  1947.9  102.59  1947.9  103.07    1948
  103.55  1948.1   103.8 1948.15  104.04  1948.2  104.53  1948.3  104.54  1948.3
  105.02  1948.4  105.03  1948.4  105.51  1948.5  105.53  1948.5     106  1948.6
  106.03 1948.61  106.49  1948.7  106.52 1948.71  106.98  1948.8  107.01 1948.81
  107.47  1948.9  107.51 1948.91  107.96    1949     108 1949.01  108.45  1949.1
  108.49 1949.11  108.94  1949.2  108.99 1949.21  109.42  1949.3  109.48 1949.31
  109.91  1949.4  109.97 1949.41   110.4  1949.5  110.47 1949.51  110.89  1949.6
  110.96 1949.61  111.38  1949.7  111.45 1949.71  111.87  1949.8  111.94 1949.81
  112.36  1949.9  112.43 1949.91  112.85    1950  112.93 1950.01  113.34  1950.1
  113.42 1950.12  113.83  1950.2  113.91 1950.22  114.32  1950.3   114.4 1950.32
  114.81  1950.4  114.89 1950.42   115.3  1950.5  115.38 1950.52  115.79  1950.6
  115.87 1950.62  116.28  1950.7  116.36 1950.72  116.77  1950.8  116.86 1950.82
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117.26	1950.9	117.35	1950.92	117.75	1951	117.84	1951.02	118.24	1951.1
118.33	1951.12	118.73	1951.2	118.82	1951.22	119.22	1951.3	119.31	1951.32
119.71	1951.4	119.8	1951.42	120.2	1951.5	120.29	1951.52	120.69	1951.6
120.78	1951.62	121.18	1951.7	121.65	1951.8	121.66	1951.8	121.87	1951.9
121.96	1951.94	122.08	1952	122.21	1952.06	122.3	1952.1	122.44	1952.17
122.51	1952.2	122.67	1952.27	122.72	1952.3	122.89	1952.38	122.93	1952.4
122.97	1952.42	123.14	1952.5	123.19	1952.52	123.35	1952.6	123.41	1952.63
123.57	1952.7	123.63	1952.73	123.78	1952.8	123.87	1952.84	123.99	1952.9
124.12	1952.96	124.2	1953	124.4	1953.09	124.79	1953.09	127.52	1953.05
128.06	1953.09	128.18	1953.1	129.19	1953.18	129.5	1953.2	130.37	1953.27
130.82	1953.3	131.61	1953.36	132.14	1953.4	133.07	1953.47	133.46	1953.5
134.59	1953.59	134.78	1953.6	135.55	1953.66	136.09	1953.68	136.72	1953.7
137.76	1953.74	138.93	1953.78	139.43	1953.8	140.96	1953.88	141.09	1953.9
141.14	1953.91	141.64	1954	142.03	1954.07	142.95	1954.04	144.07	1954
145.49	1953.95	146.39	1953.94	146.51	1953.94	148.45	1954	150.29	1954.06
151.72	1954.1	153.24	1954.15	154.99	1954.2	155.62	1954.22	155.94	1954.23
156.12	1954.24	156.57	1954.28	157.05	1954.3	158.1	1954.34	159.48	1954.4
160.12	1954.43	160.54	1954.44	160.99	1954.5	161.73	1954.59	161.8	1954.6
162.11	1954.6	162.61	1954.6	162.85	1954.57	163.31	1954.6	163.47	1954.61
165.5	1954.7	166.59	1954.75	167.68	1954.8	169.41	1954.88	169.87	1954.9
171.09	1954.96	171.29	1954.9	171.31	1954.89	171.63	1954.8	171.7	1954.78
171.98	1954.7	172.26	1954.62	172.33	1954.6	172.64	1954.51	173	1954.5
173.25	1954.49	176.24	1954.4	177.75	1954.35	179.14	1954.31		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	84.12	.05	124.79	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
84.12	124.79	39.68	24.94	17.95	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2849.1

INPUT
Description:
Station Elevation Data num= 370

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1953.32.9499969	1953.33.139999	1953.266.040009	1953.28.220001	1953.16				
11.13	1953.1	13.17	1953.06	16.23	1953	17.95	1952.9718.10001	1952.96	
21.32001	1952.923.01001	1952.87	26.41	1952.827.90001	1952.77	31.5	1952.7		
32.76001	1952.68	36.59	1952.637.40001	1952.58	37.59	1952.5841.68001	1952.5		
42.37	1952.49	46.77	1952.447.10001	1952.3950.65001	1952.3252.99001	1952.33			
57.73	1952.35	58.64	1952.4	59.13	1952.43	60.34	1952.5	61.94	1952.59
65.89	1952.5	66.72	1952.4870.10001	1952.4	71.58	1952.36	74.3	1952.3	
76.29	1952.25	78.51	1952.2	80.9	1952.14	82.71	1952.1	85.44	1952.04
86.92	1952	87.68	1951.93	87.97	1951.9	88.02	1951.87	88.14	1951.8
88.19	1951.7788.31001	1951.7	88.36	1951.67	88.47	1951.6	88.53	1951.57	
88.64	1951.5	88.69	1951.4788.81001	1951.4	88.86	1951.37	88.98	1951.3	
89.03	1951.27	89.14	1951.2	89.2	1951.1789.31001	1951.1	89.36	1951.07	
89.48	1951	89.53	1950.97	89.64	1950.9	89.7	1950.8789.81001	1950.8	
89.87	1950.77	89.98	1950.7	90.04	1950.67	90.15	1950.6	90.2	1950.57
90.31001	1950.5	90.37	1950.46	90.48	1950.4	90.54	1950.36	90.65	1950.3
90.71	1950.26	90.82	1950.2	90.88	1950.16	90.98	1950.1	91.04	1950.06
91.15	1950	91.21	1949.96	91.32	1949.9	91.38	1949.86	91.48	1949.8
91.55	1949.76	91.65	1949.7	91.72	1949.66	91.82	1949.6	91.89	1949.56
91.99001	1949.5	92.05	1949.46	92.15	1949.4	92.22	1949.36	92.32	1949.3
92.39	1949.2692.49001	1949.292.56001	1949.16	92.65	1949.1	92.73	1949.06		
92.82	1949	92.9	1948.9592.99001	1948.9	93.07	1948.85	93.16	1948.8	
93.24001	1948.75	93.32	1948.7	93.41	1948.6593.49001	1948.6	93.58	1948.55	
93.66	1948.5	93.75	1948.45	93.83	1948.493.92001	1948.3493.99001	1948.3		
94.09	1948.24	94.16	1948.2	94.26	1948.14	94.33	1948.1	94.43	1948.04
94.49001	1948	94.61	1947.93	94.66	1947.9	94.78	1947.83	94.83	1947.8
94.95	1947.73	95	1947.7	95.13	1947.62	95.16	1947.695.31001	1947.51	
95.33	1947.595.49001	1947.41	95.5	1947.4	95.59	1947.34	95.71	1947.3	
95.98	1947.295.99001	1947.2	96.26	1947.1	96.27	1947.09	96.53	1947	
96.55	1946.9996.81001	1946.9	97.05	1946.81	97.08	1946.8	97.32	1946.71	
97.35001	1946.7	97.58	1946.62	97.63	1946.6	97.88	1946.51	97.9	1946.5
98.12	1946.42	98.65	1946.5	98.75	1946.51	99.3	1946.6	99.78	1946.67
99.95	1946.7	100.1	1946.72	100.41	1946.77	100.6	1946.8	101.04	1946.87
101.26	1946.9	101.67	1946.96	101.91	1947	102.18	1947.04	102.56	1947.1
102.87	1947.15	103.21	1947.2	103.55	1947.25	103.86	1947.3	104.24	1947.36
104.51	1947.4	104.94	1947.47	105.16	1947.5	105.64	1947.57	105.82	1947.6
106.35	1947.68	106.47	1947.7	107.07	1947.79	107.12	1947.8	107.5	1947.86
107.7	1947.9	107.71	1947.9	108.2	1948	108.23	1948.01	108.69	1948.1
108.75	1948.11	109.19	1948.2	109.26	1948.21	109.68	1948.3	109.77	1948.32
110.17	1948.4	110.28	1948.42	110.67	1948.5	110.79	1948.53	111.16	1948.6
111.3	1948.63	111.65	1948.7	111.81	1948.73	112.15	1948.8	112.32	1948.83
112.64	1948.9	112.82	1948.94	113.14	1949	113.47	1949.07	113.63	1949.1
113.99	1949.17	114.12	1949.2	114.51	1949.28	114.62	1949.3	115.04	1949.38
115.11	1949.4	115.57	1949.49	115.61	1949.5	115.96	1949.57	116.36	1949.6
116.42	1949.6	116.5	1949.6	118.09	1949.7	118.47	1949.72	119.75	1949.8
120.59	1949.85	121.41	1949.9	122.98	1949.99	123.07	1950	123.23	1950.01
123.5	1950.1	123.58	1950.13	123.79	1950.2	123.93	1950.25	124.09	1950.3
124.26	1950.36	124.39	1950.4	124.59	1950.47	124.68	1950.5	124.89	1950.57
124.98	1950.6	125.19	1950.67	125.28	1950.7	125.5	1950.77	125.57	1950.8
125.8	1950.88	125.87	1950.9	126.1	1950.98	126.17	1951	126.41	1951.08
126.47	1951.1	126.71	1951.18	126.76	1951.2	127.02	1951.29	127.06	1951.3
127.33	1951.39	127.36	1951.4	127.65	1951.5	127.73	1951.53	128.08	1951.6
128.13	1951.61	128.55	1951.7	128.66	1951.72	129.03	1951.8	129.19	1951.83
129.5	1951.9	129.7	1951.94	129.96	1952	130.13	1952.05	130.35	1952.1
130.54	1952.16	130.71	1952.2	130.92	1952.27	131.03	1952.3	131.13	1952.33
131.34	1952.4	131.42	1952.43	131.64	1952.5	131.72	1952.53	131.94	1952.6
132.01	1952.62	132.25	1952.7	132.3	1952.72	132.55	1952.8	132.59	1952.81
132.85	1952.9	132.87	1952.91	133.12	1952.99	133.15	1953	133.16	1953
133.44	1953.1	133.45	1953.1	133.72	1953.2	133.74	1953.21	134.01	1953.3
134.04	1953.31	134.29	1953.4	134.34	1953.42	134.58	1953.5	134.64	1953.52
134.86	1953.6	134.94	1953.63	135.15	1953.7	135.31	1953.76	135.43	1953.8
135.96	1953.75	136.22	1953.7	136.63	1953.62	136.72	1953.6	137.16	1953.51
137.22	1953.5	137.71	1953.4	137.72	1953.4	137.79	1953.39	138.48	1953.3
138.59	1953.29	139.29	1953.2	139.66	1953.15	140.1	1953.1	140.7	1953.03
140.99	1953.1	141.2	1953.15	141.38	1953.2	141.71	1953.28	141.77	1953.3
142.16	1953.4	142.2	1953.41	143.01	1953.47	143.36	1953.5	143.86	1953.54

144.63	1953.6	144.64	1953.6	145.51	1953.69	145.6	1953.7	146.4	1953.78		
146.55	1953.8	146.77	1953.82	147.51	1953.9	147.92	1953.94	148.46	1954		
149.21	1954.08	149.42	1954.1	149.79	1954.14	150.48	1954.1	150.63	1954.09		
152.26	1954	153.41	1953.94	154.05	1953.9	154.42	1953.91	155.72	1953.95		
156.88	1953.91	157.03	1953.92	159.07	1954	159.72	1954.06	160.09	1954.1		
160.9	1954.18	161.3	1954.2	161.66	1954.22	163.29	1954.3	164.79	1954.38		
165.27	1954.4	166.73	1954.47	167.22	1954.45	167.63	1954.44	168.09	1954.5		
168.27	1954.53	168.8	1954.6	169.15	1954.64	170.09	1954.6	172.08	1954.54		
173.57	1954.5	173.98	1954.49	177.05	1954.4	177.49	1954.39	178.94	1954.35		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	86.92	.05	135.43	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.92	135.43	38.99	24.28	10.13	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2824.82

INPUT
Description: End heavy vegetation
Station Elevation Data num= 374

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1952.89	.3500061	1952.891	.580002	1952.852	.110001	1952.857	.130005	1952.84
16.21001	1952.84	16.39999	1952.84	16.48	1952.84	19.71001	1952.82	22	1952.8
25.60001	1952.75	26.16	1952.75	27.23	1952.76	28.13	1952.74	29.87	1952.7
31.13	1952.67	34.12	1952.6	34.77	1952.58	38.38	1952.53	8.78999	1952.49
39.92999	1952.47	40.37	1952.464	0.67999	1952.46	41.97	1952.42	42.78	1952.4
45.73	1952.32	46.36	1952.3	49.71	1952.21	49.94	1952.2	49.95	1952.2
52.02	1952.14	52.92	1952.1	53.03	1952.09	54.9	1952	55.23	1951.98
56.88	1951.9	57.44	1951.87	58.85	1951.8	59.74	1951.76	60.83	1951.7
62.09	1951.64	62.8	1951.6	64.53	1951.51	64.78	1951.5	65.72	1951.45
66.89	1951.42	67.37	1951.4	69.34	1951.34	70.52	1951.3	71.99	1951.25
73.67	1951.2	74.76	1951.17	76.82	1951.1	77.61	1951.07	79.97	1951
80.52	1950.98	83.12	1950.9	83.48	1950.89	86.27	1950.8	86.46	1950.79
89.42	1950.7	89.47	1950.7	90.85	1950.65	92.32	1950.6	93.5	1950.54
94.3	1950.5	94.4	1950.44	94.42	1950.42	94.45	1950.4	94.54	1950.34
94.59	1950.3	94.67	1950.24	94.73	1950.2	94.81	1950.14	94.87	1950.1
94.95	1950.04	95.01	1950	95.09	1949.95	95.15	1949.9	95.22	1949.85
95.29	1949.8	95.36	1949.75	95.43	1949.7	95.5	1949.65	95.57	1949.6
95.64	1949.55	95.71	1949.5	95.78	1949.45	95.85	1949.4	95.92	1949.35
95.99	1949.3	96.06	1949.25	96.13	1949.2	96.15	1949.14	96.17	1949.1
96.31	1948.92	96.32	1948.93	96.33	1948.91	96.34	1948.9	96.4	1948.9
96.45	1948.81	96.46	1948.81	96.47	1948.8	96.59	1948.71	96.6	1948.7
96.61	1948.69	96.73	1948.6	96.74	1948.59	96.85	1948.5	96.86	1948.49
97.14	1948.4	97.19	1948.35	97.25	1948.3	97.31	1948.25	97.37	1948.2
97.42	1948.15	97.48	1948.1	97.54	1948.05	97.6	1948	97.66	1947.95
97.71	1947.9	97.78	1947.85	97.83	1947.8	97.89	1947.74	97.94	1947.7
98.01	1947.64	98.06	1947.6	98.13	1947.54	98.18	1947.5	98.26	1947.43
98.29	1947.4	98.38	1947.32	98.41	1947.3	98.52	1947.2	98.54	1947.18
98.79	1947.1	98.81	1947.09	99.1	1947	99.14	1946.99	99.41	1946.9
99.69	1946.81	99.71	1946.8	100.01	1946.7	100.02	1946.7	100.09	1946.68
100.44	1946.6	100.5	1946.59	100.9	1946.5	101.01	1946.48	101.36	1946.4
101.5	1946.37	101.82	1946.3	101.98	1946.26	102.28	1946.2	102.46	1946.16
102.74	1946.1	102.93	1946.06	103.2	1946	103.4	1945.96	103.66	1945.9
103.87	1945.85	104.12	1945.8	104.34	1945.75	104.58	1945.7	104.8	1945.65
105.04	1945.6	105.27	1945.55	105.49	1945.5	105.59	1945.48	105.75	1945.44
105.95	1945.4	106.31	1945.32	106.92	1945.38	107	1945.39	107.01	1945.4
107.12	1945.5	107.23	1945.6	107.24	1945.6	107.35	1945.7	107.46	1945.8
107.57	1945.9	107.58	1945.9	107.69	1946	107.8	1946.1	107.91	1946.2
107.92	1946.2	108.03	1946.3	108.14	1946.4	108.25	1946.5	108.26	1946.5
108.37	1946.6	108.48	1946.7	108.59	1946.8	108.71	1946.9	108.82	1947
108.93	1947.1	109.04	1947.2	109.05	1947.2	109.16	1947.3	109.27	1947.4
109.36	1947.48	109.38	1947.5	109.5	1947.6	109.61	1947.7	109.72	1947.8
109.83	1947.9	109.84	1947.91	109.94	1948	109.95	1948.01	110.05	1948.1
110.07	1948.12	110.31	1948.11	110.45	1948.2	111.17	1948.2	111.37	1948.15
111.67	1948.2	111.9	1948.17	112.43	1948.1	113.1	1948.01	113.48	1948.1
113.73	1948.16	114.04	1948.2	114.7	1948.27	114.99	1948.3	115.52	1948.35
115.74	1948.4	115.82	1948.42	116.23	1948.5	116.42	1948.54	116.73	1948.6
116.97	1948.65	117.22	1948.7	117.51	1948.76	117.72	1948.8	118.03	1948.86
118.21	1948.9	118.55	1948.97	118.71	1949	119.06	1949.07	119.2	1949.1
119.56	1949.17	119.69	1949.2	120.07	1949.28	120.19	1949.3	120.57	1949.38
120.68	1949.4	121.07	1949.48	121.18	1949.5	121.57	1949.58	121.67	1949.6
121.79	1949.62	122.16	1949.7	122.3	1949.73	122.66	1949.8	122.82	1949.83
123.15	1949.9	123.35	1949.94	123.65	1950	123.91	1950.05	124.14	1950.1
124.5	1950.17	124.63	1950.2	124.98	1950.27	125.53	1950.28	127.54	1950.3
127.58	1950.3	127.6	1950.3	127.93	1950.4	127.98	1950.41	128.27	1950.5
128.56	1950.59	128.6	1950.6	128.92	1950.69	128.94	1950.7	129.1	1950.75
129.2	1950.8	129.23	1950.82	129.39	1950.9	129.46	1950.94	129.58	1951
129.67	1951.05	129.77	1951.1	129.88	1951.16	129.96	1951.2	130.08	1951.26
130.15	1951.3	130.28	1951.37	130.34	1951.4	130.4	1951.43	130.53	1951.5
130.6	1951.54	130.72	1951.6	130.8	1951.64	130.91	1951.7	131	1951.75
131.1	1951.8	131.2	1951.85	131.29	1951.9	131.42	1951.97	131.48	1952
131.64	1952.09	131.67	1952.1	131.76	1952.15	134.55	1952.2	135.38	1952.22
135.64	1952.2	135.66	1952.2	135.74	1952.2	138.12	1952.1	138.96	1952.18
139.19	1952.2	139.31	1952.21	140.25	1952.3	140.34	1952.31	141.31	1952.4
141.35	1952.4	141.88	1952.45	142.33	1952.5	142.34	1952.5	143.29	1952.6
143.33	1952.6	144.26	1952.69	144.32	1952.7	144.38	1952.71	145.3	1952.8
145.45	1952.81	146.29	1952.9	146.77	1952.95	147.28	1953	149.5	1953.1
149.54	1953.1	149.68	1953.1	153.8	1953.03	154.74	1953.03	157.27	1953.04
157.42	1953	157.51	1953.02	157.51	1953	157.86	1953	158.6	1953.06
159.08	1953.1	159.92	1953.17	160.11	1953.2	160.15	1953.21	160.69	1953.3
160.83	1953.32	161.27	1953.4	161.47	1953.43	161.86	1953.5	162.09	1953.54
162.44	1953.6	162.7	1953.64	163.03	1953.7	163.26	1953.75	163.47	1953.8
163.72	1953.86	163.86	1953.9	164.15	1953.97	164.25	1954	164.6	1954.09
164.64	1954.1	164.85	1954.15	165.14	1954.19	165.19	1954.2	165.8	1954.28
165.91	1954.3	166.48	1954.38	166.64	1954.4	167.11	1954.47	168.01	1954.46
169.93	1954.42	170.8	1954.4	174.86	1954.31	175.64	1954.32		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	93.5	.05	131.67	.025

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          93.5  131.67             22.37   25.04   27.85             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 2799.78

INPUT
Description:
Station Elevation Data    num=     429
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1951.7.7299957 1951.681.399994 1951.661.779999 1951.673.259995  1951.7
3.710007 1951.714.130005 1951.727.399994  1951.8     8.5 1951.83   11.13  1951.9
   14.89 1951.99   15.16    195215.46001 1952.0115.50999 1952.01   16.33 1952.01
   23.37 1952.05    25.5 1952.0429.49001 1952.04   30.52 1952.02   31.14    1952
   32.47 1951.9734.85001  1951.9   36.02 1951.86   37.61  1951.8   38.91 1951.75
   40.37  1951.7   41.11 1951.67   42.21 1951.63   42.85 1951.61   43.08 1951.61
   43.38  1951.6   46.07 1951.55   48.72  1951.5   49.55 1951.48    50.3 1951.45
   50.73 1951.44   50.92 1951.43   52.78 1951.42   53.22  1951.4   53.27  1951.4
   53.39 1951.39   56.06  1951.3   58.48 1951.21   58.51  1951.2   58.57 1951.17
   58.69  1951.1   58.78 1951.05   64.23  1951.1   68.97 1951.14   70.68  1951.1
   70.93 1951.09   74.49    1951   75.13 1950.98    78.3  1950.9   79.19 1950.88
   82.11  1950.8   83.18 1950.77   85.92  1950.7   87.88 1950.65   88.14  1950.6
   88.22 1950.54   88.29  1950.5   88.41 1950.42   88.44  1950.4   88.56 1950.32
   88.59  1950.3   88.72 1950.21   88.74  1950.2   88.88 1950.11   88.89  1950.1
   89.04    1950   89.07 1949.98   89.19  1949.9   89.21 1949.89   89.35  1949.8
   89.37 1949.77   89.47  1949.7   89.53 1949.66   89.62  1949.6   89.69 1949.55
   89.76  1949.5   89.84 1949.45   89.91  1949.4   89.99 1949.34   90.05  1949.3
   90.14 1949.23   90.19  1949.2   90.29 1949.13   90.34  1949.1   90.44 1949.03
   90.48    1949   90.59 1948.92   90.62  1948.9   90.66 1948.88   90.77  1948.8
    90.8 1948.78   90.91  1948.7   90.94 1948.68   91.06  1948.6   91.08 1948.58
    91.2  1948.5   91.23 1948.48   91.34  1948.4   91.37 1948.38   91.49  1948.3
   91.51 1948.28   91.63  1948.2   91.65 1948.19   91.77  1948.1   91.79 1948.09
   91.92    1948   91.93 1947.99   92.06  1947.9   92.07 1947.89   92.21  1947.8
   92.21 1947.79   92.35  1947.7   92.49  1947.6    92.5 1947.59   92.65  1947.5
    92.8  1947.4   92.81  1947.4   92.96  1947.3   92.97 1947.29   93.11  1947.2
   93.12 1947.19   93.26  1947.1   93.28 1947.09   93.41    1947   93.44 1946.98
   93.57  1946.9   93.59 1946.88   93.72  1946.8   93.75 1946.78   93.87  1946.7
   93.91 1946.68   94.03  1946.6   94.06 1946.58   94.18  1946.5   94.22 1946.47
   94.33  1946.4   94.37 1946.37   94.49  1946.3    94.6 1946.22   94.64 1946.17
    94.7 1946.16   94.91  1946.1   95.14 1946.03   95.26    1946   95.55 1945.92
   95.61  1945.9   95.92 1945.81   95.96  1945.8   96.29 1945.71   96.31  1945.7
   96.58 1945.62   96.66  1945.6   96.67  1945.6   97.04 1945.51   97.09  1945.5
   97.42 1945.42   97.51  1945.4   97.59 1945.38   97.93  1945.3   98.07 1945.26
   98.34  1945.2   98.59 1945.14   98.76  1945.1   99.16    1945   99.18    1945
   99.21 1944.99   99.32    1945   99.55 1945.01  100.99  1945.1  101.58 1945.14
  102.03 1945.16  102.65 1945.15  103.13 1945.14  103.23  1945.2  103.26 1945.22
  103.39  1945.3  103.46 1945.35  103.54  1945.4   103.7 1945.45  103.74  1945.5
  103.79 1945.57  103.85  1945.6  103.92 1945.66  103.95 1945.66  103.98  1945.7
  104.13 1945.79  104.15  1945.8  104.31  1945.9  104.48    1946  104.49    1946
  104.54 1946.03  104.67  1946.1  104.68 1946.11  104.85  1946.2  104.88 1946.21
  105.04  1946.3  105.07 1946.32  105.22  1946.4  105.36 1946.47  105.42  1946.5
  105.46 1946.52  105.62  1946.6  105.75 1946.68  105.79  1946.7  105.84 1946.73
     106  1946.8  106.03 1946.81  106.24  1946.9   106.3 1946.92  106.49    1947
   106.7 1947.08  106.76  1947.1  106.99 1947.18  107.04  1947.2  107.29 1947.29
  107.31  1947.3  107.46 1947.36  107.62  1947.4  107.65 1947.41  107.99  1947.5
  108.05 1947.52  108.36  1947.6  108.45 1947.62  108.73  1947.7  108.84 1947.73
   109.1  1947.8  109.22 1947.83  109.48  1947.9  109.85 1947.96  109.98    1948
  110.37 1948.07  110.49  1948.1   110.9 1948.17  111.01  1948.2  111.44 1948.27
  111.56  1948.3  111.72 1948.33  112.14  1948.4   112.3 1948.43  112.72  1948.5
  112.88 1948.53   113.3  1948.6  113.45 1948.63  113.88  1948.7  114.03 1948.72
  114.46  1948.8   114.6 1948.82  115.04  1948.9  115.17 1948.92  115.62    1949
  115.75 1949.02   116.2  1949.1  116.32 1949.12  116.78  1949.2  116.88 1949.22
  117.36  1949.3  117.45 1949.31  117.94  1949.4     118 1949.41  118.52  1949.5
  118.55 1949.51  118.94 1949.57  119.13  1949.6  119.21 1949.61  119.81  1949.7
  120.39 1949.79  120.49  1949.8  120.56 1949.81  121.03  1949.9  121.41 1949.97
  121.47    1950  121.49 1950.01  121.72  1950.1  121.78 1950.13  121.99  1950.2
  122.05 1950.23  122.25  1950.3  122.31 1950.33  122.51  1950.4  122.73 1950.48
  122.79  1950.5  123.01 1950.58  123.06  1950.6  123.29 1950.68  123.33  1950.7
  123.57 1950.79  123.61  1950.8  123.86 1950.89  123.88  1950.9  124.14    1951
  124.15    1951   124.4 1951.09  124.43  1951.1  124.73  1951.2  124.74  1951.2
  125.03  1951.3  125.05 1951.31  125.33  1951.4  125.36 1951.41  125.63  1951.5
  125.67 1951.51  125.94  1951.6  125.98 1951.62  126.24  1951.7   126.3 1951.72
  126.54  1951.8  126.62 1951.83  126.84  1951.9  126.94 1951.93  127.14    1952
  127.27 1952.04  127.44  1952.1  127.61 1952.16  127.74  1952.2  127.96 1952.27
  128.04  1952.3  128.33 1952.39  128.34  1952.4   128.4 1952.42  128.94  1952.5
  129.18 1952.54  129.59  1952.6  130.03 1952.67  130.61  1952.7   131.1 1952.73
  132.35  1952.8  133.91 1952.89  134.08  1952.9  134.17 1952.91  134.45 1952.92
  137.75    1953  140.61 1953.07  141.11    1953  141.23 1952.98  141.84  1952.9
  142.09 1952.87  142.58  1952.8  142.92 1952.75  143.31  1952.7  143.72 1952.64
  144.04  1952.6  144.37 1952.55  144.77  1952.5   145.2 1952.44   145.5  1952.4
  146.16 1952.31  146.23  1952.3  146.35 1952.28  146.41  1952.3  146.46 1952.31
  146.77  1952.4  146.95 1952.45  147.13  1952.5  147.36 1952.57  147.48  1952.6
  147.58 1952.63  147.84  1952.7  147.95 1952.73  148.19  1952.8  148.31 1952.83
  148.55  1952.9  148.67 1952.93  148.91    1953  149.04 1953.04  149.26  1953.1
  149.41 1953.14  149.62  1953.2  149.79 1953.25  149.98  1953.3  150.03 1953.32
  150.18 1953.36  150.33  1953.4  150.59 1953.47  150.69  1953.5  150.98 1953.58
  151.12 1953.59  151.28  1953.6  151.67 1953.62  151.71 1953.63  151.93  1953.7
  151.97 1953.71   152.3  1953.8  152.63 1953.89  152.69  1953.9  152.72 1953.91
  153.14    1954   153.3 1954.04  153.59  1954.1  153.81 1954.15  154.03  1954.2
   154.3 1954.26  154.48  1954.3  154.77 1954.36  154.93  1954.4  155.24 1954.47
  155.38  1954.5   155.7 1954.57  155.83  1954.6  156.16 1954.67  156.28  1954.7
  156.61 1954.77  156.73  1954.8  156.83 1954.82  156.85  1954.9  156.92 1954.92
  157.32    1955  157.38 1955.03  157.42  1955.1  157.58 1955.17  157.66  1955.2
  157.83 1955.27  157.89  1955.3  158.08 1955.38  158.13  1955.4  158.33 1955.48
  158.37  1955.5  158.58 1955.59  158.61  1955.6  158.84  1955.7  158.91 1955.73
  160.22  1955.8  161.35 1955.86  163.48 1955.82  163.61 1955.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   87.88    .035  140.61    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
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87.88	140.61		23.04	25.15	28.16	

.1 .3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2774.63

INPUT
Description:
Station Elevation Data num= 416

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1950.87	2.080002	1950.95	.649994	1950.94	10.25999	195	113.98999	1951.04
15.31999	1951.07	16.81	1951.07	21.52	195	125.03999	1950.96	26.02	1950.9
27.20999	1950.83	27.66	1950.8	28.08	1950.77	29.31	1950.7	29.38	1950.7
29.56999	1950.68	32.03	1950.62	32.64999	1950.6	34.96	1950.54	36.23	1950.5
37.89	1950.45	39.74	1950.44	2.07999	1950.34	43.28	1950.3	44.74	1950.26
46.6	1950.2	46.98	1950.19	47.41	1950.18	49.03	1950.13	49.31	1950.13
50.25999	1950.1	50.39	1950.1	50.42	1950.1	50.43	1950.1	50.49	1950.09
52.03	1950.03	52.31	1950.1	52.71	1950.2	52.72	1950.2	52.75999	1950.21
52.91	1950.21	54.27	1950.27	55.37	1950.23	56.54	1950.2	58.12	1950.15
59.99	1950.16	2.64999	1950.02	64.92	1950.01	65.24	1950	65.63	1949.99
66.63	1949.99	66.87	1949.99	69.82999	1949.97	2.68999	1949.81	75.87	1949.9
76.29	1949.92	77.1	1950	77.78	1950.06	78.16	1950.17	8.89999	1950.17
79.22	1950.2	80.05	1950.28	80.28	1950.3	81.23	1950.39	81.34	1950.4
82.00999	1950.46	83.32	1950.49	83.92	1950.58	6.39999	1950.55	88.11	1950.58
88.32999	1950.5	88.43	1950.46	88.6	1950.48	8.75999	1950.34	88.87	1950.3
89.06	1950.23	89.14	1950.28	9.32999	1950.13	89.41	1950.1	89.61	1950.03
89.68	1950	89.89	1949.92	89.95	1949.9	90.17	1949.82	90.22	1949.8
90.45	1949.71	90.49	1949.7	90.74	1949.61	90.75999	1949.6	90.89	1949.55
90.99	1949.5	91	1949.59	1.18999	1949.4	91.21	1949.39	91.38	1949.3
91.42	1949.28	91.57999	1949.2	91.62	1949.18	91.78	1949.19	1.93999	1949.02
91.98	194	92.14999	1948.91	92.17	1948.9	92.36	1948.81	92.37	1948.8
92.56	1948.71	92.57	1948.7	92.73	1948.6	92.88	1948.5	92.89	1948.49
93.04	1948.4	93.06	1948.39	93.2	1948.3	93.22	1948.29	93.35	1948.2
93.38	1948.18	93.50999	1948.1	93.53	1948.08	93.66	194	93.68999	1947.98
93.82	1947.9	93.85	1947.88	93.97	1947.89	4.00999	1947.77	94.12	1947.7
94.16	1947.67	94.27	1947.6	94.32	1947.57	94.43	1947.5	94.47	1947.47
94.57999	1947.4	94.62	1947.37	94.73	1947.3	94.78	1947.26	94.88	1947.2
94.93	1947.16	95.03	1947.19	5.07999	1947.06	95.17	194	95.25999	1946.94
95.32	1946.9	95.41	1946.83	95.46	1946.8	95.56	1946.73	95.6	1946.7
95.71	1946.62	95.74	1946.6	95.86	1946.52	95.88	1946.59	6.00999	1946.41
96.03	1946.4	96.17	1946.39	6.17999	1946.29	96.35	1946.2	96.37	1946.19
96.53999	1946.19	6.56999	1946.08	96.72	194	696.75999	1945.98	6.89999	1945.9
96.96	1945.87	97.09	1945.89	7.14999	1945.77	97.27	1945.7	97.34	1945.66
97.46	1945.6	97.53	1945.56	97.64	1945.59	7.75999	1945.44	97.81999	1945.4
97.97	1945.32	98.00999	1945.3	98.14	1945.23	98.28999	1945.2	98.35	1945.19
98.8	1945.1	99.06999	1945.05	99.3	194	599.53999	1944.95	99.8	1944.9
100.18	1944.82	100.3	1944.8	100.55	1944.75	101.33	1944.8	102.07	1944.85
102.93	1944.9	103.33	1944.93	104.53	1945	104.7	1945.01	105.5	1945.06
105.71	1945.1	105.73	1945.1	105.88	1945.13	106.24	1945.2	106.31	1945.21
106.77	1945.3	106.88	1945.32	107.3	1945.4	107.43	1945.42	107.83	1945.5
108.04	1945.54	108.37	1945.6	108.57	1945.66	108.64	1945.7	108.75	1945.77
108.81	1945.8	108.92	1945.87	108.98	1945.9	109.09	1945.97	109.14	1946
109.25	1946.07	109.31	1946.1	109.42	1946.17	109.48	1946.2	109.59	1946.27
109.64	1946.3	109.75	1946.37	109.81	1946.4	109.92	1946.47	109.98	1946.5
110.08	1946.57	110.14	1946.6	110.25	1946.67	110.31	1946.7	110.42	1946.77
110.47	1946.8	110.54	1946.84	110.64	1946.9	110.71	1946.94	110.81	1947
110.88	1947.05	110.97	1947.1	111.06	1947.15	111.14	1947.2	111.24	1947.26
111.31	1947.3	111.45	1947.39	111.55	1947.4	111.72	1947.42	111.94	1947.44
113.09	1947.4	114.61	1947.35	114.78	1947.4	115.1	1947.5	115.12	1947.51
115.42	1947.6	115.44	1947.61	115.74	1947.7	116.08	1947.79	116.11	1947.8
116.53	1947.9	116.54	1947.9	116.55	1947.9	116.73	1947.94	116.89	1948
116.97	1948.03	117.17	1948.1	117.33	1948.16	117.44	1948.2	117.64	1948.27
117.72	1948.3	117.94	1948.38	117.99	1948.4	118.23	1948.49	118.27	1948.5
118.52	1948.59	118.55	1948.6	118.81	1948.7	118.82	1948.7	119.09	1948.8
119.1	1948.8	119.37	1948.9	119.7	1949	119.71	1949	120.02	1949.09
120.05	1949.1	120.35	1949.19	120.39	1949.2	120.68	1949.29	120.73	1949.3
121.01	1949.38	121.07	1949.4	121.35	1949.48	121.41	1949.5	121.68	1949.58
121.75	1949.6	122.01	1949.68	122.09	1949.7	122.35	1949.78	122.43	1949.8
122.68	1949.88	122.77	1949.9	123.02	1949.97	123.1	1950	123.35	1950.07
123.44	1950.1	123.56	1950.13	123.78	1950.2	123.95	1950.25	124.12	1950.3
124.42	1950.39	124.99	1950.4	125.93	1950.36	127.68	1950.3	128.16	1950.28
128.22	1950.3	128.25	1950.31	128.59	1950.4	128.86	1950.48	128.95	1950.5
129.28	1950.59	129.32	1950.6	129.58	1950.67	130.26	1950.6	131.11	1950.51
131.21	1950.5	131.23	1950.5	131.25	1950.5	131.26	1950.5	131.66	1950.6
131.86	1950.65	132.07	1950.7	132.34	1950.77	132.48	1950.8	132.79	1950.88
132.89	1950.9	133.21	1950.98	133.3	1951	133.44	1951.03	133.71	1951.1
133.89	1951.14	134.12	1951.2	134.41	1951.27	134.54	1951.3	135.06	1951.3
135.36	1951.25	138.34	1951.3	138.82	1951.26	139.6	1951.2	140.69	1951.11
140.85	1951.1	141.15	1951.08	141.33	1951.1	141.46	1951.12	142.06	1951.2
142.53	1951.26	142.8	1951.3	143.4	1951.38	143.53	1951.4	144.04	1951.47
144.05	1951.47	144.14	1951.5	144.16	1951.51	144.37	1951.57	144.43	1951.6
144.47	1951.62	144.56	1951.66	144.64	1951.7	144.73	1951.74	144.84	1951.8
144.95	1951.85	145.05	1951.9	145.17	1951.96	145.25	1952	145.38	1952.06
145.46	1952.1	145.59	1952.16	145.66	1952.2	145.74	1952.24	145.87	1952.3
145.96	1952.35	146.07	1952.4	146.19	1952.46	146.27	1952.5	146.43	1952.58
146.48	1952.6	146.68	1952.7	146.69	1952.7	146.7	1952.7	147.22	1952.8
147.39	1952.83	147.75	1952.9	148.04	1952.95	148.28	1953	148.65	1953.07
148.8	1953.1	149.24	1953.18	149.33	1953.2	149.84	1953.27	149.87	1953.27
149.92	1953.3	149.99	1953.34	151.62	1953.36	152.49	1953.4	153.82	1953.46
155.13	1953.5	155.78	1953.52	156	1953.6	156.13	1953.65	156.28	1953.7
156.48	1953.77	156.55	1953.8	156.79	1953.89	156.83	1953.9	157.09	1954
157.1	1954	157.27	1954.06	157.43	1954.1	157.48	1954.11	157.84	1954.2
158.08	1954.26	158.26	1954.3	158.51	1954.36	158.99	1954.3	159.31	1954.26
159.56	1954.23								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	88.11	.035	124.99	.025

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

88.11	124.99		36.1	24.19	18.16	

.1 .3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2750.44

INPUT
Description:
Station Elevation Data num= 325

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1950.025.209991		19507.179993	1949.997.559998	1949.98	14.09	1949.95		
17.92999	1949.919.70999	1949.8720.67999	1949.8621.64999	1949.8626.25999	1949.85				
27.48999	1949.8	29.92	1949.71	30.73	1949.7	30.84	1949.731.98999	1949.65	
33.31	1949.6133.56999	1949.6	35.8	1949.53	36.17	1949.57	36.98	1949.5	
39.5	1949.539.96999	1949.56	43.16	1949.57	44.77	1949.52	45.32	1949.53	
45.84	1949.52	47.09	1949.5653.18999	1949.555.25999	1949.4863.21999	1949.43			
67.17	1949.44	67.46	1949.44	68.23	1949.4	69.7	1949.32	70.12	1949.3
71.75	1949.21	72.05	1949.21	74.53	1949.22	75.34	1949.2	77.18	1949.15
78.50999	1949.1	80.34	1949.0382.18999	194986.75999	1949.0987.07999	1949.09			
87.50999	1949.1	90.41	1949.19	90.87	1949.2	94.17	1949.3	94.18	1949.3
94.24	1949.31	94.49	1949.3694.68999	1949.395.00999	1949.2195.03999	1949.2			
95.37	1949.1	95.38	1949.195.71999	1949	95.73	1949	95.8	1948.98	
96.12	1948.9196.14999	1948.9	96.55	1948.81	96.6	1948.8	96.64	1948.79	
97.03999	1948.7	97.12	1948.68	97.49	1948.6	97.6	1948.58	97.93	1948.5
98.07999	1948.47	98.38	1948.498.57999	1948.36	98.82	1948.399.07999	1948.24		
99.27	1948.2	99.6	1948.1399.71999	1948.1	100.13	1948.01	100.16	1948	
100.31	1947.97	100.52	1947.9	100.54	1947.89	100.82	1947.8	100.89	1947.78
101.13	1947.7	101.27	1947.65	101.44	1947.6	101.69	1947.52	101.74	1947.5
101.78	1947.49	101.89	1947.42	101.98	1947.4	102.01	1947.39	102.26	1947.3
102.3	1947.28	102.54	1947.2	102.58	1947.18	102.82	1947.1	103	1947.02
103.05	1947	103.23	1946.92	103.27	1946.9	103.45	1946.82	103.48	1946.8
103.67	1946.71	103.7	1946.7	103.9	1946.61	103.92	1946.6	104.12	1946.51
104.14	1946.5	104.34	1946.41	104.36	1946.4	104.57	1946.31	104.58	1946.3
104.59	1946.29	104.79	1946.2	105	1946.1	105.01	1946.1	105.23	1946
105.24	1946	105.36	1945.94	105.47	1945.9	105.71	1945.8	105.72	1945.8
105.94	1945.71	105.96	1945.7	105.98	1945.69	106.22	1945.6	106.26	1945.58
106.48	1945.5	106.56	1945.47	106.73	1945.4	106.87	1945.35	106.99	1945.3
107.2	1945.22	107.25	1945.2	107.36	1945.16	108.95	1945.1	109.52	1945.08
111.71	1945	114.34	1944.9	114.43	1944.9	116.1	1944.81	116.18	1944.9
116.22	1944.94	116.28	1945	116.32	1945.04	116.37	1945.1	116.42	1945.14
116.47	1945.2	116.51	1945.24	116.56	1945.29	116.59	1945.3	116.6	1945.3
116.99	1945.4	117.12	1945.43	117.36	1945.49	117.38	1945.5	117.77	1945.6
117.78	1945.6	118.08	1945.67	118.23	1945.7	118.26	1945.7	118.84	1945.8
119.01	1945.83	119.45	1945.9	119.8	1945.96	120.06	1946	120.65	1946.1
120.68	1946.1	120.72	1946.11	120.99	1946.2	121.01	1946.21	121.28	1946.3
121.32	1946.31	121.57	1946.4	121.62	1946.42	121.85	1946.5	121.93	1946.52
122.14	1946.6	122.23	1946.63	122.43	1946.7	122.53	1946.73	122.72	1946.8
122.82	1946.84	123.02	1946.9	123.14	1946.94	123.39	1947	123.51	1947.04
123.76	1947.1	123.88	1947.14	124.13	1947.2	124.31	1947.24	124.54	1947.3
124.75	1947.35	124.96	1947.4	125.19	1947.46	125.37	1947.5	125.64	1947.56
125.79	1947.6	126.09	1947.67	126.21	1947.7	126.55	1947.78	126.63	1947.8
127.02	1947.89	127.04	1947.9	127.21	1947.94	127.49	1948	127.52	1948.01
127.97	1948.1	128.04	1948.11	128.45	1948.2	128.55	1948.22	128.92	1948.3
129.1	1948.34	129.4	1948.4	129.73	1948.47	129.88	1948.5	130.12	1948.55
130.5	1948.6	130.67	1948.62	131.26	1948.7	131.76	1948.76	132.03	1948.8
132.29	1948.84	132.41	1948.9	132.55	1948.97	132.62	1949	132.77	1949.07
132.82	1949.1	132.99	1949.18	133.03	1949.2	133.21	1949.29	133.24	1949.3
133.44	1949.39	133.45	1949.4	133.55	1949.45	133.68	1949.5	133.71	1949.51
133.95	1949.6	134.01	1949.62	134.22	1949.7	134.31	1949.73	134.49	1949.8
134.6	1949.84	134.76	1949.9	134.89	1949.95	135.03	1950	135.17	1950.05
135.3	1950.1	135.45	1950.16	135.57	1950.2	135.73	1950.26	135.84	1950.3
135.97	1950.35	136.11	1950.4	136.35	1950.49	136.38	1950.5	136.42	1950.51
138.93	1950.6	141.82	1950.69	141.97	1950.7	142.38	1950.71	147.02	1950.74
147.26	1950.72	147.58	1950.72	147.71	1950.8	147.82	1950.86	147.88	1950.9
148.01	1950.98	148.05	1951	148.19	1951.08	148.22	1951.1	148.37	1951.18
148.39	1951.2	148.55	1951.29	148.57	1951.3	148.73	1951.4	148.74	1951.4
148.81	1951.44	148.95	1951.5	148.97	1951.51	149.21	1951.6	149.24	1951.61
149.46	1951.7	149.52	1951.72	149.71	1951.8	149.79	1951.83	149.97	1951.9
150.07	1951.94	150.14	1951.97	150.22	1952	150.35	1952.05	150.48	1952.1
150.63	1952.16	150.74	1952.2	150.86	1952.25	151	1952.3	151.12	1952.35
151.27	1952.4	151.38	1952.44	151.53	1952.5	151.64	1952.54	151.79	1952.6
151.9	1952.64	152.05	1952.7	152.12	1952.72	152.12	1952.73	152.34	1952.78
153.39	1952.78	157.36	1952.76	157.84	1952.8	157.97	1952.81	158.94	1952.9
159.49	1952.95	160.04	1953	160.93	1953.08	161.64	1953.08	163.76	1953.07
164.52	1953	164.85	1952.97	165.57	1952.9	166.2	1952.84	166.45	1952.82

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	94.24	.035	136.35	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.24	136.35	30.61	25.02	22.4	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2725.42

INPUT
Description:
Station Elevation Data num= 331

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1949.165.279999	1949.158.429993	1949.1411.81999	1949.1619.70999	1949.19				
20.25999	1949.1920.65999	1949.19	22.06	1949.16	23.98	1949.126.40999	1949.02		
27.84	1949.128.42999	1949.13	32.37	1949.233.32999	1949.22	33.88	1949.2		
35.13999	1949.1637.28999	1949.138.96999	1949.05	39.6	1949	40.05	1948.98		
41.53	1948.9	43.03	1948.8445.03999	1948.8549.32999	1948.8852.17999	1948.89			
52.62	1948.8952.89999	1948.9	52.98	1948.9	53.13	1948.9	60.06	1948.8	
61.87	1948.7863.53999	1948.7666.99999	1948.75	70.42	1948.7572.68999	1948.72			
73.52	1948.73	76.73	1948.877.18999	1948.8177.63999	1948.84	78.09	1948.87		
78.28	1948.89	78.53	1948.89	82.34	1948.9	85.12	1948.9385.46999	1948.92	
85.66	1948.91	85.67	1948.985.67999	1948.985.96999	1948.81	85.99	1948.8		
86.31999	1948.71	86.35	1948.7	86.67	1948.61	86.7	1948.6	86.74	1948.59
87.06999	1948.587.10999	1948.4987.42999	1948.4	87.49	1948.39	87.8	1948.3		
87.85999	1948.28	88.17	1948.2	88.23	1948.18	88.53	1948.188.60999	1948.08	
88.89999	1948	88.99	1947.98	89.27	1947.989.35999	1947.8889.63999	1947.8		
89.74	1947.7790.00999	1947.7	90.12	1947.67	90.38	1947.6	90.49	1947.57	

```
90.74999  1947.5   90.87 1947.47   91.12  1947.491.24999 1947.37   91.49  1947.3
   91.63 1947.26   91.87  1947.2   92.02 1947.1692.23999  1947.192.39999 1947.06
   92.62    1947   92.78 1946.9692.98999  1946.9   93.16 1946.85   93.37  1946.8
   93.55 1946.7593.73999  1946.793.92999 1946.65   94.12  1946.694.31999 1946.55
    94.5  1946.5    94.7 1946.45   94.87  1946.4   95.09 1946.34   95.25  1946.3
   95.48 1946.2495.62999  1946.2   95.87 1946.1496.00999  1946.196.25999 1946.04
96.39999    194696.53999 1945.96   96.78  1945.9   96.95 1945.86   97.17  1945.8
   97.37 1945.75   97.56  1945.797.82999 1945.6397.93999  1945.698.21999 1945.53
   98.28  1945.5    98.3 1945.49    98.5  1945.498.67999 1945.3298.71999  1945.3
   98.92 1945.2198.93999  1945.2   99.16  1945.1   99.17  1945.199.25999 1945.06
99.64999    1945   99.84 1944.97  100.34  1944.9  100.76 1944.84  101.04  1944.8
  101.59 1944.72  101.73  1944.7  102.38 1944.61  102.43  1944.6   102.9 1944.53
  103.48  1944.6  103.75 1944.63  103.93  1944.6  103.94  1944.6  104.53  1944.5
  104.56 1944.49  105.12  1944.4  105.18 1944.39  105.71  1944.3  105.79 1944.28
  106.29  1944.2   106.4 1944.18  106.87  1944.1   107.4 1944.01  107.46    1944
  107.51 1944.01  107.92  1944.1  108.24 1944.17  108.25 1944.18  108.36  1944.2
  108.71 1944.28   108.8  1944.3  109.16 1944.38  109.24  1944.4  109.62 1944.49
  109.68  1944.5  110.07 1944.59  110.12  1944.6  110.24 1944.62  110.58  1944.7
  110.67 1944.72  111.02  1944.8   111.1 1944.82  111.46  1944.9  111.52 1944.91
   111.9    1945  111.94 1945.01  112.34  1945.1  112.39 1945.11  112.74  1945.2
  112.75  1945.2  113.13  1945.3  113.15 1945.31  113.52  1945.4  113.55 1945.41
  113.91  1945.5  113.94 1945.51  114.21  1945.6  114.24 1945.61  114.42  1945.7
   114.6 1945.78  114.64  1945.8  114.83  1945.9  114.85 1945.91  115.03    1946
  115.05 1946.01   115.1  1946.1  115.19 1946.14  115.32  1946.2  115.42 1946.24
  115.55  1946.3  115.65 1946.34  115.77  1946.4  115.88 1946.45     116  1946.5
  116.12 1946.55  116.23  1946.6  116.36 1946.65  116.46  1946.7   116.6 1946.76
  116.69  1946.8   116.8 1946.85  116.92  1946.9  117.08 1946.96  117.16    1947
  117.35 1947.08  117.52  1947.1  117.66 1947.12  118.29  1947.2  118.58 1947.24
  119.05  1947.3  119.41 1947.35  119.81  1947.4  120.54  1947.5  120.58  1947.5
  120.64 1947.52   120.9 1947.56  120.96  1947.6  121.15  1947.7  121.17 1947.71
  121.35 1947.79  121.37  1947.8  121.58 1947.89  121.61  1947.9  121.81 1947.99
  121.84    1948  122.04 1948.08  122.07  1948.1  122.27 1948.18  122.31  1948.2
   122.5 1948.28  122.54  1948.3  122.58 1948.32  122.78  1948.4  122.82 1948.42
  123.01  1948.5  123.07 1948.53  123.24  1948.6  123.31 1948.63  123.48  1948.7
  123.56 1948.74  123.71  1948.8  123.81 1948.84  123.94  1948.9  124.06 1948.95
  124.18    1949  124.31 1949.06  124.41  1949.1  124.57 1949.17  124.64  1949.2
  124.83 1949.28  124.88  1949.3   125.1 1949.39  125.11  1949.4   125.2 1949.44
  125.89 1949.47  126.35  1949.5  127.03 1949.54  128.14  1949.6  128.24 1949.61
  128.46 1949.62   128.7  1949.7  128.71  1949.7     129  1949.8  129.02 1949.81
   129.3  1949.9  129.33 1949.91  129.59    1950  129.63 1950.01  129.88  1950.1
  130.03 1950.15  130.04 1950.15  131.19 1950.16  131.25 1950.16  131.27 1950.16
  131.73  1950.2  131.98 1950.22  133.26  1950.3  133.81 1950.34  134.78  1950.4
  140.82 1950.46  141.99 1950.47  142.08 1950.48  142.09 1950.48   142.1 1950.48
  142.18 1950.47  144.09  1950.4  144.58 1950.38   145.1 1950.37  145.82  1950.4
  146.63 1950.44  146.86  1950.5  146.99 1950.53  147.23  1950.6  147.46 1950.66
  147.61  1950.7  147.73 1950.73  147.98  1950.8   148.1 1950.83  148.35  1950.9
  148.47 1950.93  148.72    1951  148.83 1951.03  149.09  1951.1   149.2 1951.13
  149.46  1951.2  149.57 1951.23  149.83  1951.3  150.21 1951.26  150.28  1951.3
  151.45  1951.3   151.5 1951.29  152.11  1951.2  152.12  1951.2  152.64 1951.12
  152.76  1951.1  153.39    1951   153.4    1951  154.02  1950.9  154.06 1950.89
  154.66  1950.8  154.78 1950.78  155.29  1950.7  155.79 1950.62  156.07  1950.7
  156.12 1950.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   85.12    .035  125.11    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         85.12  149.83             21.47   25.25    27.5             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2700.17

INPUT
Description:
Station Elevation Data    num=     234
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.811.389999  1948.89.380005 1948.76   11.75 1948.7712.85001 1948.76
   13.25 1948.7613.68001 1948.75   17.17 1948.7717.43001 1948.7619.65001 1948.72
20.99001  1948.724.09001 1948.6427.76001  1948.6   29.28 1948.5931.60001 1948.57
   42.02  1948.545.86001 1948.4749.61001  1948.4   52.77 1948.3452.92001 1948.33
53.86001  1948.3   54.59 1948.2755.24001 1948.27   59.16 1948.27   62.73  1948.3
63.10001 1948.31   63.45  1948.3   63.65 1948.2965.04001  1948.266.35001 1948.12
   66.62  1948.168.17001    1948    68.2    194868.31001 1947.99   70.91  1947.9
   71.44 1947.88   74.01  1947.8   75.13 1947.75   76.23  1947.777.10001 1947.66
78.50001  1947.6   79.76 1947.5580.82001  1947.582.71001 1947.42   83.27  1947.4
84.79001 1947.3485.35001  1947.386.81001  1947.286.82001  1947.287.82001  1947.1
88.31001 1947.0588.81001    1947   89.38 1946.9489.81001  1946.9   90.45 1946.84
    90.8  1946.8   91.55 1946.73    91.8  1946.7    92.7 1946.6192.79001  1946.6
   93.22 1946.56   93.48  1946.5   93.51 1946.49   93.94  1946.493.99001 1946.39
94.39001  1946.3   94.48 1946.28   94.84  1946.2   95.22 1946.12    95.3  1946.1
    95.7 1946.0195.75001    1946   96.19  1945.996.21001  1945.996.49001 1945.84
96.61001  1945.896.64001 1945.7996.93001  1945.7   97.02 1945.6797.25001  1945.6
   97.38 1945.5697.57001  1945.5   97.73 1945.45   97.89  1945.498.07001 1945.34
98.21001  1945.3   98.41 1945.2498.53001  1945.298.74001 1945.1398.85001  1945.1
99.07001 1945.0399.17001    194599.40001 1944.9399.49001  1944.9   99.73 1944.83
99.81001  1944.8  100.06 1944.72  100.13  1944.7  100.38 1944.62  100.45  1944.6
  100.71 1944.52  100.77  1944.5  101.03 1944.42  101.09  1944.4  101.36 1944.32
  101.42  1944.3  101.68 1944.22  101.74  1944.2   101.8 1944.18  102.06  1944.1
  102.16 1944.07  102.38    1944  102.58 1943.94   102.7  1943.9  102.96 1943.87
   106.4 1943.81  107.28  1943.8  113.07 1943.75  114.35  1943.8  116.62  1943.9
  116.64  1943.9  116.67  1943.9  116.73  1943.9  116.76 1943.91  116.87 1943.92
  117.22    1944  117.51 1944.07  117.66  1944.1  118.03 1944.18  118.11  1944.2
   118.5 1944.29  118.55  1944.3  118.95 1944.39  118.99  1944.4   119.4 1944.49
  119.43  1944.5  119.85  1944.6  119.87  1944.6   120.3  1944.7  120.32  1944.7
  120.74  1944.8  120.76  1944.8  121.19  1944.9   121.2  1944.9  121.63    1945
  121.64    1945  122.07  1945.1  122.08  1945.1  122.52  1945.2  122.96  1945.3
  122.97  1945.3   123.4  1945.4  123.41  1945.4  123.84  1945.5  123.85  1945.5
  124.29  1945.6  124.73  1945.7  125.17  1945.8  125.18  1945.8  125.61  1945.9
  125.62  1945.9  126.06    1946   126.5  1946.1  126.94  1946.2  127.38  1946.3
  127.39  1946.3  127.82  1946.4  127.83  1946.4  128.27  1946.5  128.71  1946.6
  129.15  1946.7  129.59  1946.8  130.04  1946.9  130.48    1947  130.75 1947.06
  130.92  1947.1  131.37  1947.2  131.81  1947.3  131.82  1947.3  132.26  1947.4
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  132.71  1947.5  133.15  1947.6  133.16  1947.6   133.6  1947.7  133.61  1947.7
  134.04  1947.8  134.09 1947.81  134.49  1947.9  135.13 1947.99   135.2    1948
  136.16  1948.1   136.2  1948.1  137.19  1948.2   137.2  1948.2  138.19  1948.3
   138.2  1948.3  139.19  1948.4   139.2  1948.4   140.2  1948.5   141.2  1948.6
  141.37 1948.62   142.2  1948.7   143.2  1948.8  143.22  1948.8  143.34 1948.81
  143.39 1948.82  143.49 1948.83   144.5 1948.89  144.65  1948.9  145.83 1948.98
  146.18    1949  147.12 1949.06  147.71  1949.1  148.39 1949.14  149.24  1949.2
  149.61 1949.22  150.77  1949.3  150.79  1949.3  150.85 1949.31  152.05 1949.35
  153.42  1949.4  153.55  1949.4  153.74 1949.41   154.6  1949.5  154.71 1949.51
  155.57  1949.6  155.83 1949.63  156.55  1949.7  157.39 1949.79   158.8  1949.7
  159.01 1949.69  159.53 1949.66  160.35 1949.67  161.38  1949.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02563.10001    .035  141.37    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        62.73  141.37             16.35   24.37   29.93             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2675.8

INPUT
Description:
Station Elevation Data    num=     272
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1948.9     .03  1948.91.570007 1948.863.650009  1948.84.930008 1948.76
5.860001 1948.737.290009 1948.768.740005 1948.7517.96001  1948.720.96001 1948.65
   26.41  1948.626.54001  1948.627.64001 1948.5833.18001 1948.51   34.38  1948.5
37.50001 1948.49    39.2 1948.4742.39001 1948.4248.43001 1948.4453.51001  1948.4
   58.63 1948.3158.80001  1948.359.12001 1948.29   59.27 1948.2959.50001  1948.3
60.17001 1948.3262.46001  1948.463.14001 1948.4264.08001 1948.4365.31001  1948.5
65.40001  1948.565.53001  1948.567.33001 1948.5367.73001 1948.5468.06001  1948.5
68.24001 1948.48   68.91  1948.469.35001 1948.35   69.77  1948.3   70.34 1948.23
70.62001  1948.271.01001 1948.1672.03001 1948.1572.42001  1948.173.01001 1948.04
73.71001    194874.68001 1947.9475.23001  1947.976.24001 1947.8276.30001 1947.82
   76.52 1947.8176.61001 1947.82   81.41 1947.8485.12001 1947.8685.92001  1947.8
86.46001 1947.76   87.34  1947.788.35001 1947.6388.76001  1947.690.00001 1947.51
90.18001  1947.590.35001 1947.4991.60001  1947.4   91.66  1947.491.89001 1947.38
92.15001 1947.3492.30001  1947.392.36001 1947.2892.65001  1947.292.78001 1947.16
93.01001  1947.193.17001 1947.0593.36001    194793.53001 1946.9593.72001  1946.9
93.90001 1946.8594.07001  1946.894.26001 1946.7594.42001  1946.794.62001 1946.65
94.78001  1946.694.97001 1946.54   95.13  1946.595.33001 1946.4495.49001  1946.4
95.69001 1946.34   95.84  1946.396.05001 1946.24    96.2  1946.296.40001 1946.14
96.55001  1946.196.76001 1946.04   96.91    194697.11001 1945.9497.26001  1945.9
97.47001 1945.8497.62001  1945.897.82001 1945.7497.97001  1945.798.18001 1945.64
98.33001  1945.698.53001 1945.5498.68001  1945.598.84001 1945.4599.03001  1945.4
99.23001 1945.3499.39001  1945.399.64001 1945.2399.74001  1945.2  100.09  1945.1
   100.1  1945.1  100.14 1945.09  100.81    1945  100.96 1944.98  101.56  1944.9
  101.83 1944.86  102.31  1944.8  102.67 1944.75  103.08  1944.7  103.46 1944.65
  103.81  1944.6  104.24 1944.54  104.56  1944.5  105.03 1944.44  105.31  1944.4
  105.83 1944.33  106.07  1944.3  106.65 1944.22  106.82  1944.2  107.49 1944.11
  107.57  1944.1  107.65 1944.09  108.45    1944  108.81 1943.96  109.22  1943.9
  109.57 1943.86  109.99  1943.8  110.16 1943.78  110.33 1943.76  110.75  1943.7
  111.27 1943.63  112.52  1943.6   115.5 1943.66  117.17  1943.7  119.85 1943.76
  121.55 1943.78  122.55 1943.79  122.67  1943.8   122.7  1943.8  123.75  1943.9
  123.88 1943.91  124.84    1944  124.91 1944.01  125.77 1944.09   125.9  1944.1
  125.93  1944.1  126.93 1944.19  127.08  1944.2  127.22 1944.21  128.23  1944.3
  128.59 1944.33   129.5  1944.4  130.45 1944.49  130.55  1944.5  130.83 1944.53
  131.06  1944.6  131.11 1944.62  131.34  1944.7  131.53 1944.76  131.64  1944.8
  131.83 1944.86  131.93  1944.9  132.12 1944.97  132.22    1945  132.42 1945.07
  132.52  1945.1  132.72 1945.17  132.81  1945.2  133.02 1945.27  133.11  1945.3
  133.32 1945.37   133.4  1945.4  133.61 1945.47   133.7  1945.5  133.91 1945.57
  133.99  1945.6  134.21 1945.67  134.29  1945.7  134.51 1945.78  134.58  1945.8
  134.81 1945.88  134.88  1945.9  135.11 1945.98  135.17    1946  135.41 1946.08
  135.47  1946.1  135.71 1946.18  135.76  1946.2  136.01 1946.28  136.05  1946.3
  136.31 1946.39  136.35  1946.4  136.61 1946.49  136.64  1946.5  136.91 1946.59
  136.94  1946.6  137.21 1946.69  137.23  1946.7  137.52  1946.8  137.53  1946.8
  137.82  1946.9  137.93 1946.94   138.1    1947  138.11    1947  138.38  1947.1
  138.39  1947.1  138.65 1947.19  138.67  1947.2  138.93 1947.29  138.95  1947.3
   139.2 1947.39  139.23  1947.4  139.48 1947.49   139.5  1947.5  139.75 1947.59
  139.78  1947.6  140.03 1947.69  140.06  1947.7   140.3 1947.79  140.34  1947.8
  140.58 1947.88  140.62  1947.9  140.86 1947.98   140.9    1948  141.13 1948.08
  141.18  1948.1  141.41 1948.18  141.46  1948.2  141.69 1948.28  141.74  1948.3
  141.96 1948.38  142.02  1948.4  142.24 1948.48   142.3  1948.5  142.52 1948.58
  142.58  1948.6   142.8 1948.68  142.86  1948.7  143.07 1948.78  143.14  1948.8
  143.35 1948.88  143.42  1948.9  143.49 1948.93   143.7    1949  143.79 1949.03
  143.98  1949.1  144.11 1949.15  144.26  1949.2  144.45 1949.27  144.52  1949.3
  144.71 1949.36  145.92  1949.3  147.48 1949.22  147.91  1949.2  148.67 1949.16
  149.14 1949.17  152.75  1949.2  160.47 1949.27  160.85  1949.3  162.11 1949.39
  162.79  1949.4  162.82  1949.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02567.33001    .035  144.52    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        59.27  144.52              25.2   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2650.79

INPUT
Description:
Station Elevation Data    num=     294
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.36     .21 1948.35    1.49  1948.3     4.8 1948.23    5.96  1948.2
     6.8 1948.25    7.74  1948.2    8.05 1948.21    8.09  1948.2     8.4 1948.21
   12.98 1948.22   13.66 1948.22    15.4 1948.22   15.93 1948.21   16.15  1948.2
    16.7 1948.18   17.06  1948.2   17.64 1948.24   18.63  1948.3   19.44 1948.35
```

20.2	1948.4	20.62	1948.43	20.96	1948.45	22.08	1948.44	23.15	1948.44
24.32	1948.4	25.61	1948.36	25.77	1948.36	26.15	1948.4	26.32	1948.43
26.67	1948.5	26.85	1948.53	27.2	1948.6	27.44	1948.65	28.18	1948.6
28.54	1948.58	31.08	1948.5	33.97	1948.41	34.39	1948.4	37.08	1948.32
37.62	1948.3	37.65	1948.3	40.49	1948.2	40.74	1948.19	40.75	1948.19
40.9	1948.19	43.62	1948.1	44.54	1948.11	44.78	1948.1	45.12	1948.12
51.81	1948.1	52.12	1948.1	54.79	1948.12	55.23	1948.1	55.48	1948.12
55.52	1948.1	56.42	1948.08	56.76	1948.09	60.91	1948.04	65.66	1948.02
66.05	1948.06	66.7	1948.1	66.84	1948.11	68.2	1948.2	68.27	1948.2
68.28	1948.2	68.42	1948.2	68.61	1948.2	72.88	1948.25	75.56	1948.28
75.85	1948.2	75.93	1948.18	76.14	1948.17	76.48	1948.1	77	1948.17
77.19	1948.2	77.78	1948.28	78.26	1948.2	78.65	1948.13	78.84	1948.1
79.42	1948	79.43	1948	79.47	1947.99	79.56	1947.9	79.57	1947.88
79.65	1947.8	79.68	1947.77	79.75	1947.7	79.79	1947.66	79.84	1947.6
79.89	1947.55	79.94	1947.5	79.99	1947.45	80.03	1947.4	80.08	1947.35
80.13	1947.3	80.19	1947.24	80.22	1947.2	80.31	1947.1	80.32	1947.1
80.32	1947.09	80.58	1947	80.64	1946.98	80.87	1946.9	81	1946.87
81.23	1946.8	81.36	1946.76	81.59	1946.7	81.73	1946.66	81.95	1946.6
82.1	1946.56	82.31	1946.5	82.47	1946.46	82.67	1946.4	82.84	1946.35
83.03	1946.3	83.21	1946.25	83.39	1946.2	83.58	1946.15	83.75	1946.1
83.95	1946.04	84.11	1946	84.32	1945.94	84.47	1945.9	84.7	1945.84
84.83	1945.8	85.08	1945.73	85.19	1945.7	85.46	1945.63	85.55	1945.6
85.84	1945.52	85.91	1945.5	86.22	1945.41	86.27	1945.4	86.61	1945.3
86.63	1945.3	86.8	1945.25	86.96	1945.2	86.98	1945.2	87.27	1945.1
87.32	1945.08	87.58	1945	87.68	1944.97	87.9	1944.9	88.04	1944.85
88.21	1944.8	88.42	1944.73	88.52	1944.7	88.82	1944.6	88.83	1944.6
89.32	1944.5	89.33	1944.49	89.78	1944.4	89.83	1944.39	90.26	1944.3
90.33	1944.29	90.74	1944.2	90.82	1944.18	91.21	1944.1	91.31	1944.08
91.69	1944	92.09	1943.92	92.17	1943.9	92.61	1943.81	92.72	1943.8
92.77	1943.8	94.34	1943.7	94.89	1943.67	95.96	1943.6	96.93	1943.54
97.57	1943.5	98.35	1943.45	99	1943.46	99.9	1943.47	101.57	1943.48
106.54	1943.4	106.68	1943.41	108.1	1943.5	108.87	1943.55	109.61	1943.6
110.39	1943.65	111.12	1943.7	111.9	1943.75	112.63	1943.8	113.42	1943.85
114.15	1943.9	114.95	1943.95	115.66	1944	116.5	1944.06	117.17	1944.1
117.49	1944.13	118.14	1944.2	118.44	1944.3	118.45	1944.3	118.51	1944.32
118.73	1944.38	118.79	1944.4	119.05	1944.47	119.13	1944.5	119.38	1944.57
119.48	1944.6	119.71	1944.67	119.82	1944.7	120.05	1944.77	120.17	1944.8
120.39	1944.87	120.51	1944.9	120.74	1944.96	120.86	1945	121.08	1945.06
121.2	1945.1	121.42	1945.16	121.55	1945.2	121.77	1945.26	121.89	1945.3
122.11	1945.36	122.24	1945.4	122.45	1945.46	122.58	1945.5	122.8	1945.56
122.93	1945.6	123.14	1945.66	123.27	1945.7	123.49	1945.76	123.62	1945.8
123.83	1945.86	123.96	1945.9	124.18	1945.96	124.31	1946	124.52	1946.06
124.65	1946.1	124.86	1946.16	125	1946.2	125.21	1946.26	125.34	1946.3
125.55	1946.36	125.69	1946.4	125.9	1946.46	126.03	1946.5	126.24	1946.56
126.38	1946.6	126.59	1946.66	126.72	1946.7	126.93	1946.76	127.07	1946.8
127.28	1946.86	127.41	1946.9	127.62	1946.96	127.76	1947	127.97	1947.06
128.1	1947.1	128.31	1947.16	128.45	1947.2	128.65	1947.26	128.79	1947.3
129	1947.36	129.14	1947.4	129.34	1947.46	129.48	1947.5	129.69	1947.56
129.83	1947.6	130.03	1947.66	130.17	1947.7	130.38	1947.76	130.51	1947.8
130.72	1947.86	130.86	1947.9	131.07	1947.96	131.2	1948	131.41	1948.06
131.55	1948.1	131.76	1948.16	131.89	1948.2	132.1	1948.26	132.24	1948.3
132.45	1948.36	132.58	1948.4	132.75	1948.45	132.93	1948.5	133.14	1948.56
133.27	1948.6	133.57	1948.69	133.62	1948.7	133.73	1948.73	134.38	1948.7
134.6	1948.69	136.37	1948.6	137.45	1948.55	138.37	1948.5	139	1948.51
140.66	1948.55	145.87	1948.55	148.27	1948.5	150.6	1948.53		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	77.78	.035	133.73	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
77.78	133.73	21.98	24.6	26.83	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2626.19

INPUT
Description:
Station Elevation Data num= 286

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1948.43.1599884	1948.442.809998	1948.45.799988	1948.368.909988	1948.3
9.769989	1948.28	16.39	1948.216.48999	1948.2	16.62	1948.220.01999	1948.2
20.09	1948.220.10999	1948.220.12999	1948.2	20.62	1948.320.80999	1948.34
21.13999	1948.421.32999	1948.4422.21999	1948.4522.23999	1948.522.64999	1948.45
23.69999	1948.4623.88999	1948.524.87999	1948.5	25.16	1948.44	25.34	1948.4
25.62	1948.34	25.8	1948.3	26.09	1948.2426.25999	1948.2	26.55	1948.14
26.70999	1948.127.16999	194827.53999	1947.9733.39999	1947.9738.95999	1947.96
42.53999	1947.9543.78999	1947.9544.87999	1947.9646.14999	1947.9547.70999	1947.95
51.8	1947.9354.18999	1947.91	55.91	1947.956.84999	1947.8563.92999	1947.82
65.28999	1947.8465.75999	1947.8766.03999	1947.9	66.09	1947.94	66.16	1948
66.23	1948.0666.26999	1948.166.34999	1948.1766.38999	1948.266.46999	1948.27
66.50999	1948.3	66.59	1948.3766.62999	1948.466.70999	1948.4766.73999	1948.5
66.77999	1948.5366.85999	1948.666.92999	1948.66	66.98	1948.767.05999	1948.77
67.24	1948.868.57999	1948.7268.70999	1948.7	68.87	1948.67	69.34	1948.6
69.48	1948.58	69.87	1948.5270.06999	1948.570.59999	1948.45	70.8	1948.4
71.12	1948.371.12999	1948.371.44999	1948.271.45999	1948.271.77999	1948.1
71.78999	1948.172.10999	1948	72.12	194872.43999	1947.972.44999	1947.9
72.76999	1947.872.77999	1947.873.10999	1947.773.14999	1947.6973.41999	1947.6
73.42999	1947.673.73999	1947.573.74999	1947.5	74.05	1947.474.06999	1947.39
74.37	1947.374.39999	1947.2974.67999	1947.274.71999	1947.1974.99999	1947.1
75.03999	1947.0975.30999	1947	75.37	1946.9875.62999	1946.975.68999	1946.88
75.93999	1946.876.01999	1946.7876.24999	1946.7	76.34	1946.6776.56999	1946.6
76.66999	1946.5776.87999	1946.576.99999	1946.4677.19999	1946.477.31999	1946.36
77.50999	1946.377.64999	1946.2677.82999	1946.2	77.98	1946.1578.13999	1946.1
78.30999	1946.0578.45999	194678.64999	1945.9478.76999	1945.9	78.98	1945.83
79.09	1945.879.31999	1945.7379.39999	1945.779.64999	1945.6279.71999	1945.6
79.98999	1945.5180.02999	1945.580.32999	1945.480.34999	1945.480.48999	1945.36
80.69999	1945.381.07999	1945.2	81.09	1945.281.46999	1945.181.48999	1945.1
81.85999	1945.0181.87999	194582.23999	1944.9182.26999	1944.982.62999	1944.81
82.65999	1944.883.01999	1944.7183.04999	1944.783.39999	1944.6183.43999	1944.6
83.78999	1944.5183.82999	1944.584.17999	1944.4184.21999	1944.484.56999	1944.31
84.60999	1944.384.95999	1944.2185.00999	1944.2	85.34	1944.1185.39999	1944.1
85.73	1944.0185.78999	1944	86.12	1943.9186.17999	1943.986.50999	1943.81

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86.56999  1943.886.89999 1943.7286.95999  1943.787.28999 1943.6287.34999  1943.6
87.67999 1943.5287.73999  1943.588.06999 1943.4288.12999  1943.488.45999 1943.32
88.52999  1943.388.67999 1943.26   89.81 1943.2390.15999 1943.2290.24999  1943.2
   92.95 1943.23   98.92  1943.3  100.58 1943.35  100.89  1943.4  101.09 1943.43
  101.51  1943.5  101.91 1943.56  102.13  1943.6  102.31 1943.63  102.76  1943.7
     103 1943.74  103.38  1943.8  103.99  1943.9     104  1943.9  104.03  1943.9
  105.84    1944  107.58 1944.09  107.59  1944.1  107.74  1944.2  107.77 1944.22
  107.88  1944.3  108.01 1944.39  108.03  1944.4  108.17  1944.5   108.2 1944.52
  108.61  1944.6  108.68 1944.62  109.09  1944.7  109.23 1944.73  109.58  1944.8
  109.75 1944.84  110.07  1944.9  110.27 1944.94  110.55    1945  110.77 1945.04
  111.04  1945.1  111.28 1945.15  111.53  1945.2  111.78 1945.25  112.04  1945.3
  112.29 1945.35  112.54  1945.4   112.8 1945.46  112.99  1945.5  113.32 1945.57
  113.48  1945.6  113.84 1945.68  113.96  1945.7  114.37 1945.78  114.45  1945.8
  114.89 1945.89  114.94  1945.9  115.38 1945.99  115.43    1946  115.95  1946.1
     116 1946.11  116.47  1946.2  116.56 1946.22     117  1946.3  117.11 1946.32
  117.52  1946.4  117.66 1946.43  118.04  1946.5   118.2 1946.53  118.56  1946.6
  118.74 1946.63  119.09  1946.7  119.28 1946.74  119.61  1946.8  119.82 1946.84
  120.13  1946.9  120.35 1946.94  120.66    1947  120.89 1947.04  121.18  1947.1
  121.42 1947.15   121.7  1947.2  121.95 1947.25  122.22  1947.3  122.48 1947.35
  122.75  1947.4  123.01 1947.45  123.27  1947.5  123.54 1947.55  123.79  1947.6
  124.07 1947.65  124.32  1947.7  124.59 1947.75  124.84  1947.8  125.17 1947.86
  125.36  1947.9  125.78 1947.98  125.88    1948  126.29 1948.08  129.52 1948.08
   136.2  1948.1  140.57 1948.11  140.72  1948.1  140.84 1948.09  142.23    1948
     143 1947.95  143.74  1947.9  144.77 1947.83  145.25  1947.8   145.7 1947.77
  146.18 1947.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   67.24    .035  126.29    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        67.24  126.29             19.32   24.41   28.81             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2601.78

INPUT
Description:
Station Elevation Data    num=     280
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.01.6100006    19483.910004 1947.954.110001 1947.945.410004  1947.9
6.419998 1947.87 8.51001  1947.89.840012 1947.7611.60001  1947.7    13.7 1947.67
13.96001 1947.6715.32001 1947.67   19.87 1947.64   23.09  1947.625.42001 1947.57
   26.58 1947.5732.47001  1947.5    35.7 1947.45   35.76 1947.4536.47001 1947.43
   38.77 1947.4738.79001 1947.48   39.02 1947.4841.56001  1947.5   42.76 1947.51
   48.69 1947.5251.03001 1947.5251.92001  1947.553.85001 1947.4656.46001  1947.4
   58.83 1947.3559.64001 1947.33   59.84  1947.460.06001 1947.48   60.13  1947.5
60.39001 1947.5960.42001  1947.6    60.7  1947.760.90001 1947.77   60.98  1947.8
60.99001  1947.861.24001  1947.9   61.26 1947.9161.50001    194861.54001 1948.01
   61.76  1948.161.81001 1948.12   62.02  1948.262.07001 1948.2262.28001  1948.3
   62.34 1948.3262.54001  1948.462.60001 1948.43    62.8  1948.5   62.87 1948.53
63.06001  1948.6   63.13 1948.6363.32001  1948.763.40001 1948.73   63.58  1948.8
   63.77 1948.8764.31001 1948.83   64.53  1948.9   64.95 1948.84   65.05  1948.8
65.14001 1948.76   65.27  1948.7   65.37 1948.6665.49001  1948.6   65.59 1948.56
65.71001  1948.565.81001 1948.4665.93001  1948.466.04001 1948.3566.15001  1948.3
   66.26 1948.25   66.38  1948.266.49001 1948.1566.60001  1948.1    66.7 1948.04
66.78001    1948   66.87 1947.96   67.02  1947.9   67.12 1947.86   67.27  1947.8
67.39001 1947.7567.50001  1947.7   67.62 1947.6567.72001  1947.667.82001 1947.55
   67.94  1947.5   68.01 1947.45   68.12  1947.4   68.19 1947.35   68.26  1947.3
   68.33 1947.2468.40001  1947.2   68.48 1947.1468.53001  1947.1   68.62 1947.04
68.67001    1947   68.77 1946.9368.81001  1946.9   68.91 1946.83   68.95  1946.8
69.06001 1946.72   69.09  1946.769.21001 1946.6169.22001  1946.669.35001  1946.5
69.36001  1946.569.43001 1946.4569.54001  1946.4   69.55  1946.4   69.77  1946.3
    69.8 1946.2970.00001  1946.270.04001 1946.18   70.23  1946.170.28001 1946.08
70.46001    1946   70.52 1945.97   70.69  1945.9   70.76 1945.8770.92001  1945.8
71.00001 1945.7771.15001  1945.7   71.23 1945.66   71.38  1945.671.47001 1945.56
71.61001  1945.5    71.7 1945.46   71.84  1945.4   71.94 1945.3672.07001  1945.3
72.21001 1945.24    72.3  1945.2   72.51 1945.11   72.58  1945.172.64001 1945.09
73.74001    194574.32001 1944.9574.89001  1944.9    75.8 1944.82   76.05  1944.8
76.37001 1944.77   76.94  1944.7   77.55 1944.62   77.72  1944.6   78.44 1944.51
78.51001  1944.5   78.97 1944.4479.07001  1944.4   79.13 1944.3779.31001  1944.3
   79.47 1944.2479.56001  1944.279.76001 1944.12    79.8  1944.180.04001    1944
   80.05    194480.17001 1943.9580.32001  1943.9   80.61  1943.8   80.88 1943.71
   80.91  1943.781.17001 1943.6181.21001  1943.681.24001 1943.5981.51001  1943.5
82.21001 1943.41    82.3  1943.483.18001 1943.3584.32001 1943.3984.64001  1943.4
   85.33 1943.4285.53001  1943.4   85.61 1943.3986.46001  1943.3    86.8 1943.26
87.39001  1943.287.90001 1943.1488.31001  1943.1    88.7 1943.0689.24001    1943
90.40001    1943   91.16 1943.0791.43001  1943.191.67001 1943.1292.46001  1943.2
   92.69 1943.2293.48001  1943.3   94.45 1943.3994.51001  1943.4   95.02 1943.45
95.43001  1943.595.46001  1943.596.26001 1943.59   96.33  1943.697.10001 1943.69
97.21001  1943.7   97.95 1943.78   98.09  1943.898.81001 1943.8898.96001  1943.9
99.67001 1943.98   99.84    1944  100.53 1944.08  100.72  1944.1   101.4 1944.18
   101.6  1944.2  102.27 1944.28  102.47  1944.3   102.7 1944.32  103.44  1944.4
  103.71 1944.43  104.49  1944.5  104.77 1944.53  105.55  1944.6  105.84 1944.63
   106.6  1944.7  106.91 1944.73  107.66  1944.8     108 1944.83  108.72  1944.9
  109.11 1944.94  109.64    1945  110.12 1945.04  110.79  1945.1  111.41 1945.18
   111.6 1945.19  111.64  1945.2   111.7 1945.21  111.91  1945.3  112.12 1945.39
  112.14  1945.4  112.24 1945.45  112.39 1945.49  112.41  1945.5  112.69 1945.59
  112.72  1945.6  112.99 1945.69  113.04  1945.7   113.3 1945.78  113.35  1945.8
   113.6 1945.88  113.66  1945.9  113.91 1945.98  113.98    1946  114.22 1946.08
  114.29  1946.1  114.54 1946.18   114.6  1946.2  114.85 1946.28  114.91  1946.3
  115.16 1946.38  115.23  1946.4  115.47 1946.48  115.54  1946.5  115.78 1946.58
  115.85  1946.6  116.09 1946.68  116.17  1946.7  116.41 1946.78  116.48  1946.8
  116.72 1946.88  116.79  1946.9  117.03 1946.98  117.11    1947  117.34 1947.08
  117.42  1947.1  117.66 1947.18  117.73  1947.2  118.32 1947.24  119.53  1947.3
  121.17 1947.38  122.81 1947.37  125.71 1947.37   131.8 1947.35  139.99 1947.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   64.53     .05  121.17    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        64.53  121.17             24.17   25.19   26.43             .1       .3
```

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2576.59

INPUT
Description:
Station Elevation Data num= 277

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1947.141.360001	1947.13.070007	1947.05	4.51001	19477.070007	1946.92			
7.650009	1946.97.979996	1946.8710.04001	1946.9	10.11	1946.92	11.03	1946.9		
12.04001	1946.9513.01001	1947	14.38	1947.08	14.72	1947.115.01001	1947.13		
17.60001	1947.13	18.39	1947.13	19.7	1947.14	22.05	1947.1622.06001	1947.16	
22.59	1947.12	23.13	1947.2	23.34	1947.23	23.84	1947.324.10001	1947.34	
24.54	1947.424.85001	1947.4525.24001	1947.5	25.61	1947.55	25.93	1947.6		
26.36	1947.66	26.62	1947.7	32.94	1947.79	33.19	1947.79	33.3	1947.79
33.88	1947.77	34.18	1947.8	35	1947.87	35.28	1947.9	35.3	1947.9
36.2	1948	36.28	1948.01	37.12	1948.1	37.28	1948.12	38.04	1948.2
38.31001	1948.23	38.55	1948.26	38.96	1948.3	39.41	1948.35	39.87	1948.4
40.63	1948.48	40.79	1948.541.10001	1948.53	41.46	1948.5	41.87	1948.46	
42.51	1948.4	43.48	1948.31	47.05	1948.3	48.79	1948.3	48.84	1948.3
48.86	1948.3	50.15	1948.4	50.53	1948.43	51.45	1948.5	52.12	1948.55
52.75	1948.6	55.68	1948.69	55.73	1948.7	58.22	1948.79	58.26	1948.79
58.27	1948.79	59.71	1948.8	63.26	1948.7	63.51	1948.69	64.11	1948.68
64.35001	1948.6	64.43	1948.57	64.65	1948.5	64.78	1948.46	64.96	1948.4
65.12	1948.35	65.26	1948.3	65.44	1948.24	65.57	1948.2	65.76	1948.14
65.87	1948.1	66.08	1948.03	66.18	1948	66.39	1947.93	66.48	1947.9
66.7	1947.83	66.79	1947.8	67.01	1947.73	67.09	1947.767.17001	1947.67	
67.4	1947.6	67.48	1947.57	67.7	1947.5	67.79	1947.47	68	1947.4
68.10001	1947.3768.31001	1947.3	68.41	1947.27	68.61	1947.2	68.72	1947.16	
68.91	1947.1	69.03	1947.06	69.21	1947	69.34	1946.96	69.47	1946.9
69.60001	1946.86	69.69	1946.8	69.79	1946.76	69.88	1946.7	69.97	1946.64
70.05	1946.6	70.14	1946.54	70.22	1946.570.31001	1946.44	70.39	1946.4	
70.48	1946.34	70.55	1946.3	70.65	1946.24	70.72	1946.2	70.82	1946.14
70.89	1946.170.99001	1946.0471.06001	1946	71.16	1945.94	71.22	1945.9		
71.32	1945.84	71.39	1945.871.49001	1945.74	71.55	1945.7	71.66	1945.63	
71.72	1945.6	71.82	1945.53	71.88	1945.571.99001	1945.43	72.05	1945.4	
72.16	1945.33	72.21	1945.3	72.32	1945.23	72.4	1945.2	72.51	1945.13
72.60001	1945.1	72.71	1945.03	72.8	1945	73.03	1944.91	73.07	1944.9
73.18	1944.86	73.59	1944.8	73.8	1944.77	74.25	1944.7	74.61	1944.65
74.91	1944.6	75.34	1944.54	75.57	1944.5	75.84	1944.46	76.23	1944.4
76.58	1944.35	76.9	1944.3	77.37	1944.2377.56001	1944.2	78.14	1944.11	
78.32	1944.1	78.54	1944.09	79.79	1944	80.27	1943.9780.56001	1943.9	
80.64	1943.88	80.98	1943.8	81.36	1943.71	81.41	1943.7	81.7	1943.63
82.03	1943.6	82.17	1943.59	83.03	1943.583.43001	1943.46	84.03	1943.4	
84.58	1943.35	85.04	1943.3	85.42	1943.26	86.04	1943.2	86.76	1943.13
87.04	1943.187.68001	1943.06	88.03	1943.06	89.47	1943.191.32001	1943.13		
92.64	1943.2	93.2	1943.23	94.41	1943.3	95.64	1943.3796.18001	1943.4	
97.84	1943.49	97.92	1943.5	97.98	1943.5	99.25	1943.6	99.88	1943.65
100.59	1943.7	101.49	1943.77	101.89	1943.8	102.72	1943.88	102.92	1943.9
103.6	1943.98	103.79	1944	104.48	1944.08	104.66	1944.1	104.82	1944.12
105.53	1944.2	105.72	1944.22	106.41	1944.3	106.61	1944.32	107.28	1944.4
107.51	1944.43	108.16	1944.5	108.41	1944.53	109.03	1944.6	109.31	1944.63
109.91	1944.7	110.48	1944.77	110.75	1944.77	110.98	1944.8	111.19	1944.82
111.91	1944.9	112.14	1944.93	112.84	1945	113.08	1945.03	113.77	1945.1
114.17	1945.14	114.71	1945.2	115.45	1945.28	115.65	1945.3	115.93	1945.33
116.2	1945.4	116.31	1945.43	116.58	1945.5	116.82	1945.56	116.97	1945.6
117.12	1945.64	117.35	1945.7	117.49	1945.74	117.73	1945.8	117.86	1945.83
118.12	1945.9	118.22	1945.93	118.5	1946	118.57	1946.02	118.88	1946.1
118.9	1946.1	118.95	1946.12	119.55	1946.18	119.7	1946.2	120.3	1946.27
120.6	1946.3	121.09	1946.35	121.51	1946.4	121.96	1946.45	122.41	1946.5
123.01	1946.57	123.32	1946.6	124.08	1946.68	124.31	1946.7	124.35	1946.7
124.83	1946.73	125.73	1946.77	126.51	1946.77	127.18	1946.8	128.08	1946.81
131.75	1946.88	133	1946.9	133.98	1946.92	138.6	1947	139.97	1947.02
144.2	1947.1	144.94	1947.11						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	59.71	.035	124.83	.025

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

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
59.71	124.83	36.89	25.23	18.12	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2551.36

INPUT
Description:
Station Elevation Data num= 361

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1947.19	.41	1947.12	.54	1947.1	.58	1947.09	.86	1947
1.049	1946.94	1.16	1946.9	1.45	1946.81	1.471	1946.81.529999	1946.78	
2.23999	1946.78	4.48999	1946.754.830002	1946.84.839996	1946.81	4.87999	1946.8		
5.080002	1946.786.789993	1946.78.119995	1946.638.799988	1946.69.729996	1946.55				
10.47	1946.5211.14999	1946.611.68999	1946.6711.81999	1946.7	11.89	1946.72			
12.22	1946.812.40999	1946.85	12.61	1946.912.87999	1946.9713.00999	1947			
13.33	1947.0813.40999	1947.1	13.48	1947.1213.79999	1947.213.92999	1947.23			
14.2	1947.3	14.45	1947.35	14.59	1947.4	14.75	1947.4614.81999	1947.49	
14.86	1947.49	14.87	1947.514.87999	1947.5	15.17	1947.615.18999	1947.61		
15.45999	1947.715.50999	1947.7115.75999	1947.8	15.83	1947.82	16.06	1947.9		
16.17	1947.9416.34999	194816.51999	1948.0616.64999	1948.116.89999	1948.19				
16.93999	1948.217.04999	1948.2317.23999	1948.2	17.75	1948.11	17.81	1948.1		
17.84999	1948.0917.87999	1948.1	17.92	1948.1118.28999	1948.2	18.47	1948.25		
18.59	1948.21	18.62	1948.2	18.87	1948.12	18.95	1948.1	19.17	1948.03
19.27999	194819.46999	1947.9419.60999	1947.919.78999	1947.8519.92999	1947.8				
20.09999	1947.7520.25999	1947.7	20.42	1947.65	20.59	1947.6	20.74	1947.55	
20.92	1947.521.17999	1947.4221.24999	1947.421.31999	1947.38	21.48	1947.4			
21.60999	1947.4522.03999	1947.45	22.2	1947.422.42999	1947.3322.52999	1947.3			
22.81999	1947.2123.82999	1947.2724.24999	1947.29	24.42	1947.324.95999	1947.32			
25.06999	1947.425.10999	1947.43	25.2	1947.525.27999	1947.55	25.34	1947.6		
25.42999	1947.67	25.48	1947.725.56999	1947.7725.60999	1947.825.71999	1947.88			

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25.74999  1947.9   25.87 1947.99   25.88    1948   25.95 1948.0526.00999    1948
   26.02 1947.99   26.12  1947.926.14999 1947.88   26.23  1947.8   26.27 1947.77
26.34999  1947.726.38999 1947.6626.45999  1947.626.50999 1947.5526.56999  1947.5
26.63999 1947.4426.67999  1947.426.78999  1947.3    26.8 1947.2927.63999  1947.2
   28.34  1947.128.77999 1947.04   29.16 1947.04   29.55 1947.0530.64999  1947.1
   30.73 1947.1430.84999  1947.230.96999 1947.26   31.05  1947.331.17999 1947.37
   31.24  1947.431.38999 1947.4731.43999  1947.531.59999 1947.5831.63999  1947.6
31.81999 1947.69   31.84  1947.731.96999 1947.7732.24999  1947.832.34999 1947.81
   33.12  1947.9   33.62 1947.9633.99999    194834.57999 1948.0735.25999 1948.01
35.38999    194836.25999 1947.9336.57999  1947.9   37.24 1947.8437.74999  1947.8
    38.2 1947.7638.89999  1947.739.14999 1947.68   40.02  1947.640.07999  1947.6
40.31999 1947.57   40.81  1947.5   41.23 1947.44   42.77 1947.43   46.67 1947.42
   46.99  1947.447.70999 1947.36   48.95  1947.349.28999 1947.28   50.17  1947.2
50.56999 1947.1651.21999  1947.1   52.92 1947.07   53.31    1947   53.67 1946.91
53.71999  1946.9   53.95 1946.84   54.34 1946.85   55.06 1946.86   55.38 1946.85
56.07999 1946.83   57.05 1946.8359.06999 1946.8159.27999  1946.8   61.73 1946.71
   61.84  1946.762.57999 1946.6463.06999 1946.6763.17999 1946.6863.28999  1946.7
63.38999 1946.72   63.87  1946.864.25999 1946.87   64.45  1946.964.49999 1946.91
64.92999 1946.91   64.95  1946.9   64.98 1946.89   65.17  1946.865.20999 1946.78
65.38999  1946.765.42999 1946.6865.60999  1946.6   65.66 1946.5865.82999  1946.5
65.88999 1946.47   66.05  1946.4   66.12 1946.37   66.27  1946.366.35999 1946.26
   66.49  1946.266.59999 1946.1566.70999  1946.166.85999 1946.0366.92999    1946
   67.13  1945.967.13999  1945.9   67.17 1945.89   67.48  1945.867.53999 1945.78
   67.84  1945.767.95999 1945.6768.18999  1945.6   68.48 1945.55   68.84  1945.5
69.09999 1945.4769.57999  1945.4   69.67 1945.3969.89999 1945.3670.03999 1945.31
70.07999  1945.370.31999 1945.2270.38999  1945.2   70.62 1945.13    70.7  1945.1
   70.92 1945.03   71.02    1945    71.3 1944.93   71.42  1944.9    71.8 1944.81
71.85999  1944.8   72.24 1944.7172.31999  1944.772.32999  1944.7   72.92  1944.6
   72.99 1944.5973.50999  1944.5   73.63 1944.4874.09999  1944.474.24999 1944.37
74.67999  1944.375.14999 1944.2275.24999  1944.2   75.48 1944.1677.71999  1944.1
   79.84 1944.04   80.34    194480.45999 1943.99   81.48  1943.9   81.77 1943.87
   82.62  1943.8   83.05 1943.7684.37999  1943.786.03999 1943.6286.50999  1943.6
    86.7 1943.59   88.03 1943.53   88.64 1943.53   89.41 1943.53   89.75 1943.53
   89.95 1943.51      90  1943.590.67999 1943.4290.84999  1943.490.98999 1943.38
    91.7  1943.3   92.28 1943.2393.32999  1943.297.03999 1943.2797.51999  1943.3
    98.8 1943.3998.92999  1943.4   99.28 1943.42  101.56  1943.5  102.92 1943.55
  103.54  1943.6  103.77 1943.62  104.67  1943.7  105.74 1943.79   105.8  1943.8
  105.93 1943.81  109.77  1943.9  110.26 1943.96  110.47    1944  110.57 1944.02
  110.98  1944.1  111.16 1944.14  111.48  1944.2  111.71 1944.24  111.99  1944.3
  112.23 1944.35   112.5  1944.4  112.75 1944.45     113  1944.5  113.26 1944.55
  113.51  1944.6  113.78 1944.65  114.01  1944.7  114.29 1944.75  114.52  1944.8
   114.8 1944.85  115.03  1944.9  115.31 1944.96  115.53    1945  115.82 1945.06
  116.04  1945.1  116.32 1945.16  116.54  1945.2  116.83 1945.26  117.05  1945.3
  117.34 1945.36  117.56  1945.4  117.88 1945.46  118.33  1945.5  118.66 1945.52
  120.71  1945.6  121.77 1945.64  122.49  1945.7  122.62 1945.71  123.67  1945.8
  123.94 1945.82  124.85  1945.9   125.2 1945.93  126.03    1946  126.44 1946.03
  127.21  1946.1  128.06 1946.17  128.39  1946.2  129.53  1946.3  129.57  1946.3
  129.68 1946.31  131.28  1946.4  131.79 1946.43  132.75 1946.48  133.04  1946.5
  133.85 1946.55  134.81  1946.6  135.79 1946.66  136.58  1946.7  137.68 1946.76
  138.34  1946.8  139.07 1946.84  140.11  1946.9  141.01 1946.95  141.87    1947
  143.06 1947.07  143.64  1947.1  145.31 1947.19  145.41  1947.2  145.63 1947.21
  147.01 1947.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02564.92999    .035  118.33    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         64.45  117.88             19.09   24.92   30.78             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2526.44

INPUT
Description:
Station Elevation Data    num=     269
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1944.511.610001 1944.572.520004  1944.64.099991 1944.655.490005  1944.7
6.529999 1944.738.459991  1944.88.770004 1944.819.490005 1944.8312.53999 1944.86
15.39999  1944.9   22.92 1944.98   23.23 1944.97   24.88 1944.92   25.42 1944.92
   25.86 1944.91   26.17 1944.91   26.45 1944.93   26.56 1944.93   32.37  1944.9
    34.6 1944.8935.43999 1944.88   35.47 1944.88    35.7 1944.88   36.21  1944.9
   38.15 1944.99   38.35    1945   38.43    194538.50999    1945   39.58 1944.95
    42.7 1944.94   44.58 1944.94    45.8    1945   47.21 1945.07   47.82  1945.1
    48.1 1945.11   48.99 1945.14   49.83  1945.150.75999 1945.19   50.91  1945.2
51.00999 1945.21   51.29 1945.22   52.03 1945.26   52.91 1945.24   53.71 1945.22
   54.59  1945.3    55.4 1945.37   55.71  1945.3   55.92 1945.23   55.99  1945.2
   56.08 1945.17   56.28  1945.1   56.38 1945.07   56.57    1945   56.67 1944.96
   56.85  1944.9   56.98 1944.85   57.14  1944.8   57.32 1944.74   57.42  1944.7
   57.65 1944.62   57.97  1944.7   58.04 1944.72   58.16  1944.758.18999  1944.7
   58.83  1944.6   59.03 1944.57    59.5  1944.5   59.91 1944.44   60.18  1944.4
   60.54 1944.35   60.85  1944.3   61.16 1944.26   61.53  1944.2   61.75 1944.17
    62.2  1944.1   62.29 1944.09   62.49 1944.06    62.6    1944   62.79  1943.9
    62.8 1943.89   62.99  1943.8   63.17  1943.7   63.18  1943.7   63.25 1943.67
   63.63 1943.63   64.04  1943.6   64.66 1943.55   65.24  1943.5   65.74 1943.45
   66.39  1943.4   67.07 1943.3467.50999  1943.3   68.32 1943.22   68.59  1943.2
   69.52 1943.11   69.67  1943.1   70.68    1943   70.73    1943   71.35 1942.94
   71.78 1942.91   71.84  1942.971.93999 1942.89   73.06  1942.8   73.72 1942.75
   74.27  1942.7   74.68 1942.67   75.74 1942.62   75.96 1942.61   76.11  1942.6
76.18999 1942.59   77.47  1942.5   78.23 1942.45   78.86  1942.4   79.91 1942.33
   80.28  1942.3   81.89 1942.21      82  1942.2    82.1 1942.19   82.56 1942.17
   83.42 1942.16   84.98 1942.15   85.49 1942.16   86.27  1942.1   86.82 1942.07
88.00999 1942.09   88.57  1942.1    91.1 1942.14   91.35  1942.1   91.41 1942.09
   91.98    1942   92.28 1941.95   92.61  1941.9   93.03 1941.83   93.56  1941.9
93.92999 1941.95   94.37    1942   95.02 1942.0895.17999  1942.1   95.98  1942.2
   95.99  1942.2      96  1942.2   96.05  1942.2   96.07 1942.21    96.3  1942.2
   97.47 1942.15   98.39 1942.17   99.82  1942.2  100.87 1942.22  101.29 1942.25
  101.52  1942.3  101.53  1942.3  102.06  1942.4  102.29 1942.44  102.61  1942.5
  102.62  1942.5  103.17  1942.6  103.19  1942.6  103.72  1942.7  103.77 1942.71
  104.28  1942.8  104.34 1942.81  104.84  1942.9  104.93 1942.92  105.39    1943
  105.52 1943.02  105.95  1943.1  106.12 1943.13   106.5  1943.2  106.74 1943.24
  107.06  1943.3  107.38 1943.36  107.62  1943.4  108.06 1943.48  108.17  1943.5
  108.49 1943.56  108.73  1943.6  108.75  1943.6   109.3  1943.7  109.42 1943.72
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  109.87  1943.8  110.33 1943.79  110.48 1943.78  111.32 1943.77  112.16  1943.8
  112.68 1943.72  112.85  1943.7  113.03 1943.67  113.38  1943.7  113.53 1943.71
   114.7  1943.8  114.82 1943.81  115.15 1943.82  116.19 1943.84  117.63 1943.81
  118.23 1943.83  118.81 1943.85  118.92 1943.85  119.87  1943.9  120.41 1943.94
  121.73    1944  121.96 1944.02  122.87  1944.1  122.97 1944.11  123.09 1944.12
  123.18  1944.1  123.22 1944.09  123.62    1944  123.81 1943.96  123.83 1943.94
  123.85  1943.9  124.44 1943.85  127.65 1943.86  128.84  1943.8  129.55 1943.76
  129.63 1943.76  130.38  1943.8  131.44 1943.86  132.51 1943.86  133.26 1943.86
  133.96  1943.8  134.34 1943.76  134.91  1943.7  135.77  1943.6  138.34  1943.6
  138.52  1943.6  140.51  1943.7  142.29 1943.79  142.53  1943.8  143.05 1943.85
  143.64  1943.9  143.85 1943.92   144.1    1944  144.18 1944.03  144.42  1944.1
  144.55 1944.14  144.73  1944.2   144.9 1944.25  145.05  1944.3  145.22 1944.35
  145.36  1944.4  145.56 1944.46  145.68  1944.5  145.91 1944.57  145.99  1944.6
  146.27 1944.69  146.31  1944.7  146.55 1944.78  146.82 1944.79  147.15  1944.8
  148.18 1944.84   149.6 1944.89  149.61  1944.9  149.72    1945  149.73 1945.01
  149.82  1945.1  149.85 1945.12  149.93  1945.2  149.96 1945.23  150.03  1945.3
  150.07 1945.34  150.14  1945.4  150.18 1945.44  150.24  1945.5  150.31 1945.56
  150.35  1945.6  150.62 1945.56  150.77  1945.5  150.92 1945.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    55.4    .035  122.97    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          55.4  122.87             44.23   24.96   30.79             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2501.48

INPUT
Description:
Station Elevation Data    num=     128
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1942.18     .36  1942.1    1.15 1941.94     1.9  1941.8    2.03 1941.74
    2.25 1941.63    2.83 1941.53    3.22  1941.5    3.92 1941.49    4.52  1941.5
4.530003 1941.374.560001  1941.34.580002 1941.25    4.59  1941.24.650002  1940.9
    4.66  1940.84.670002 1940.75    4.68  1940.7    4.69  1940.6     4.7 1940.44
    4.71 1939.934.720001 1939.78    4.73  1939.74.740002  1939.6    4.75  1939.5
    4.77 1939.224.780003  1937.74.780003  1937.84.810001 1937.575.150002 1937.52
    5.66 1937.456.030003  1937.46.440002 1937.34    6.98  1937.38.110001 1937.21
8.400002 1937.17    9.57 1937.07   11.04 1936.96   11.65  1936.9   12.04 1936.87
   12.77  1936.8   13.78  1936.7   14.02 1936.68    15.9  1936.6   16.96 1936.55
   18.08  1936.5   19.96 1936.41   20.32 1936.39   20.69  1936.4   21.34 1936.41
    22.5 1936.49   23.71 1936.58   23.95  1936.6   24.95 1936.67   25.31  1936.7
   26.19 1936.77    26.7  1936.8   27.46 1936.86    28.1  1936.9   28.74 1936.95
   29.53    1937   30.93  1937.1   32.12 1937.18   32.39  1937.2    33.8 1937.29
   34.92 1937.36   35.08 1937.44   35.19  1937.5   35.39 1937.82    35.4    1938
   35.42 1938.45   35.43 1938.62   35.44 1938.72   35.45 1938.92   35.46 1939.02
   35.47 1939.22   35.48 1939.42   35.49 1939.52    35.5 1939.72   35.51 1939.86
   35.52 1940.04   35.53 1940.81   35.53 1940.71   35.53 1940.51   35.54 1940.32
   35.54 1940.42   35.54 1940.58   35.54 1940.68   35.55  1940.4   35.63 1941.41
   35.64  1941.5   35.68  1941.7    35.7  1941.8   37.49  1941.9   37.74 1941.98
   37.78 1942.03   37.98 1942.11   38.41 1942.14   38.55  1942.2   38.68 1942.26
   39.14 1942.46   39.37 1942.56    39.6 1942.66   40.98 1943.26   41.21 1943.36
   41.44 1943.46   41.67 1943.56    41.9 1943.65   42.18 1943.75   42.31  1943.8
   42.48 1943.86   42.81 1943.96   43.14 1944.07    43.7 1944.26   44.26  1944.1
   44.62    1944   44.81 1943.94    45.2 1943.83   45.58 1943.73   45.96 1943.62
   47.08  1943.3   47.44  1943.2   48.14    1943   48.42  1942.9   48.92  1942.7
   49.35  1942.6   51.03 1942.56    52.2 1942.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    4.52    .013    35.7    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4.52    35.7             15.87   15.87   15.87             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2485.61

INPUT
Description: Upstream of N 5th Street Culvert
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1942.16     .64  1942.2     .78 1942.31     .83  1942.4     .86 1942.46
     .86  1942.4     .86 1942.38     .86  1942.3     .86 1942.27     .86  1942.2
     .86 1942.15     .87 1941.71     .88  1941.6     .88 1941.67     .89  1941.2
      .9 1940.79     .91  1940.3     .92 1939.79     .93 1939.29     .94 1938.71
     .95 1938.26     .96  1937.7     .97 1937.08     .98 1936.38     .99 1935.94
       1  1935.8    1.01 1935.29    1.02 1934.79    1.03 1934.29    1.04 1933.79
    1.05 1933.29    1.06 1932.69    1.07 1932.19    1.08 1931.69    1.09 1931.19
     1.1 1930.58    1.11 1930.07    1.12  1929.6    1.13 1929.44    2.15  1929.3
     2.6 1929.26    3.42 1929.22    3.86  1929.2    4.17  1929.2    5.23 1929.18
    5.82 1929.17    6.37 1929.15    6.86 1929.15    8.14 1929.16    9.22  1929.2
    9.61 1929.22   11.36  1929.3   11.73 1929.33   12.85  1929.4   13.32 1929.44
    13.5  1929.5   13.52  1929.8   13.53  1930.2   13.54  1930.7   13.55  1931.2
   13.56  1931.6   13.57  1932.1   13.58  1932.6   13.59    1933    13.6  1933.5
   13.61    1934   13.62  1934.4   13.63  1934.9   13.64  1935.4   13.65  1935.8
   13.66  1936.3   13.67  1936.7   13.68  1937.2   13.69  1937.7    13.7    1938
   13.71  1938.6   13.72  1939.1   13.73  1939.5   13.74    1940   13.75  1940.4
   13.76  1940.9   13.77  1941.4   13.78 1941.81   13.79  1941.9   13.79  1941.8
    13.8  1942.4    13.8 1942.41    13.8  1942.5    13.8 1942.54   13.81 1942.48
   13.83 1942.36   13.85  1942.3   13.86 1942.25    14.1 1942.27   14.18  1942.2
   14.43 1942.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025     .86    .013    13.8    .025

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

.86 13.8 85.04 85.71 86.5 .1 .3

CULVERT

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2484.00

INPUT
Description: Culvert crossing under North 5th Street

Distance from Upstream XS = 1
Deck/Roadway Width = 70
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
.86	1942.46	1929.1	13.8	1942.54	1929.1

Upstream Bridge Cross Section Data
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1942.16	.64	1942.2	.78	1942.31	.83	1942.4	.86	1942.46
.86	1942.4	.86	1942.38	.86	1942.3	.86	1942.27	.86	1942.2
.86	1942.15	.87	1941.71	.88	1941.6	.88	1941.67	.89	1941.2
.9	1940.79	.91	1940.3	.92	1939.79	.93	1939.29	.94	1938.71
.95	1938.26	.96	1937.7	.97	1937.08	.98	1936.38	.99	1935.94
1	1935.8	1.01	1935.29	1.02	1934.79	1.03	1934.29	1.04	1933.79
1.05	1933.29	1.06	1932.69	1.07	1932.19	1.08	1931.69	1.09	1931.19
1.1	1930.58	1.11	1930.07	1.12	1929.6	1.13	1929.44	2.15	1929.3
2.6	1929.26	3.42	1929.22	3.86	1929.2	4.17	1929.2	5.23	1929.18
5.82	1929.17	6.37	1929.15	6.86	1929.15	8.14	1929.16	9.22	1929.2
9.61	1929.22	11.36	1929.3	11.73	1929.33	12.85	1929.4	13.32	1929.44
13.5	1929.5	13.52	1929.8	13.53	1930.2	13.54	1930.7	13.55	1931.2
13.56	1931.6	13.57	1932.1	13.58	1932.6	13.59	1933	13.6	1933.5
13.61	1934	13.62	1934.4	13.63	1934.9	13.64	1935.4	13.65	1935.8
13.66	1936.3	13.67	1936.7	13.68	1937.2	13.69	1937.7	13.7	1938
13.71	1938.6	13.72	1939.1	13.73	1939.5	13.74	1940	13.75	1940.4
13.76	1940.9	13.77	1941.4	13.78	1941.81	13.79	1941.9	13.79	1941.8
13.8	1942.4	13.8	1942.41	13.8	1942.5	13.8	1942.54	13.81	1942.48
13.83	1942.36	13.85	1942.3	13.86	1942.25	14.1	1942.27	14.18	1942.2
14.43	1942.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	.86	.013	13.8	.025

Bank Sta: Left Right Coeff Contr. Expan.
.86 13.8 .1 .3

Downstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
.16	1937.46	1927.94	11.99	1935.4	1927.92

Downstream Bridge Cross Section Data
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1937.43	.16	1937.46	.16	1929.87	.17	1929.01	.18	1927.94
.61	1927.939	5.31	1927.93	5.4	1927.93	5.85	1927.93	7.01	1927.93
11.93	1927.92	11.99	1935.4	12.09	1935.7				

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left Right Coeff Contr. Expan.
.16 11.99 .1 .3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	4	12

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

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
	1	67	.013	.013	0	.5	1

Upstream Elevation = 1929.4
Centerline Station = 7.38
Downstream Elevation = 1927.93
Centerline Station = 6.06

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2399.9

INPUT
Description: Downstream of N. 5th Street Culvert Crossing
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1937.43	.16	1937.46	.16	1929.87	.17	1929.01	.18	1927.94
.61	1927.939	5.31	1927.93	5.4	1927.93	5.85	1927.93	7.01	1927.93
11.93	1927.92	11.99	1935.4	12.09	1935.7				

Manning's n Values num= 1

```
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .16   11.99            23.41   23.41   23.41             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2376.49

INPUT
Description:
Station Elevation Data    num=      18
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1937.45     .15 1937.43     .17 1935.82     .17 1927.75    5.67 1927.75
     6.03 1927.74    6.19 1927.74    6.42 1927.75    6.94 1927.75   11.56  1927.8
    11.84 1927.76   12.07 1927.72   12.11 1927.72   12.14 1930.34   12.24 1937.46
    12.35 1937.47    12.4 1937.47   12.48 1937.48

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .15   12.24              25      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2351.49

INPUT
Description:
Station Elevation Data    num=      15
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1937.47     .22 1937.44     .25 1935.67     .37 1927.53     .44 1927.52
     1.19 1927.47    3.97 1927.42    5.83 1927.43    9.66 1927.43   11.19 1927.48
    11.88 1927.51   12.17 1927.51   12.22 1930.46   12.33 1937.46   12.48 1937.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .22   12.33              50      50      50             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2301.49

INPUT
Description:
Station Elevation Data    num=      26
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1937.48     .25 1937.47     .25 1937.45     .29 1934.95     .43 1926.92
      .68 1926.92     .77 1926.92     .99 1926.91    1.03 1926.91    6.04  1926.8
     6.17  1926.8    7.11  1926.8    8.58 1926.83   11.44 1926.91   11.86 1926.92
    11.87 1926.92   11.88 1926.92    11.9 1926.92   11.95 1926.93   11.97 1926.94
    12.16 1926.97   12.19 1928.02   12.26 1931.37   12.39 1937.36   12.42 1937.38
    12.88 1937.38

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .25   12.39              25   25.01      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2276.48

INPUT
Description:
Station Elevation Data    num=      20
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1937.17    .059 1937.17     .06 1937.17     .23 1937.16     .33 1928.39
      .35 1926.66     .59 1926.65     .92 1926.63    2.78  1926.6    4.79 1926.55
     6.08 1926.55    7.18 1926.54    9.03 1926.61   11.86 1926.67   12.02 1926.69
    12.09 1926.69   12.25 1934.29    12.3 1936.86   12.51 1936.82   12.99 1936.84

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .23    12.3            50.02      50   49.99             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2226.48

INPUT
Description:
Station Elevation Data    num=      15
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1936.19     .39 1936.13     .48 1929.53     .53 1926.01    2.11 1925.99
```

```
    5.85 1925.92    6.09 1925.91    6.28 1925.91    7.86 1925.92    8.59 1925.96
   11.81 1926.11   12.08 1926.11   12.18 1931.27   12.23 1934.91   12.86 1935.02

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .39   12.23               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2201.48

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1935.69     .45 1935.62     .55 1927.48     .58 1925.71    3.95 1925.66
    6.11 1925.62    6.36 1925.62   10.19 1925.72   11.76 1925.77   11.87 1925.78
   12.11 1925.78   12.14 1928.27   12.24 1934.73   12.54 1934.77

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .45   12.24               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2176.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1935.14     .23  1935.1     .27 1931.91     .35  1925.4    2.34 1925.37
    6.16 1925.39   10.83 1925.42   11.16 1925.42   11.31 1925.42    11.4 1925.42
   11.48 1925.43   11.86 1925.45   11.94 1930.87      12 1934.74   12.12 1934.76

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .23      12               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2151.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.71     .13 1934.69      .2 1931.22     .33 1925.08    3.55 1925.09
    5.66  1925.1    5.99  1925.1    6.87 1925.12   11.67  1925.2   11.92 1932.86
   11.96 1933.77   11.98 1934.74      12 1934.74   12.03 1934.73   12.13 1934.73

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .13   11.98             25.18      25   24.82             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2126.48

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.51    .003 1934.51     .08  1934.5     .08 1934.45.3199997 1924.77
2.559999 1924.79    5.69 1924.81    5.94 1924.819.459999 1924.87    11.7 1924.92
   11.79 1927.67   11.95 1934.72   12.09 1934.71   12.23  1934.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .08   11.95             25.01   25.01   25.01             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2101.47

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.63     .22 1934.62     .27 1934.62     .51 1925.92     .55 1924.72
     .55 1924.52    1.95 1924.53    5.63 1924.54    8.48 1924.55    9.15 1924.56
```

```
   11.98 1924.63   12.05  1929.4   12.17 1934.71   12.31  1934.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .27   12.17               25   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2076.46

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1930.09     .32 1930.09     .37 1924.45     .37 1924.29      .7 1924.29
    5.09 1924.34   12.25 1924.42   12.25 1924.71   12.31 1930.13   12.81 1930.14
   12.83 1930.14   12.88 1929.18      13  1929.2

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .32   12.31               25   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2051.45

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1929.41     .16  1929.4     .17 1924.22     .17 1924.16    4.42 1924.15
   11.97 1924.15   11.98 1924.15   12.03 1924.15   12.06 1929.45   12.06 1929.46
   12.14 1929.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   12.06             24.83   24.93   25.12             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2026.52

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1929.43     .07 1929.62     .08 1929.19     .16 1923.85    1.85 1923.85
    1.91 1923.85    2.96 1923.84    4.02 1923.85    12.1  1923.9    12.1 1924.84
   12.13 1929.45   12.24 1929.45   12.28 1929.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .07   12.13               25      25   25.02             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2001.52

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1928.9     .03  1928.9     .16 1923.47     .49 1923.48    3.84 1923.52
   11.96 1923.62   11.98 1926.37   11.99 1929.45   12.27 1929.15   12.57 1928.79
    12.6 1928.79   12.61 1928.74   13.05 1928.65

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0   11.99             25.02      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1976.52

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1925.94      .9 1925.91     .97  1923.2    4.77 1923.24   12.32 1923.33
   12.81 1923.34   12.85  1928.5   12.86 1928.76   12.86 1928.79   12.89 1928.79
    12.9 1928.74   13.46 1928.73   13.54  1928.1   13.54 1928.13   14.06 1928.23
```

```
Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            .9   12.86             25.12      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1951.52

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    -8.8    1928   -8.52    1924       0 1923.01    3.15 1922.92    3.22 1922.92
     7.1 1922.96   15.09 1923.03   15.12 1927.05   15.13 1928.15   15.26 1928.14
   15.71 1928.12   16.47 1928.32

Manning's n Values        num=       1
     Sta   n Val
    -8.8    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -8.8   15.13           75.59   74.96   75.08             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    -8.8       0  1929.5       F

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1876.56

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -60.79    1929  -32.75    1928       0 1926.85     .16 1927.02     .18 1924.17
     .23 1922.08    4.37 1922.11    4.48 1922.11   12.15 1922.08   12.18 1923.61
   12.22 1926.79   12.46  1926.8    12.9  1926.8   12.94 1926.61   13.83 1926.31
   83.41    1928  189.95    1929

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -60.79    .016       0    .013   13.83    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            .16   12.22               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1851.56

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -10.82  1936.5  -10.82  1927.5       0 1926.79     .19 1926.84     .36 1926.84
      .8 1926.87     .82 1925.41     .86 1921.83    5.18 1921.82    9.63  1921.8
   12.78 1921.78    12.8 1923.19   12.85  1926.8      13  1926.8    13.5  1926.8
   13.52  1926.6   13.85 1926.47   13.89 1926.25    14.3  1926.3  117.56    1928
  243.64    1929

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -10.82    .025       0    .013    14.3    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            .8   12.85             25.01      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1826.56

INPUT
Description:
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -10.69  1936.5  -10.69  1927.5       0 1926.93     .18 1926.92     .27 1926.93
     .35 1922.31     .36  1921.6    2.11 1921.59    4.71 1921.57    12.2 1921.52
   12.26 1926.03   12.27 1926.77   12.74 1926.77   12.85 1926.77   12.92 1926.12
   13.59 1925.85   53.35 1925.92   77.65    1927  156.74  1927.9  297.71    1929

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -10.69    .025       0    .013    12.2    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            .27   12.27               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1801.56

INPUT
```

```
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -13.95  1936.5  -13.95  1927.5       0 1926.88     .16 1926.87     .19 1924.12
     .24 1921.28    4.68 1921.24     6.5 1921.23   12.01 1921.24   12.05 1924.05
   12.08 1926.79   12.38 1926.79   12.67 1926.79   12.69 1926.12   12.74 1925.72
   13.32  1925.5   19.79 1926.09   47.31 1925.53  180.69 1926.68  273.06    1928
  366.46    1929

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -13.95    .025       0    .013   12.08    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   12.08               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1776.56

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -13.75  1936.5  -13.75  1927.5       0 1926.83     .22 1926.79     .22 1926.34
     .27 1920.94    1.95 1920.94    4.85 1920.95   12.02 1920.96   12.06 1925.95
   12.07 1926.82   12.15 1926.82    12.7 1926.81   12.71 1926.52   12.74 1925.31
   12.97 1925.32      13 1925.31   13.25 1925.22   49.08 1925.14  178.87    1926
  432.18    1928  441.78    1929

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -13.75    .025       0    .013   12.07    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .22   12.07              24.9   24.98   25.08             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1751.58

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -13.36  1936.5  -13.36  1927.5       0 1926.86     .13 1926.88     .44 1926.82
     .47 1923.65      .5 1920.72    5.28 1920.71   12.23  1920.7   12.31  1920.7
   12.36 1926.76   12.36  1926.8   12.95 1926.77   12.95 1926.75   12.97 1924.77
   12.99 1924.77    13.2 1924.78   50.81 1924.92  117.82 1925.78  335.83 1925.99
  445.21    1927  463.37    1929

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -13.36    .025       0    .013   12.36    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .44   12.36               25   25.01      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1726.57

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -13.09  1936.5  -13.09  1927.5       0 1926.78     .51 1926.86     .55 1926.85
      .6 1920.94     .61  1920.5    2.37  1920.5     5.6 1920.46   11.16 1920.39
   11.17 1921.09   11.19 1926.76   11.77 1926.71   11.84  1926.7   11.89 1924.94
   11.89 1924.71   12.95 1924.45   47.69 1924.82  127.08  1925.5  377.18    1926
  465.01    1927  482.99    1929

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -13.09    .025       0    .013   11.19    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .55   11.19             25.01      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1701.57

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -22.52  1936.5  -22.52  1927.5       0 1926.81    .071 1926.82     .12 1924.43
     .15 1920.21    3.11 1920.16     5.4 1920.13    9.34 1920.08    9.36 1922.98
    9.37 1926.77    9.61 1926.78   10.01 1926.74   10.03 1925.73   10.74  1925.2
   10.77 1924.11   12.18 1924.27  108.97    1925  397.11    1926  484.82    1927
  503.13    1929

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -22.52    .025       0    .013    9.37    .016

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

```
            0    9.37            39.81   34.17   29.44             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1667.4

INPUT
Description: Upstream of Losee Crossing
Station Elevation Data    num=      26
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
 -201.08    1926  -35.01 1924.94        0 1924.47    3.09 1924.45    3.11 1926.62
    3.35 1926.74    3.46 1926.74    3.49 1926.74    4.24 1926.74    4.25 1926.74
    4.46 1919.81    4.46 1919.74    8.19 1919.72   11.93 1919.71    14.5  1919.7
   14.51 1920.87   14.56 1924.58   15.23 1924.43    15.3 1924.71   15.36 1924.44
   15.37 1923.83   15.49 1923.64   18.95 1923.83  136.05    1925  284.33    1925
  397.12  1925.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 -201.08    .016       0    .013   18.95    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4.24   14.56           142.41   137.6  131.13             .1       .3

CULVERT


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1660

INPUT
Description: Culvert Crossing @ Losee
Distance from Upstream XS =       2
Deck/Roadway Width        =     133
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4.24    1924  1919.5   14.56    1924  1919.7

Upstream Bridge Cross Section Data
Station Elevation Data    num=      26
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
 -201.08    1926  -35.01 1924.94        0 1924.47    3.09 1924.45    3.11 1926.62
    3.35 1926.74    3.46 1926.74    3.49 1926.74    4.24 1926.74    4.25 1926.74
    4.46 1919.81    4.46 1919.74    8.19 1919.72   11.93 1919.71    14.5  1919.7
   14.51 1920.87   14.56 1924.58   15.23 1924.43    15.3 1924.71   15.36 1924.44
   15.37 1923.83   15.49 1923.64   18.95 1923.83  136.05    1925  284.33    1925
  397.12  1925.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 -201.08    .016       0    .013   18.95    .016

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4.24   14.56             .1       .3

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0    1924 1918.74    32.2    1924 1918.72

Downstream Bridge Cross Section Data
Station Elevation Data    num=      20
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    -470    1926        0 1923.76.3200016 1923.76.4900017 1923.72.6400013 1923.71
1.450001 1923.45    2.08 1923.212.640001 1923.05   10.56 1918.74   10.81 1918.74
   15.34 1918.73   20.86 1918.72   21.36  1918.9   21.92 1919.48   28.94 1923.28
   29.03  1923.3   29.67  1923.4   30.24 1923.58    32.2 1923.59   627.2    1926

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    -470    .016       0    .013    32.2    .016

Bank Sta: Left   Right    Coeff Contr.   Expan.
             0    32.2             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1           Box       3       8
FHWA Chart # 58- Rectangular concrete
FHWA Scale # 1 - Side tapered; Less favorable edges
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                  1     135     .013     .013        0                  .5               1
Upstream   Elevation =  1919.75
           Centerline Station =  9.88
Downstream Elevation =  1918.75
           Centerline Station =  15.34

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1529.8
```

```
INPUT
Description:
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    -470    1926       0 1923.76.3200016 1923.76.4900017 1923.72.6400013 1923.71
1.450001 1923.45    2.08 1923.212.640001 1923.05   10.56 1918.74   10.81 1918.74
   15.34 1918.73   20.86 1918.72   21.36  1918.9   21.92 1919.48   28.94 1923.28
   29.03  1923.3   29.67  1923.4   30.24 1923.58    32.2 1923.59   627.2    1926

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    -470    .016       0    .013    32.2    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0    32.2             18.7   28.27   39.36             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1501.53

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1923.19    2.88 1923.03    4.61 1922.93   12.94 1918.77   14.41 1918.07
   14.96 1917.81   17.59 1917.77   22.66 1917.69   22.91 1917.68    23.2 1917.83
   23.29 1917.86   33.69 1922.53   33.91 1922.53

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4.61   33.91            25.78   25.03   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1476.5

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1921.66    3.98 1922.34    6.95 1922.06    9.67 1920.72    17.7 1916.94
   19.73 1916.91   20.39  1916.9   26.17 1916.84   32.93 1920.28   34.96 1920.98
   37.27 1922.02   37.99 1922.02

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.98   37.99            26.88   25.13   24.27             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1451.37

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   11.13 1926.76   11.13 1921.76   12.05 1921.53   14.24 1920.39    22.8 1916.04
    24.2 1916.04    25.3 1916.05   31.76 1916.09    36.6 1918.52   42.39 1921.47
   42.44 1921.46   42.69 1921.46   43.77 1921.46   45.24    1922   70.82    1923
   82.08 1923.26

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
   11.13    .013   42.39    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         11.13   42.39            25.89      25   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1426.37

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4.14 1926.75    4.34 1921.75    5.21 1920.96    9.76  1918.7   15.89 1915.51
   18.52 1915.46   19.46 1915.44   24.55 1915.44   31.38 1918.91   35.52 1920.89
   38.88    1921   60.79    1922    83.4    1923   89.43 1923.21

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
    4.14    .013   35.52    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4.14   35.52            25.38   25.02   25.08             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
```

REACH: FL-ALIGN RS: 1401.35

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
.24	1925.47	.24	1920.47	.81	1920.34	1.06	1920.28	1.7	1919.87
11.59	1914.97	12.4	1914.97	14.87	1914.92	19.94	1914.82	20.97	1915.41
22.67	1916.15	31.28	1920.27	31.99	1920.27	42.98	1921	64.56	1922
85.1	1922.91								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
.24	.013	31.28	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.24	31.28	27.16	25.15	22.91	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1376.2

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1924.93	0	1919.93	.14	1919.91	2.35	1919.39	7.99	1915.76
10.32	1914.6	13.98	1914.58	16.44	1914.56	18.24	1914.53	25.15	1918.46
27.63	1919.55	32.3	1920	53.21	1921	73.78	1922	93.44	1922.68
102.52	1923								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.013	27.63	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	27.63	25.55	25.03	24.62	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1351.17

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1.63	1924.22	1.63	1919.18	1.92	1919.19	2.18	1919.17	6.98	1916.54
8.35	1916.22	11.82	1913.98	15.55	1913.96	16.43	1913.93	18.59	1913.87
20.66	1913.91	25.72	1916.43	29.75	1918.81	34.24	1919	48.19	1920
100.2	1921	110.7	1922	128.47	1923				

Manning's n Values num= 2

Sta	n Val	Sta	n Val
1.63	.013	29.75	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1.63	29.75	25.06	25.01	24.96	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1326.16

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2.21	1923.53	2.21	1918.63	2.6	1918.49	2.67	1918.47	4.24	1917.6
16.89	1913.15	17.31	1913.16	18.11	1913.17	21.65	1913.23	23.28	1913.98
32.34	1918.41	37.8	1919	50.63	1920	85.27	1921	102.01	1921.12
110.45	1921	140.43	1921	155.11	1922	167.63	1923		

Manning's n Values num= 2

Sta	n Val	Sta	n Val
2.21	.013	32.34	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2.21	32.34	27.06	25.02	23.19	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1301.14

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1923.28	0	1918.28	1.38	1918.18	1.38	1918.23	1.57	1918.16
1.82	1918.08	7.79	1914.81	13.96	1912.67	16.56	1912.72	18.91	1912.76
20.7	1912.79	27.28	1915.85	31.58	1918.05	31.65	1918.05	32.22	1918.2
34.91	1919	49.81	1920	197.29	1920	359.65	1921	426.06	1922.5
488.52	1923								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.013	32.22	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	32.22	25	25	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1276.14

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1923.9	0	1917.9	.7	1917.85	1.1	1917.72	1.19	1917.67
11.15	1912.19	12.42	1912.21	17.1	1912.3	19.83	1912.35	19.85	1912.35
28.02	1916.15	31.49	1917.76	31.52	1917.77	47.01	1918	110.41	1919
219.77	1920	385.79	1921	452.61	1922	517.86	1923		

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.013	31.52	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	31.52	25.88	24.99	24.17	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1251.15

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1923.43	0	1917.43	1.97	1917.28	2.16	1917.22	2.4	1917.17
7.73	1914.26	12.39	1911.7	16.55	1911.78	17.74	1911.8	21.48	1911.88
27.1	1914.49	32.61	1917.14	32.82	1917.13	33.05	1917.18	76.45	1918
100.69	1919	194.94	1920	217.57	1921	240.8	1922	517.79	1923

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.013	32.61	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	32.61	25.55	24.97	24.47	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1226.18

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1923.84	0	1916.84	1.72	1916.71	2.16	1916.62	2.17	1916.62
11.73	1911.45	12.18	1911.2	17.92	1911.32	21.25	1911.39	21.65	1911.39
22.15	1911.63	31.96	1916.34	42.33	1917	69.5	1918	207.05	1919
249.08	1920	423.45	1921	489.67	1921	553.02	1923		

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.013	31.96	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	31.96	26.31	24.84	23.7	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1201.34

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-7.69	1927	-7.69	1920	-2.69	1919	0	1916.37	2.33	1916.21
2.53	1916.17	2.71	1916.13	7.17	1913.72	12.57	1910.67	16.88	1910.76
17.85	1910.77	21.82	1910.79	27.7	1913.6	32.58	1915.96	33.56	1916.01
56.51	1917	134.68	1918	215.74	1919	272.48	1920	325.79	1920
476.37	1921	545.48	1922	625.76	1923				

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-7.69	.013	32.58	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-7.69	32.58	52.63	49.74	48.01	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1151.6

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-43.76	1923	-29.51	1922.5	0	1921.24	8.04	1915.35	9.5	1914.33
17.35	1909.61	23.41	1909.76	23.97	1909.77	26.84	1909.83	28.49	1910.45
37.45	1914.47	38.26	1914.96	73.82	1916	143.6	1917	205.71	1918
255.78	1919	476.42	1920	560.52	1921	639.11	1922	722.72	1923

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-43.76	.016	0	.013	38.26	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	38.26	51.5	49.89	51.66	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1101.71

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-50.4	1923	0	1922.07	11.49	1914.9	20.36	1909.4	23.12	1909.22
23.61	1909.19	25.58	1909.06	33.59	1913.94	38.23	1916.1	43.02	1916
54.27	1917.96	58	1917.88	58.29	1917.87	62.65	1917	65.78	1916
68.88	1915	72.06	1914	75.78	1913	82.38	1913	91.32	1914
126.42	1915	179.73	1916	228.23	1917	272.85	1918	322.07	1919
431.11	1920	637.53	1921	711.25	1922	744.3	1923		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-50.4	.016	0	.025	179.73	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	38.23	24.1	25.09	26.33	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1076.62

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-54.59	1923	0	1922.21	.47	1922.21	5.46	1919.18	22.42	1909
22.46	1909.01	26.12	1909.18	27.99	1909.27	28.09	1909.32	43.24	1916.81
45.7	1917.05	50.79	1917.31	55.03	1917.05	57.6	1916.56	58.71	1916.86
59.42	1917	66.19	1918	72.3	1918	74.23	1917	76.05	1916
80.05	1915	86.02	1914	89.84	1914	108.396	1915	110.08	1916
111.69	1917	113.58	1917	118.43	1916	122.82	1915	127.34	1914
132.33	1913	143.64	1914	151.02	1915	204.33	1916	252.83	1917
297.45	1919	406.25	1920	612.86	1921	686.01	1922	802.16	1923

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-54.59	.016	0	.025	204.33	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.47	43.24	25.83	24.95	24.9	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1051.67

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-65.05	1923	0	1922.22	.76	1922.23	19.2	1911.05	22.52	1908.91
22.87	1908.86	23.36	1908.87	28.18	1909.01	28.79	1909.02	30.49	1909.7
35.24	1911.99	42.12	1915.2	53.56	1916.83	112.04	1918	162.81	1919
259.17	1920	375.76	1920	434.18	1920	553.76	1921	590.5	1922
828.24	1923								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-65.05	.016	0	.025	19.2	.03	53.56	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
.76	42.12	2419.14	17.29	42.27	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1034.38

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-70.34	1923	0	1922.23	2.86	1922.28	3.68	1922.09	13.72	1916.46
19.07	1914	25.57	1909.82	30.65	1909.04	36.66	1909.2	37.7	1909.23
38.59	1909.25	41.91	1910.57	43.54	1910.68	47.95	1910.8	49.77	1911.08
50.43	1911.18	54.65	1912.03	59.26	1912.38	77.72	1913.47	82.67	1913.63
94.44	1914.24	109.54	1915.2	110.47	1915.3	110.8	1915.34	283.36	1917
331.76	1918	381.91	1919	466.63	1920	581.82	1920	643.74	1920
779.24	1921	815.27	1922	852.27	1923				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-70.34	.016	0	.025	19.07	.03	41.91	.025	815.27	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2.86	54.65	32.88	22.88	10.46	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1011.5

INPUT
Description: Upstream of UPRR Crossing
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-74.9	1923	-10.87	1921	0	1920.57	3.42	1920.46	7.945	1920.15
14.41	1919.89	20.89	1919.49	25.06	1919.36	42.32	1917.61	44.18	1917.32
49.42	1917.17	58.82	1915.54	73.29	1912.9	73.67	1912.9	74.81	1912.71
77.33	1912.35	95.44	1910.16	99.21	1908.34	99.92	1908.2	101.72	1908.28
101.95	1908.33	109.22	1910.06	113.93	1910.71	118.45	1911.52	119.63	1911.5
124.39	1911.63	139.24	1912.77	146.4	1913.74	157.18	1914.72	164.55	1914.29
173.88	1914.92	185.7	1916.26	459.17	1919	521.25	1920	615.28	1920
705.88	1920	868.24	1921	905.9	1922	946.35	1923		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-74.9	.016	-10.87	.025	521.25	.016

Bank Sta: Left	Right	Coeff Contr.	Expan.
73.29	185.7	.1	.3

SUMMARY OF MANNING'S N VALUES

River:FL-ALIGN

Reach	River Sta.	n1	n2	n3	n4	n5	n6
FL-ALIGN	3398.92	.016	.013	.016	.013	.016	
FL-ALIGN	3373.92	.016	.013	.016	.013	.016	
FL-ALIGN	3348.92	.016	.016	.013	.016		
FL-ALIGN	3323.92	.016	.013	.016	.013	.025	
FL-ALIGN	3298.92	.016	.013	.016	.013	.025	
FL-ALIGN	3273.6	.016	.013	.016	.013	.016	
FL-ALIGN	3248.92	.016	.013	.016	.013	.016	
FL-ALIGN	3223.92	.016	.025	.013	.016	.013	.016
FL-ALIGN	3210.22	.016	.025	.035	.016		
FL-ALIGN	3198.92	.016	.025	.035	.025		
FL-ALIGN	3173.92	.016	.035	.016			
FL-ALIGN	3148.92	.025	.035	.016			
FL-ALIGN	3098.95	.025	.035	.025			
FL-ALIGN	3073.97	.025	.035	.025			
FL-ALIGN	3048.96	.025	.05	.025			
FL-ALIGN	3023.98	.025	.05	.025			
FL-ALIGN	2998.98	.025	.05	.025			
FL-ALIGN	2973.99	.025	.05	.025			
FL-ALIGN	2948.99	.025	.05	.025			
FL-ALIGN	2923.99	.025	.05	.025			
FL-ALIGN	2898.97	.025	.05	.05			
FL-ALIGN	2874.04	.025	.05	.025			
FL-ALIGN	2849.1	.025	.05	.025			
FL-ALIGN	2824.82	.025	.05	.025			
FL-ALIGN	2799.78	.025	.035	.025			
FL-ALIGN	2774.63	.025	.035	.025			
FL-ALIGN	2750.44	.025	.035	.025			
FL-ALIGN	2725.42	.025	.035	.025			
FL-ALIGN	2700.17	.025	.035	.025			
FL-ALIGN	2675.8	.025	.035	.025			
FL-ALIGN	2650.79	.025	.035	.025			
FL-ALIGN	2626.19	.025	.035	.025			
FL-ALIGN	2601.78	.025	.05	.025			
FL-ALIGN	2576.59	.025	.035	.025			
FL-ALIGN	2551.36	.025	.035	.025			
FL-ALIGN	2526.44	.025	.035	.025			
FL-ALIGN	2501.48	.025	.013	.025			
FL-ALIGN	2485.61	.025	.013	.025			
FL-ALIGN	2484.00	Culvert					
FL-ALIGN	2399.9	.013					
FL-ALIGN	2376.49	.013					
FL-ALIGN	2351.49	.013					
FL-ALIGN	2301.49	.013					
FL-ALIGN	2276.48	.013					
FL-ALIGN	2226.48	.013					
FL-ALIGN	2201.48	.013					
FL-ALIGN	2176.48	.013					
FL-ALIGN	2151.48	.013					
FL-ALIGN	2126.48	.013					
FL-ALIGN	2101.47	.013					
FL-ALIGN	2076.46	.013					
FL-ALIGN	2051.45	.013					
FL-ALIGN	2026.52	.013					
FL-ALIGN	2001.52	.013					
FL-ALIGN	1976.52	.013					
FL-ALIGN	1951.52	.013					
FL-ALIGN	1876.56	.016	.013	.016			
FL-ALIGN	1851.56	.025	.013	.016			
FL-ALIGN	1826.56	.025	.013	.016			
FL-ALIGN	1801.56	.025	.013	.016			
FL-ALIGN	1776.56	.025	.013	.016			
FL-ALIGN	1751.58	.025	.013	.016			
FL-ALIGN	1726.57	.025	.013	.016			
FL-ALIGN	1701.57	.025	.013	.016			
FL-ALIGN	1667.4	.016	.013	.016			
FL-ALIGN	1660	Culvert					
FL-ALIGN	1529.8	.016	.013	.016			
FL-ALIGN	1501.53	.013					
FL-ALIGN	1476.5	.013					
FL-ALIGN	1451.37	.013	.016				
FL-ALIGN	1426.37	.013	.016				
FL-ALIGN	1401.35	.013	.016				
FL-ALIGN	1376.2	.013	.016				
FL-ALIGN	1351.17	.013	.016				

FL-ALIGN	1326.16	.013	.016			
FL-ALIGN	1301.14	.013	.016			
FL-ALIGN	1276.14	.013	.016			
FL-ALIGN	1251.15	.013	.016			
FL-ALIGN	1226.18	.013	.016			
FL-ALIGN	1201.34	.013	.016			
FL-ALIGN	1151.6	.016	.013	.016		
FL-ALIGN	1101.71	.016	.025	.016		
FL-ALIGN	1076.62	.016	.025	.016		
FL-ALIGN	1051.67	.016	.025	.03	.016	
FL-ALIGN	1034.38	.016	.025	.03	.025	.016
FL-ALIGN	1011.5	.016	.025	.016		

SUMMARY OF REACH LENGTHS

River: FL-ALIGN

Reach	River Sta.	Left	Channel	Right
FL-ALIGN	3398.92	25.01	25	25.02
FL-ALIGN	3373.92	25.03	25	25.05
FL-ALIGN	3348.92	25.18	25	26.53
FL-ALIGN	3323.92	27.48	25	31.71
FL-ALIGN	3298.92	28.27	25.32	26.5
FL-ALIGN	3273.6	26	24.68	24.56
FL-ALIGN	3248.92	25.13	25	30.09
FL-ALIGN	3223.92	14.07	13.7	14.32
FL-ALIGN	3210.22	11.65	11.3	11.82
FL-ALIGN	3198.92	25.32	25	25.98
FL-ALIGN	3173.92	25.43	25	25.55
FL-ALIGN	3148.92	55.38	49.97	47.04
FL-ALIGN	3098.95	20.29	24.98	28.02
FL-ALIGN	3073.97	25	25.01	25.07
FL-ALIGN	3048.96	28.34	24.98	23.09
FL-ALIGN	3023.98	21.46	25	27.03
FL-ALIGN	2998.98	28.33	24.99	23.13
FL-ALIGN	2973.99	23.9	25	25.86
FL-ALIGN	2948.99	26.22	25	25.08
FL-ALIGN	2923.99	15.83	25.02	30.98
FL-ALIGN	2898.97	17.15	24.93	30.48
FL-ALIGN	2874.04	39.68	24.94	17.95
FL-ALIGN	2849.1	38.99	24.28	10.13
FL-ALIGN	2824.82	22.37	25.04	27.85
FL-ALIGN	2799.78	23.04	25.15	28.16
FL-ALIGN	2774.63	36.1	24.19	18.16
FL-ALIGN	2750.44	30.61	25.02	22.4
FL-ALIGN	2725.42	21.47	25.25	27.5
FL-ALIGN	2700.17	16.35	24.37	29.93
FL-ALIGN	2675.8	25.2	25.01	25.01
FL-ALIGN	2650.79	21.98	24.6	26.83
FL-ALIGN	2626.19	19.32	24.41	28.81
FL-ALIGN	2601.78	24.17	25.19	26.43
FL-ALIGN	2576.59	36.89	25.23	18.12
FL-ALIGN	2551.36	19.09	24.92	30.78
FL-ALIGN	2526.44	44.23	24.96	30.79
FL-ALIGN	2501.48	15.87	15.87	15.87
FL-ALIGN	2485.61	85.04	85.71	86.5
FL-ALIGN	2484.00	Culvert		
FL-ALIGN	2399.9	23.41	23.41	23.41
FL-ALIGN	2376.49	25	25	25
FL-ALIGN	2351.49	50	50	50
FL-ALIGN	2301.49	25	25.01	25
FL-ALIGN	2276.48	50.02	50	49.99
FL-ALIGN	2226.48	25	25	25
FL-ALIGN	2201.48	25	25	25
FL-ALIGN	2176.48	25	25	25
FL-ALIGN	2151.48	25.18	25	24.82
FL-ALIGN	2126.48	25.01	25.01	25.01
FL-ALIGN	2101.47	25	25.01	25.01
FL-ALIGN	2076.46	25	25.01	25.01
FL-ALIGN	2051.45	24.83	24.93	25.12
FL-ALIGN	2026.52	25	25	25.02
FL-ALIGN	2001.52	25.02	25	25
FL-ALIGN	1976.52	25.12	25	25
FL-ALIGN	1951.52	75.59	74.96	75.08
FL-ALIGN	1876.56	25	25	25
FL-ALIGN	1851.56	25.01	25	25
FL-ALIGN	1826.56	25	25	25
FL-ALIGN	1801.56	25	25	25
FL-ALIGN	1776.56	24.9	24.98	25.08
FL-ALIGN	1751.58	25	25.01	25
FL-ALIGN	1726.57	25.01	25	25
FL-ALIGN	1701.57	39.81	34.17	29.44
FL-ALIGN	1667.4	142.41	137.6	131.13
FL-ALIGN	1660	Culvert		
FL-ALIGN	1529.8	18.7	28.27	39.36
FL-ALIGN	1501.53	25.78	25.03	25.01
FL-ALIGN	1476.5	26.88	25.13	24.27
FL-ALIGN	1451.37	25.89	25	25.01
FL-ALIGN	1426.37	25.38	25.02	25.08
FL-ALIGN	1401.35	27.16	25.15	22.91
FL-ALIGN	1376.2	25.55	25.03	24.62
FL-ALIGN	1351.17	25.06	25.01	24.96
FL-ALIGN	1326.16	27.06	25.02	23.19
FL-ALIGN	1301.14	25	25	25
FL-ALIGN	1276.14	25.88	24.99	24.17
FL-ALIGN	1251.15	25.55	24.97	24.47
FL-ALIGN	1226.18	26.31	24.84	23.7
FL-ALIGN	1201.34	52.63	49.74	48.01
FL-ALIGN	1151.6	51.5	49.89	51.66
FL-ALIGN	1101.71	24.1	25.09	26.33
FL-ALIGN	1076.62	25.83	24.95	24.9
FL-ALIGN	1051.67	2419.14	17.29	42.27

FL-ALIGN	1034.38	32.88	22.88	10.46
FL-ALIGN	1011.5			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: FL-ALIGN

Reach	River Sta.	Contr.	Expan.
FL-ALIGN	3398.92	.1	.3
FL-ALIGN	3373.92	.1	.3
FL-ALIGN	3348.92	.1	.3
FL-ALIGN	3323.92	.1	.3
FL-ALIGN	3298.92	.1	.3
FL-ALIGN	3273.6	.1	.3
FL-ALIGN	3248.92	.1	.3
FL-ALIGN	3223.92	.1	.3
FL-ALIGN	3210.22	.1	.3
FL-ALIGN	3198.92	.1	.3
FL-ALIGN	3173.92	.1	.3
FL-ALIGN	3148.92	.1	.3
FL-ALIGN	3098.95	.1	.3
FL-ALIGN	3073.97	.1	.3
FL-ALIGN	3048.96	.1	.3
FL-ALIGN	3023.98	.1	.3
FL-ALIGN	2998.98	.1	.3
FL-ALIGN	2973.99	.1	.3
FL-ALIGN	2948.99	.1	.3
FL-ALIGN	2923.99	.1	.3
FL-ALIGN	2898.97	.1	.3
FL-ALIGN	2874.04	.1	.3
FL-ALIGN	2849.1	.1	.3
FL-ALIGN	2824.82	.1	.3
FL-ALIGN	2799.78	.1	.3
FL-ALIGN	2774.63	.1	.3
FL-ALIGN	2750.44	.1	.3
FL-ALIGN	2725.42	.1	.3
FL-ALIGN	2700.17	.1	.3
FL-ALIGN	2675.8	.1	.3
FL-ALIGN	2650.79	.1	.3
FL-ALIGN	2626.19	.1	.3
FL-ALIGN	2601.78	.1	.3
FL-ALIGN	2576.59	.1	.3
FL-ALIGN	2551.36	.1	.3
FL-ALIGN	2526.44	.1	.3
FL-ALIGN	2501.48	.1	.3
FL-ALIGN	2485.61	.1	.3
FL-ALIGN	2484.00	Culvert	
FL-ALIGN	2399.9	.1	.3
FL-ALIGN	2376.49	.1	.3
FL-ALIGN	2351.49	.1	.3
FL-ALIGN	2301.49	.1	.3
FL-ALIGN	2276.48	.1	.3
FL-ALIGN	2226.48	.1	.3
FL-ALIGN	2201.48	.1	.3
FL-ALIGN	2176.48	.1	.3
FL-ALIGN	2151.48	.1	.3
FL-ALIGN	2126.48	.1	.3
FL-ALIGN	2101.47	.1	.3
FL-ALIGN	2076.46	.1	.3
FL-ALIGN	2051.45	.1	.3
FL-ALIGN	2026.52	.1	.3
FL-ALIGN	2001.52	.1	.3
FL-ALIGN	1976.52	.1	.3
FL-ALIGN	1951.52	.1	.3
FL-ALIGN	1876.56	.1	.3
FL-ALIGN	1851.56	.1	.3
FL-ALIGN	1826.56	.1	.3
FL-ALIGN	1801.56	.1	.3
FL-ALIGN	1776.56	.1	.3
FL-ALIGN	1751.58	.1	.3
FL-ALIGN	1726.57	.1	.3
FL-ALIGN	1701.57	.1	.3
FL-ALIGN	1667.4	.1	.3
FL-ALIGN	1660	Culvert	
FL-ALIGN	1529.8	.1	.3
FL-ALIGN	1501.53	.1	.3
FL-ALIGN	1476.5	.1	.3
FL-ALIGN	1451.37	.1	.3
FL-ALIGN	1426.37	.1	.3
FL-ALIGN	1401.35	.1	.3
FL-ALIGN	1376.2	.1	.3
FL-ALIGN	1351.17	.1	.3
FL-ALIGN	1326.16	.1	.3
FL-ALIGN	1301.14	.1	.3
FL-ALIGN	1276.14	.1	.3
FL-ALIGN	1251.15	.1	.3
FL-ALIGN	1226.18	.1	.3
FL-ALIGN	1201.34	.1	.3
FL-ALIGN	1151.6	.1	.3
FL-ALIGN	1101.71	.1	.3
FL-ALIGN	1076.62	.1	.3
FL-ALIGN	1051.67	.1	.3
FL-ALIGN	1034.38	.1	.3
FL-ALIGN	1011.5	.1	.3

Appendix B-2 Proposed Condition HEC RAS Model Output

-Standard Table 1

- Profile

- Cross Sections

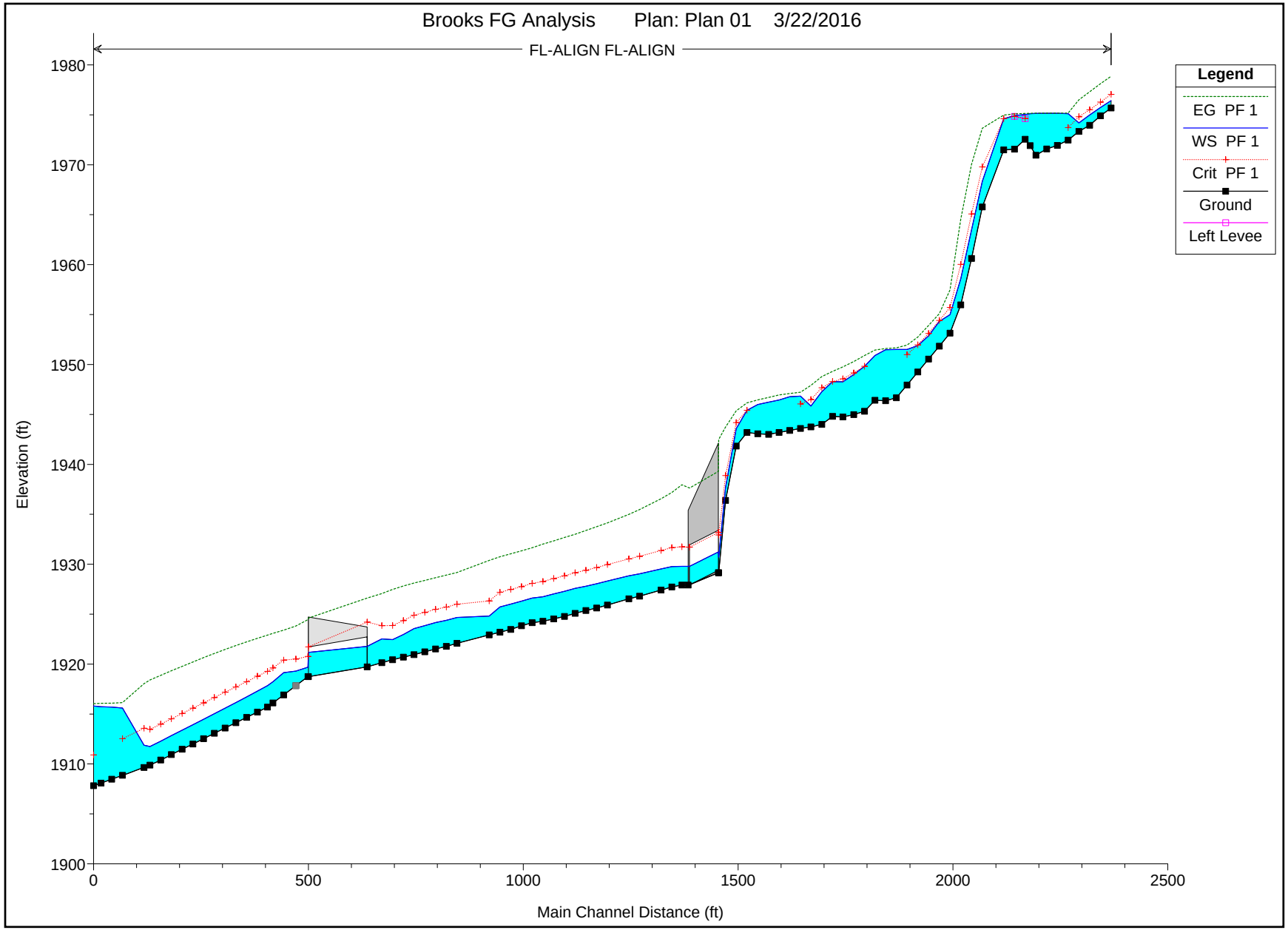
- Output Report

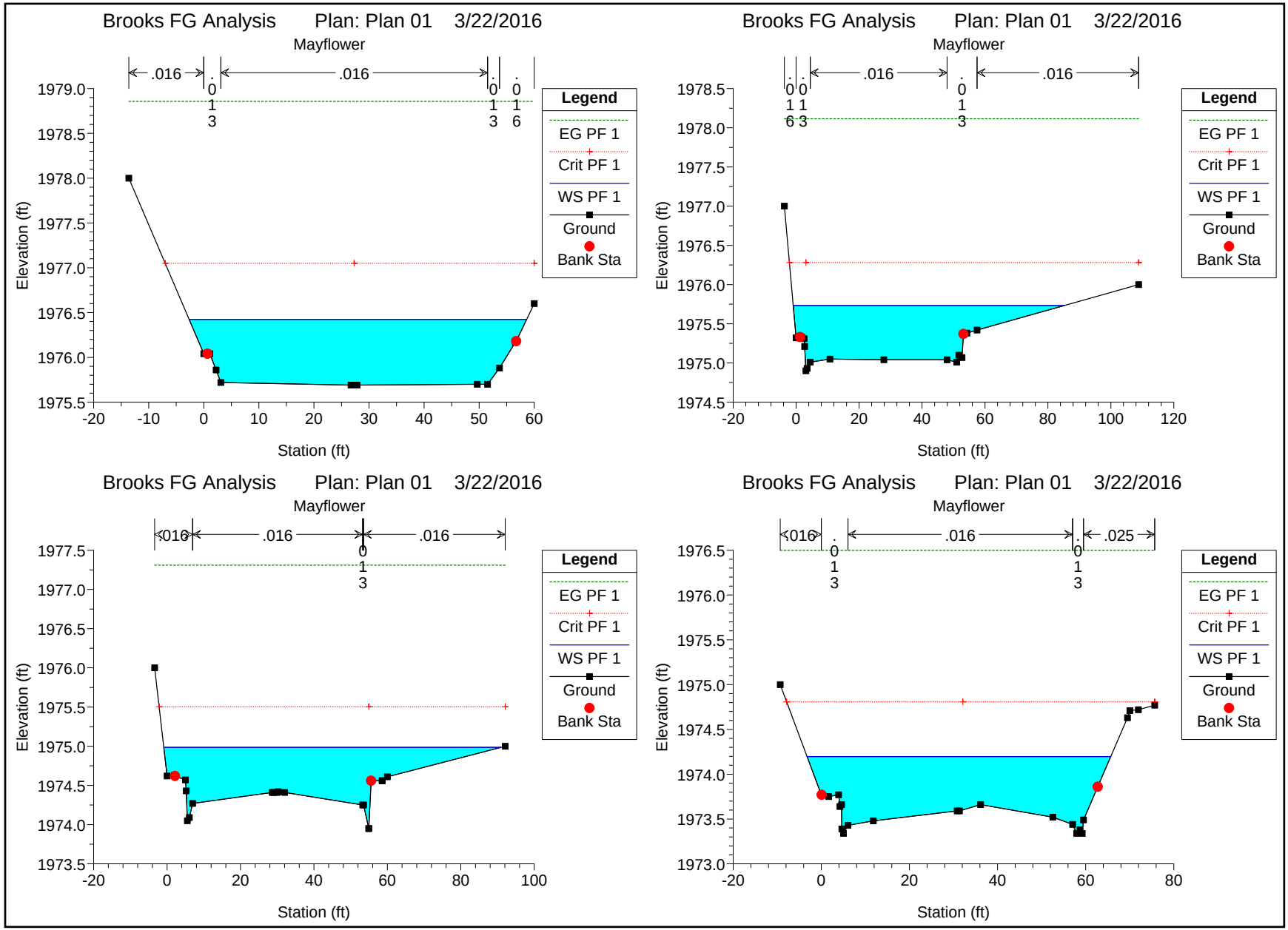
HEC-RAS Plan: P-7 River: FL-ALIGN Reach: FL-ALIGN Profile: PF 1

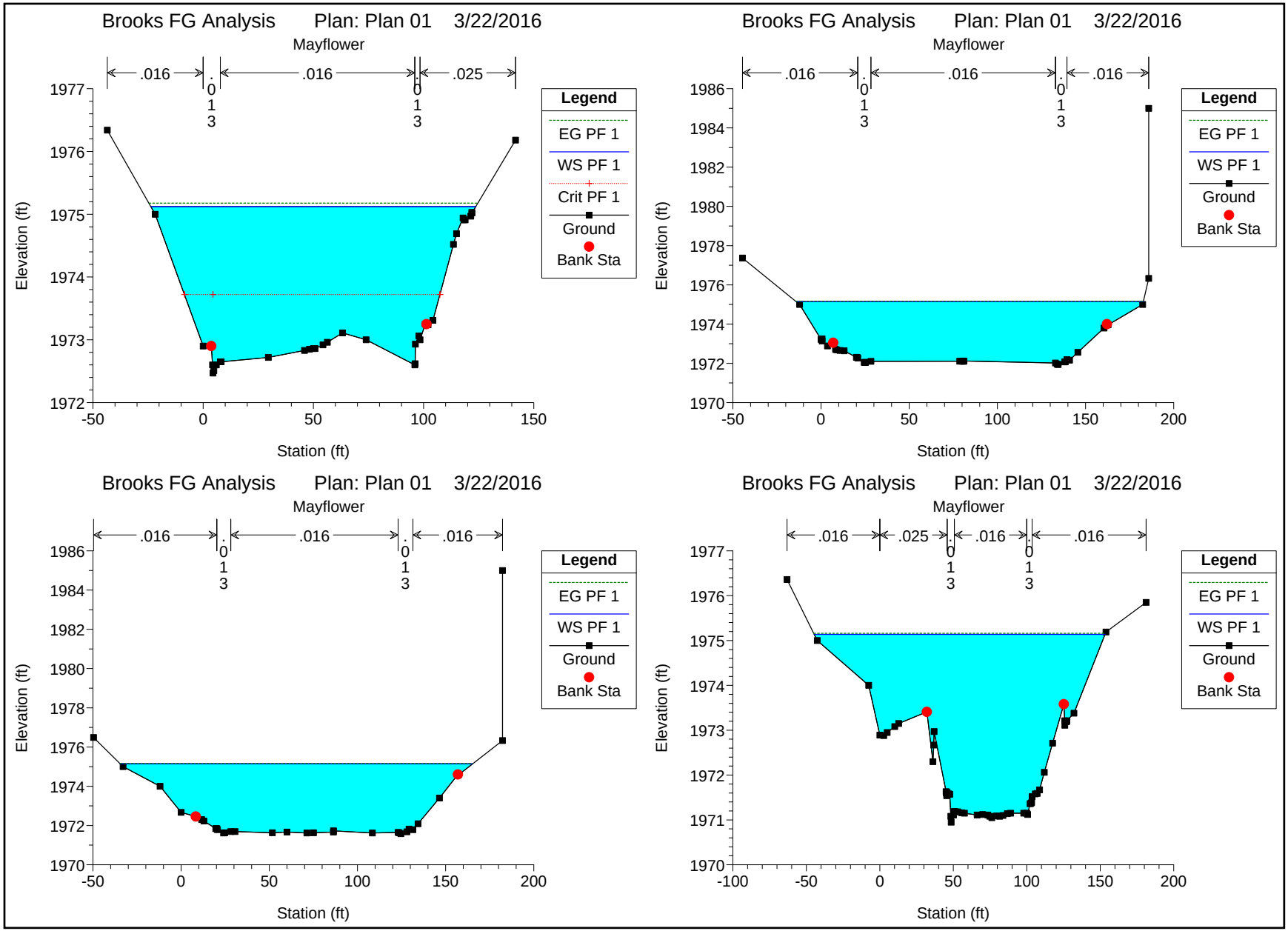
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
FL-ALIGN	3398.92	PF 1	495.00	1975.69	1976.42	1977.05	1978.86	0.028593	12.58	39.87	61.30	2.66
FL-ALIGN	3373.92	PF 1	495.00	1974.90	1975.73	1976.28	1978.12	0.029455	12.78	42.06	86.11	2.72
FL-ALIGN	3348.92	PF 1	495.00	1973.95	1974.99	1975.50	1977.31	0.034126	12.77	43.08	91.87	2.80
FL-ALIGN	3323.92	PF 1	495.00	1973.34	1974.20	1974.81	1976.50	0.030490	12.23	41.20	68.91	2.70
FL-ALIGN	3298.92	PF 1	495.00	1972.47	1975.12	1973.72	1975.18	0.000142	1.94	276.78	147.46	0.23
FL-ALIGN	3273.6	PF 1	495.00	1971.94	1975.15		1975.16	0.000030	1.06	489.18	196.96	0.11
FL-ALIGN	3248.92	PF 1	495.00	1971.58	1975.15		1975.16	0.000022	0.98	533.61	200.00	0.10
FL-ALIGN	3223.92	PF 1	495.00	1970.95	1975.14		1975.16	0.000036	1.30	457.04	197.95	0.12
FL-ALIGN	3210.22	PF 1	495.00	1971.92	1975.11		1975.16	0.000530	1.60	289.31	215.08	0.21
FL-ALIGN	3198.92	PF 1	495.00	1972.55	1975.03	1974.63	1975.14	0.001620	1.81	197.11	184.85	0.31
FL-ALIGN	3173.92	PF 1	495.00	1971.56	1974.92	1974.84	1975.09	0.002228	2.89	154.27	172.32	0.46
FL-ALIGN	3148.92	PF 1	495.00	1971.49	1974.61	1974.61	1974.98	0.006242	4.65	106.07	172.80	0.63
FL-ALIGN	3098.95	PF 1	495.00	1965.77	1968.34	1969.78	1973.66	0.130897	18.51	26.75	19.47	2.78
FL-ALIGN	3073.97	PF 1	495.00	1960.62	1963.48	1965.08	1970.04	0.150087	20.56	24.08	16.21	2.97
FL-ALIGN	3048.96	PF 1	495.00	1955.97	1958.58	1960.02	1964.55	0.324953	19.62	25.24	19.56	3.04
FL-ALIGN	3023.98	PF 1	495.00	1953.14	1954.99	1955.71	1957.47	0.186674	12.65	39.14	39.80	2.25
FL-ALIGN	2998.98	PF 1	495.00	1951.84	1954.31	1954.41	1955.10	0.040129	7.12	69.48	52.75	1.09
FL-ALIGN	2973.99	PF 1	495.00	1950.54	1952.87	1953.11	1953.91	0.053824	8.19	60.44	46.35	1.26
FL-ALIGN	2948.99	PF 1	495.00	1949.25	1951.90	1951.97	1952.75	0.036984	7.43	66.67	44.62	1.07
FL-ALIGN	2923.99	PF 1	495.00	1947.95	1951.51	1950.98	1951.95	0.014781	5.33	92.93	51.34	0.70
FL-ALIGN	2898.97	PF 1	495.00	1946.67	1951.51		1951.68	0.004549	3.30	150.20	70.33	0.40
FL-ALIGN	2874.04	PF 1	495.00	1946.37	1951.48		1951.60	0.001825	2.50	179.95	94.34	0.26
FL-ALIGN	2849.1	PF 1	495.00	1946.42	1950.90		1951.44	0.013647	5.90	83.87	36.24	0.68
FL-ALIGN	2824.82	PF 1	495.00	1945.32	1949.82	1949.82	1950.90	0.032063	8.37	59.16	27.48	1.01
FL-ALIGN	2799.78	PF 1	495.00	1944.99	1948.99	1949.16	1950.29	0.018328	9.16	54.02	25.04	1.10
FL-ALIGN	2774.63	PF 1	495.00	1944.75	1948.26	1948.57	1949.77	0.022222	9.83	50.33	24.36	1.21
FL-ALIGN	2750.44	PF 1	495.00	1944.81	1948.28	1948.30	1949.31	0.015158	8.16	60.68	29.93	1.01
FL-ALIGN	2725.42	PF 1	495.00	1944.00	1947.28	1947.67	1948.79	0.025208	9.87	50.13	27.29	1.28
FL-ALIGN	2700.17	PF 1	495.00	1943.75	1945.84	1946.50	1947.91	0.044624	11.54	42.88	28.84	1.67
FL-ALIGN	2675.8	PF 1	495.00	1943.60	1946.83	1946.05	1947.22	0.004898	5.04	98.16	43.64	0.59
FL-ALIGN	2650.79	PF 1	495.00	1943.40	1946.78		1947.10	0.003675	4.54	108.98	45.67	0.52
FL-ALIGN	2626.19	PF 1	495.00	1943.20	1946.44		1946.95	0.006987	5.77	85.85	40.63	0.70
FL-ALIGN	2601.78	PF 1	495.00	1943.00	1946.23		1946.71	0.014083	5.53	89.47	44.77	0.69
FL-ALIGN	2576.59	PF 1	495.00	1943.06	1945.99		1946.46	0.007262	5.50	89.97	47.36	0.70
FL-ALIGN	2551.36	PF 1	495.00	1943.20	1945.41	1945.41	1946.16	0.016101	6.96	71.14	48.12	1.01
FL-ALIGN	2526.44	PF 1	495.00	1941.83	1943.58	1944.17	1945.36	0.060724	10.72	46.18	44.28	1.85
FL-ALIGN	2501.48	PF 1	495.00	1936.39	1937.70	1938.88	1943.74	0.039199	19.72	25.10	30.52	3.83
FL-ALIGN	2485.61	PF 1	500.00	1929.15	1930.71	1932.93	1942.49	0.044560	27.54	18.15	12.44	4.02
FL-ALIGN	2484.00		Culvert									
FL-ALIGN	2399.9	PF 1	525.00	1927.92	1929.78	1931.75	1937.95	0.028057	22.93	21.80	11.78	2.97
FL-ALIGN	2376.49	PF 1	525.00	1927.72	1929.77	1931.66	1937.18	0.021285	21.85	24.03	11.96	2.72
FL-ALIGN	2351.49	PF 1	525.00	1927.42	1929.53	1931.38	1936.56	0.019148	21.27	24.68	11.86	2.60
FL-ALIGN	2301.49	PF 1	525.00	1926.80	1929.05	1930.80	1935.48	0.016698	20.35	25.79	11.82	2.43
FL-ALIGN	2276.48	PF 1	525.00	1926.54	1928.84	1930.54	1934.99	0.015675	19.91	26.37	11.81	2.35
FL-ALIGN	2226.48	PF 1	525.00	1925.91	1928.32	1929.96	1934.14	0.014282	19.36	27.12	11.63	2.23
FL-ALIGN	2201.48	PF 1	525.00	1925.62	1928.05	1929.67	1933.76	0.013933	19.18	27.37	11.59	2.20
FL-ALIGN	2176.48	PF 1	525.00	1925.37	1927.79	1929.39	1933.38	0.013545	18.97	27.67	11.57	2.16
FL-ALIGN	2151.48	PF 1	525.00	1925.08	1927.59	1929.15	1933.00	0.012810	18.66	28.13	11.47	2.10
FL-ALIGN	2126.48	PF 1	525.00	1924.77	1927.29	1928.84	1932.68	0.012774	18.63	28.18	11.52	2.10
FL-ALIGN	2101.47	PF 1	525.00	1924.52	1927.02	1928.56	1932.34	0.012553	18.51	28.37	11.54	2.08
FL-ALIGN	2076.46	PF 1	525.00	1924.29	1926.75	1928.27	1932.02	0.012719	18.43	28.49	11.92	2.10
FL-ALIGN	2051.45	PF 1	525.00	1924.15	1926.61	1928.08	1931.65	0.011878	18.01	29.15	11.88	2.03
FL-ALIGN	2026.52	PF 1	525.00	1923.84	1926.30	1927.77	1931.35	0.011930	18.02	29.13	11.99	2.04
FL-ALIGN	2001.52	PF 1	525.00	1923.47	1926.01	1927.47	1931.05	0.011855	18.02	29.14	11.88	2.03
FL-ALIGN	1976.52	PF 1	525.00	1923.20	1925.72	1927.19	1930.75	0.011830	18.00	29.17	11.92	2.03
FL-ALIGN	1951.52	PF 1	525.00	1922.92	1924.81	1926.33	1930.38	0.014139	18.93	27.73	23.68	2.46
FL-ALIGN	1876.56	PF 1	525.00	1922.08	1924.67	1925.99	1929.17	0.010115	17.03	30.83	12.02	1.87
FL-ALIGN	1851.56	PF 1	525.00	1921.78	1924.38	1925.72	1928.92	0.010213	17.09	30.72	11.98	1.88
FL-ALIGN	1826.56	PF 1	525.00	1921.52	1924.16	1925.48	1928.65	0.010775	17.00	30.88	11.92	1.86
FL-ALIGN	1801.56	PF 1	525.00	1921.23	1923.85	1925.18	1928.38	0.010112	17.09	30.72	11.85	1.87
FL-ALIGN	1776.56	PF 1	525.00	1920.94	1923.55	1924.89	1928.12	0.010258	17.16	30.59	11.79	1.88
FL-ALIGN	1751.58	PF 1	525.00	1920.70	1922.96	1924.36	1927.82	0.012002	17.70	29.67	13.15	2.08
FL-ALIGN	1726.57	PF 1	525.00	1920.44	1922.45	1923.87	1927.48	0.013518	17.99	29.18	14.50	2.23
FL-ALIGN	1701.57	PF 1	652.00	1920.14	1922.53	1923.85	1927.06	0.009924	17.08	38.17	16.00	1.95
FL-ALIGN	1667.4	PF 1	652.00	1919.72	1921.77	1924.21	1926.61	0.015107	17.66	36.93	18.00	2.17
FL-ALIGN	1530.0	PF 1	652.00	1918.74	1921.18	1921.72	1924.61	0.009190	14.87	43.85	18.00	1.68
FL-ALIGN	1529.8	PF 1	697.00	1918.75	1919.69	1920.77	1924.46	0.027237	17.53	39.76	42.50	3.19
FL-ALIGN	1515.66*	PF 1	697.00	1917.84	1919.30	1920.51	1923.81	0.015335	17.05	40.88	28.00	2.49
FL-ALIGN	1501.53	PF 1	697.00	1916.92	1919.15	1920.40	1923.40	0.009550	16.55	42.13	31.91	1.95
FL-ALIGN	1476.5	PF 1	697.00	1916.11	1918.23	1919.62	1923.08	0.011520	17.67	39.46	18.59	2.14
FL-ALIGN	1462.50	PF 1	697.00	1915.69	1917.83	1919.28	1922.90	0.011999	18.06	38.60	18.00	2.17
FL-ALIGN	1451.37	PF 1	697.00	1915.20	1917.30	1918.79	1922.58	0.012807	18.44	37.79	18.00	2.24
FL-ALIGN	1426.37	PF 1	697.00	1914.66	1916.72	1918.25	1922.23	0.013680	18.84	36.99	18.00	2.32
FL-ALIGN	1401.35	PF 1	697.00	1914.13	1916.15	1917.72	1921.86	0.014426	19.17	36.36	18.00	2.38
FL-ALIGN	1376.2	PF 1	697.00	1913.60	1915.59	1917.19	1921.47	0.015098	19.45	35.83	18.00	2.43

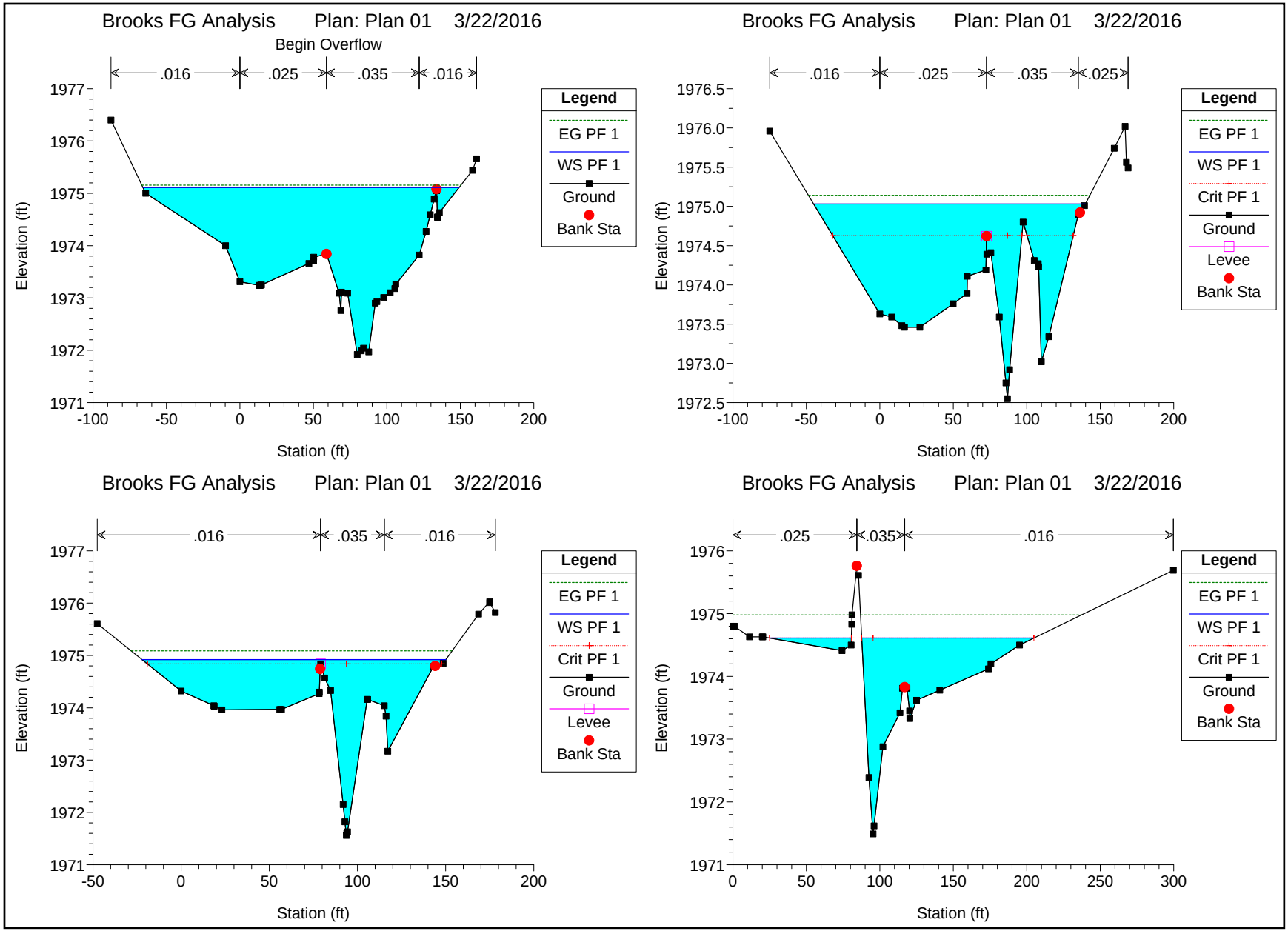
HEC-RAS Plan: P-7 River: FL-ALIGN Reach: FL-ALIGN Profile: PF 1 (Continued)

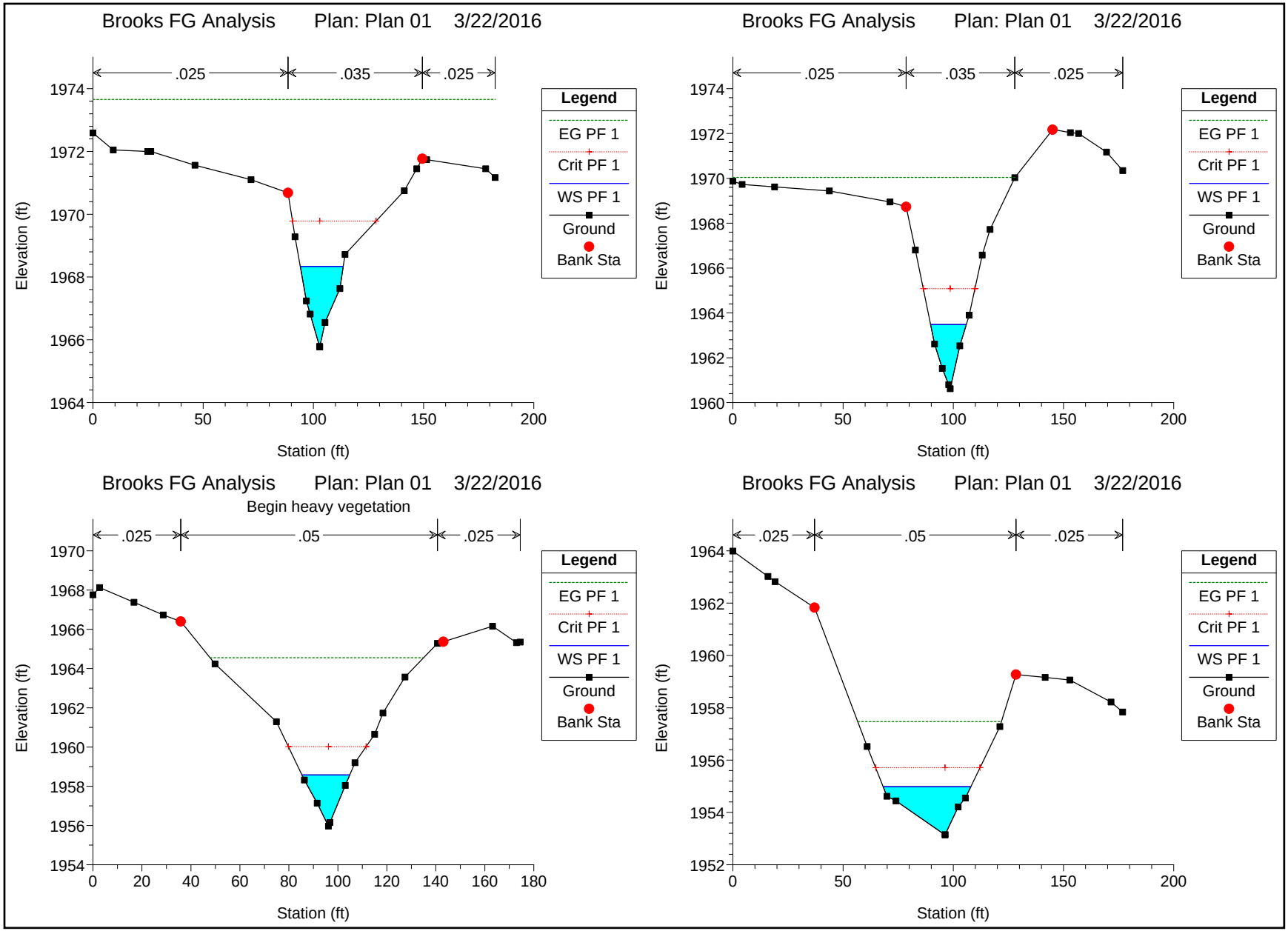
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
FL-ALIGN	1351.17	PF 1	697.00	1913.07	1915.04	1916.66	1921.07	0.015715	19.71	35.37	18.00	2.48
FL-ALIGN	1326.16	PF 1	697.00	1912.53	1914.47	1916.12	1920.65	0.016316	19.95	34.94	18.00	2.52
FL-ALIGN	1301.14	PF 1	697.00	1912.00	1913.92	1915.59	1920.22	0.016786	20.13	34.62	18.00	2.56
FL-ALIGN	1276.14	PF 1	697.00	1911.47	1913.38	1915.06	1919.78	0.017226	20.30	34.34	18.00	2.59
FL-ALIGN	1251.15	PF 1	697.00	1910.94	1912.83	1914.53	1919.33	0.017628	20.45	34.08	18.00	2.62
FL-ALIGN	1226.18	PF 1	697.00	1910.40	1912.28	1913.99	1918.87	0.018037	20.60	33.83	18.00	2.65
FL-ALIGN	1201.34	PF 1	697.00	1909.88	1911.75	1913.47	1918.41	0.018338	20.71	33.65	18.00	2.67
FL-ALIGN	1151.6	PF 1	798.00	1909.65	1911.88	1913.58	1918.04	0.014050	19.93	40.05	18.00	2.35
FL-ALIGN	1101.71	PF 1	798.00	1908.87	1915.60	1912.53	1916.15	0.000421	5.93	134.59	20.00	0.40
FL-ALIGN	1076.62	PF 1	798.00	1908.48	1915.70		1916.09	0.000272	5.03	158.65	21.98	0.33
FL-ALIGN	1051.67	PF 1	798.00	1908.09	1915.73		1916.07	0.000220	4.65	171.47	22.44	0.30
FL-ALIGN	1034.38	PF 1	798.00	1907.82	1915.80	1910.91	1916.03	0.000138	3.88	205.49	25.75	0.24

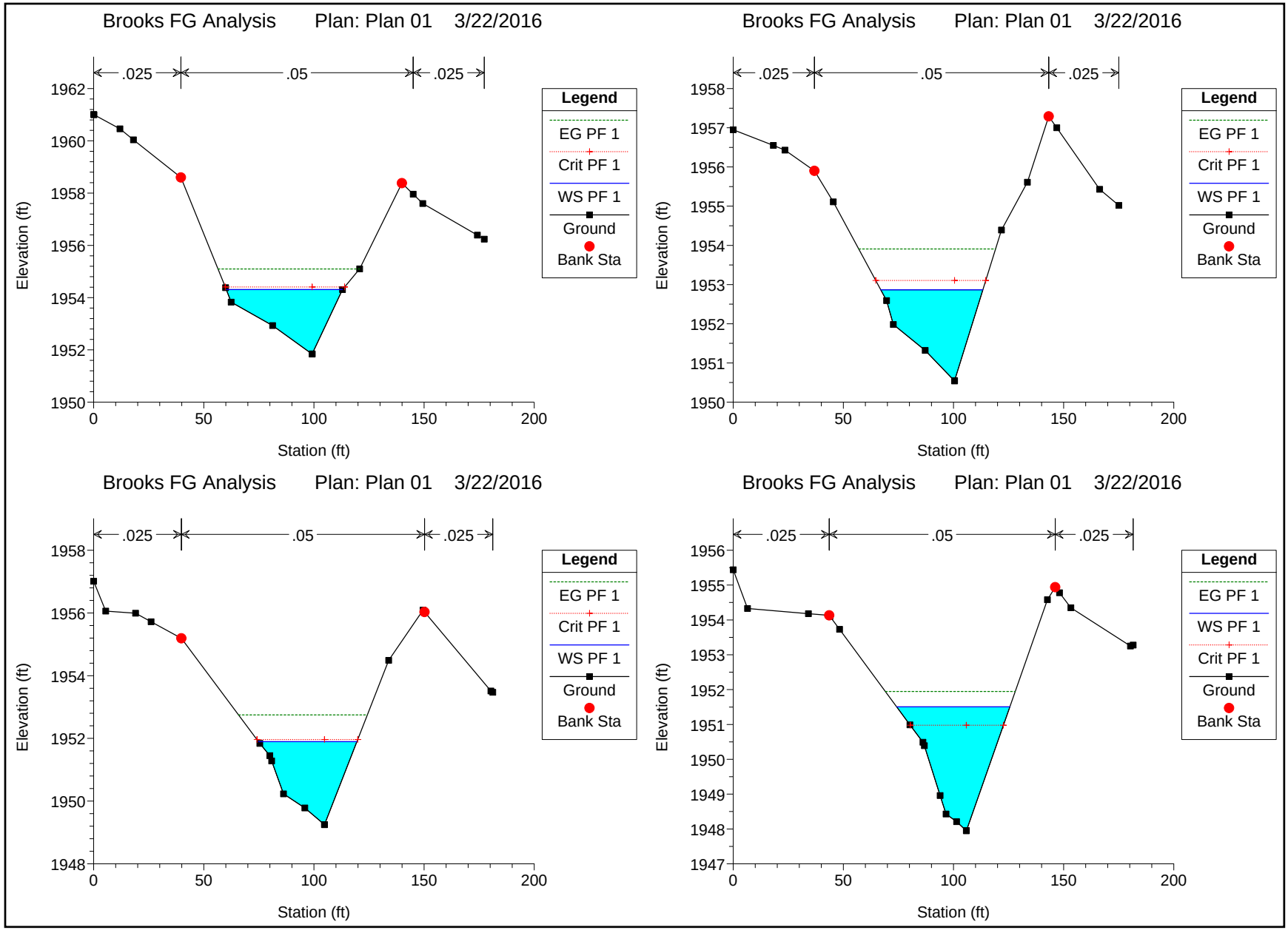

Brooks FG Analysis Plan: Plan 01 3/22/2016
FL-ALIGN FL-ALIGN
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Left Levee
Elevation (ft)
1980
1970
1960
1950
1940
1930
1920
1910
1900
0
500
1000
1500
2000
2500
Main Channel Distance (ft)

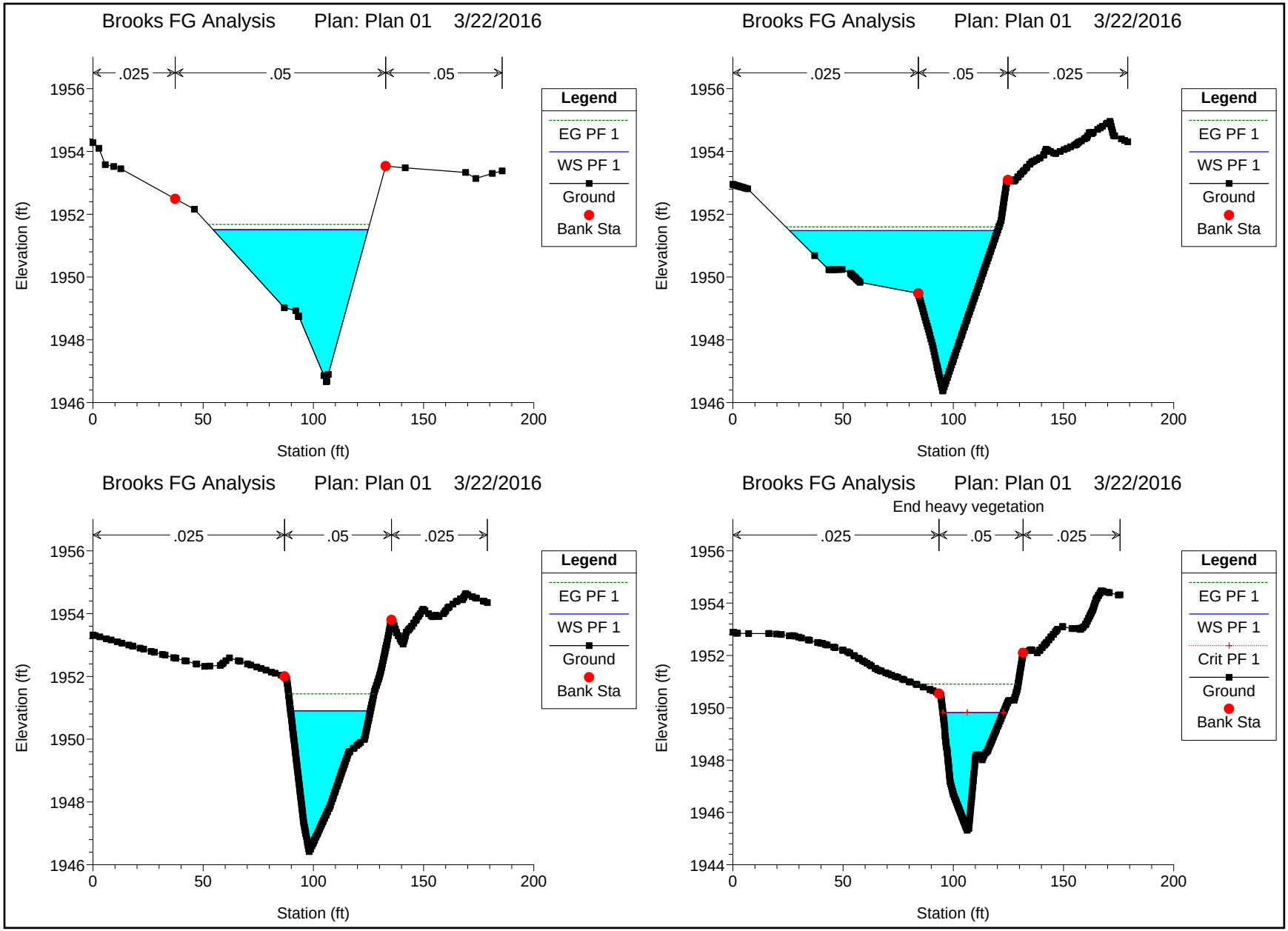

Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.013
.013
.016
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.013
.016
.016
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.013
.016
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.013
.025
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

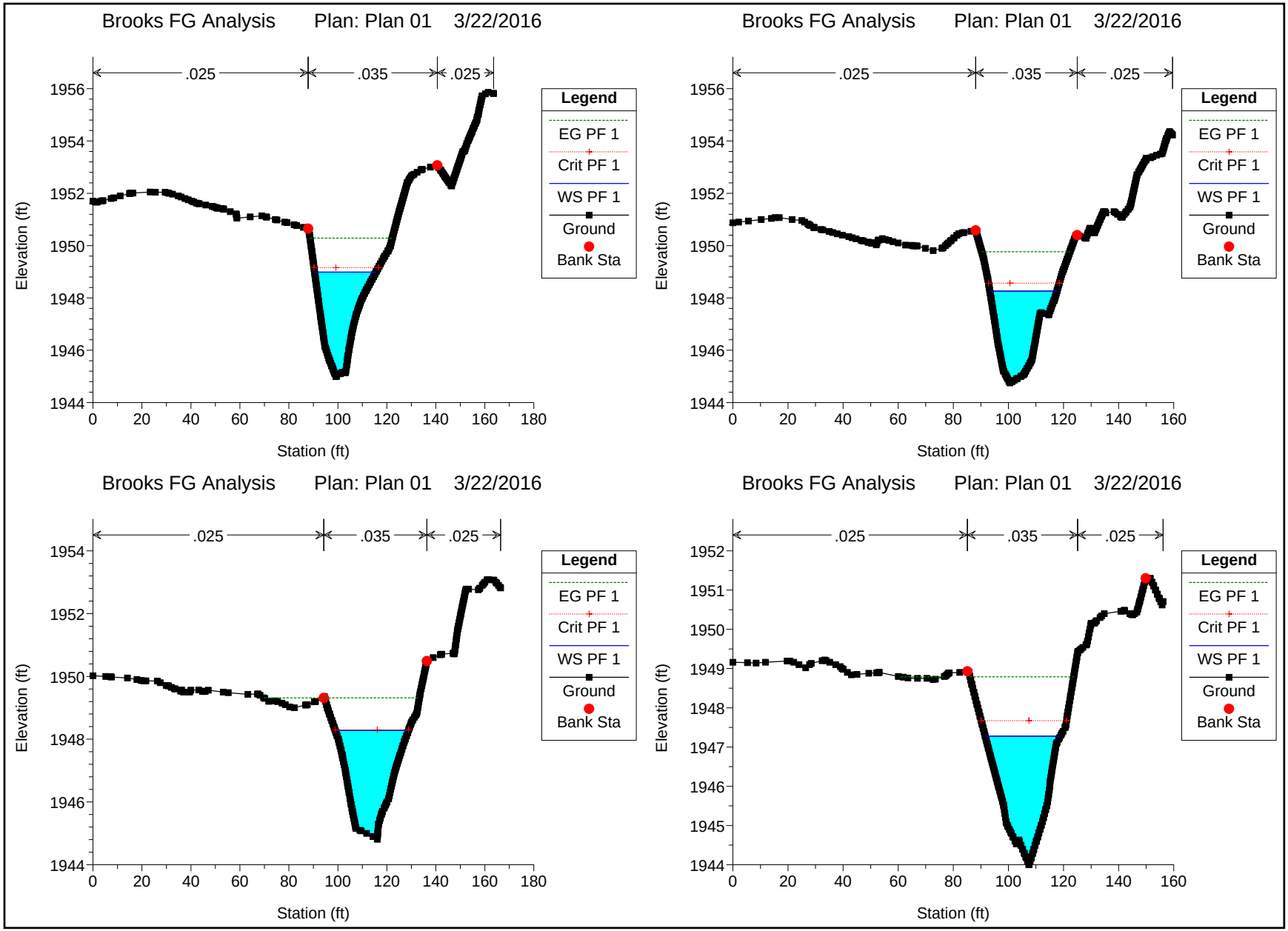

Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.016
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.016
.016
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 01 3/22/2016
Mayflower
.016
.025
.016
.016
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

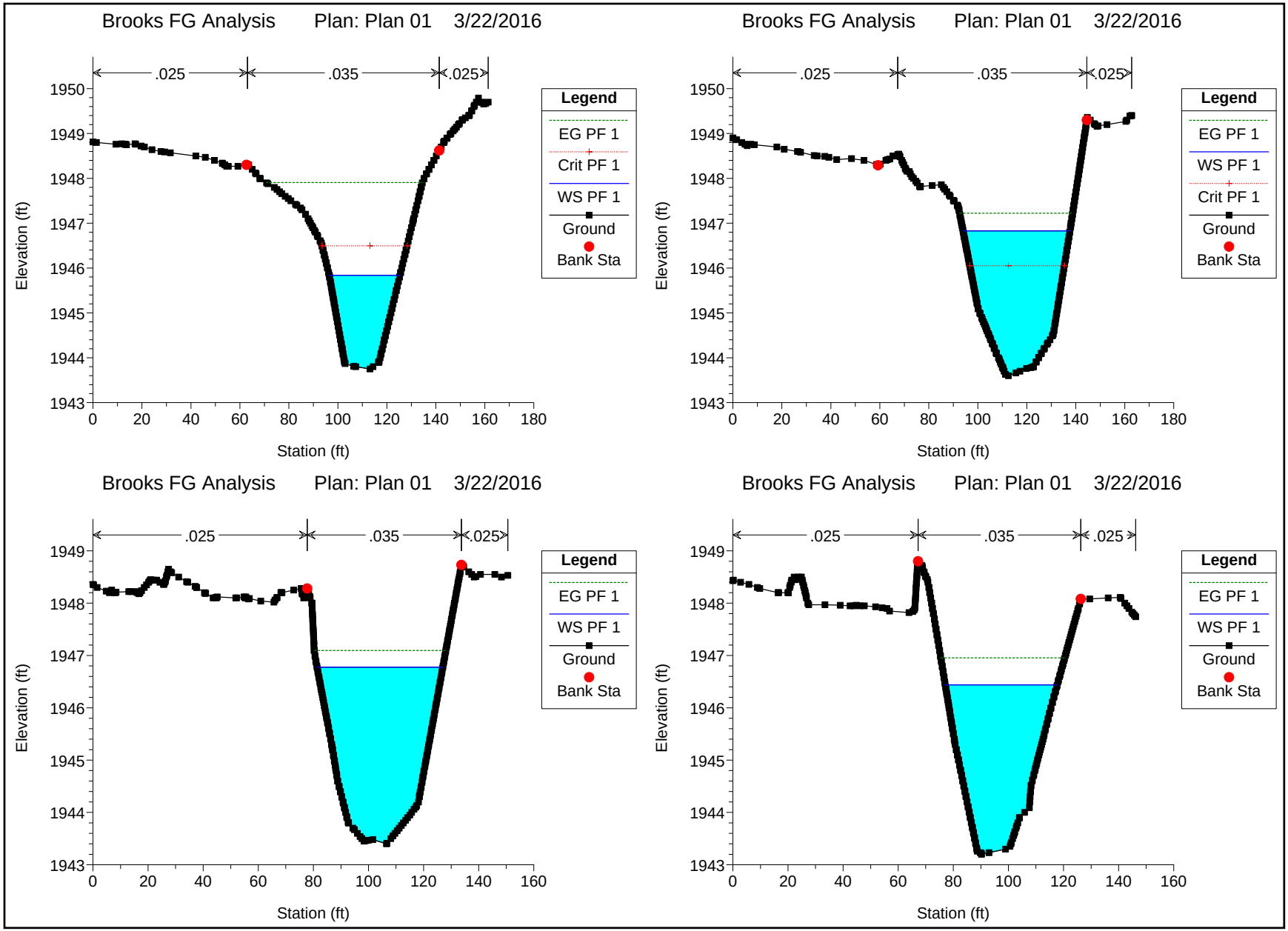

Brooks FG Analysis Plan: Plan 01 3/22/2016
Begin Overflow
.016
.025
.035
.016
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.016
.035
.016
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.016
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Begin heavy vegetation
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.05
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1956
1954
1952
1950
1948
1946
0
50
100
150
200
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.05
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Brooks FG Analysis Plan: Plan 01 3/22/2016
End heavy vegetation
.025
.05
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1944


Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
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.025
Elevation (ft)
Station (ft)
Legend
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Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
Legend
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WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
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WS PF 1
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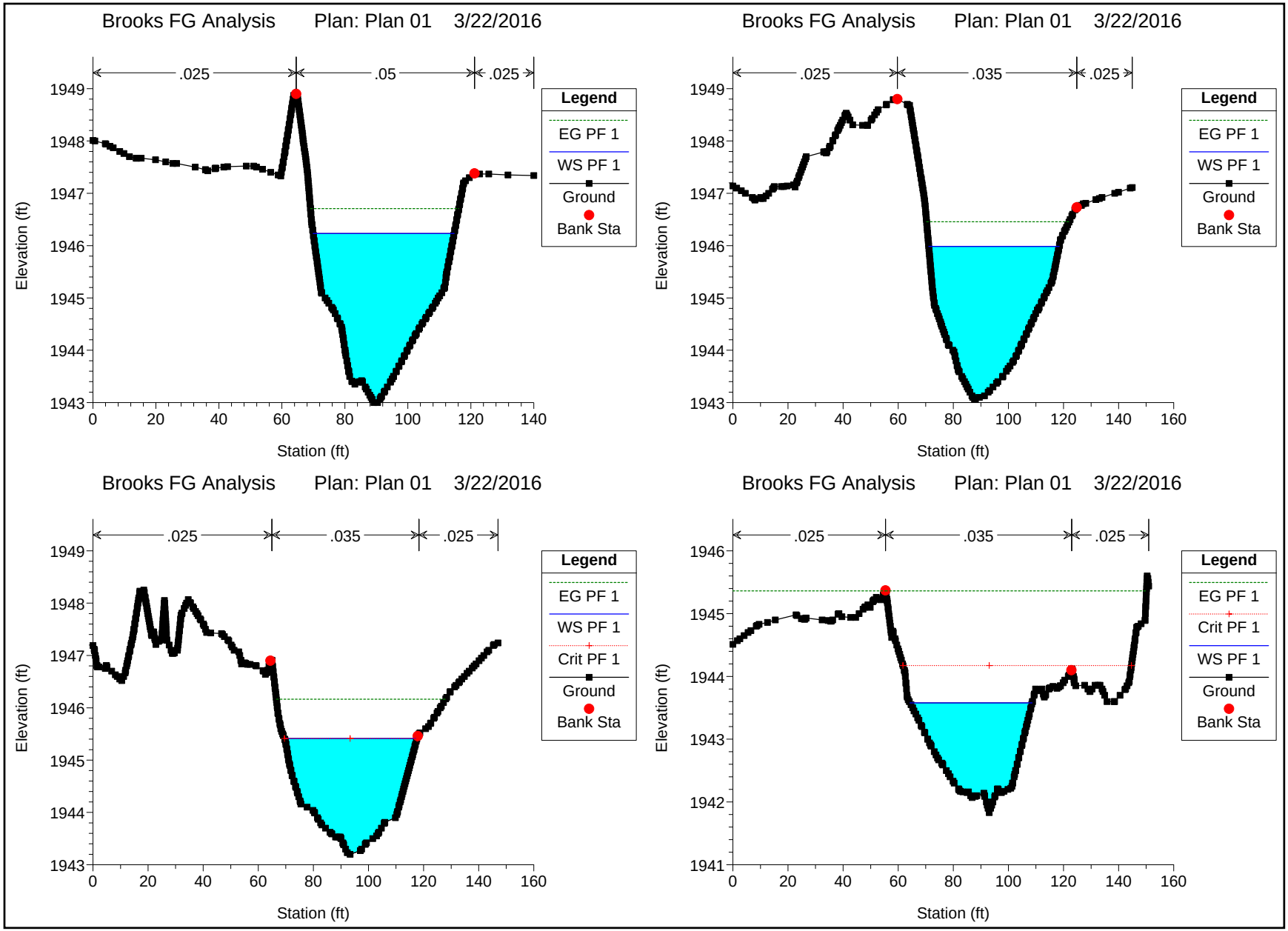
Bank Sta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Station (ft)
Legend
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WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
Legend
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WS PF 1
Crit PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
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Crit PF 1
WS PF 1
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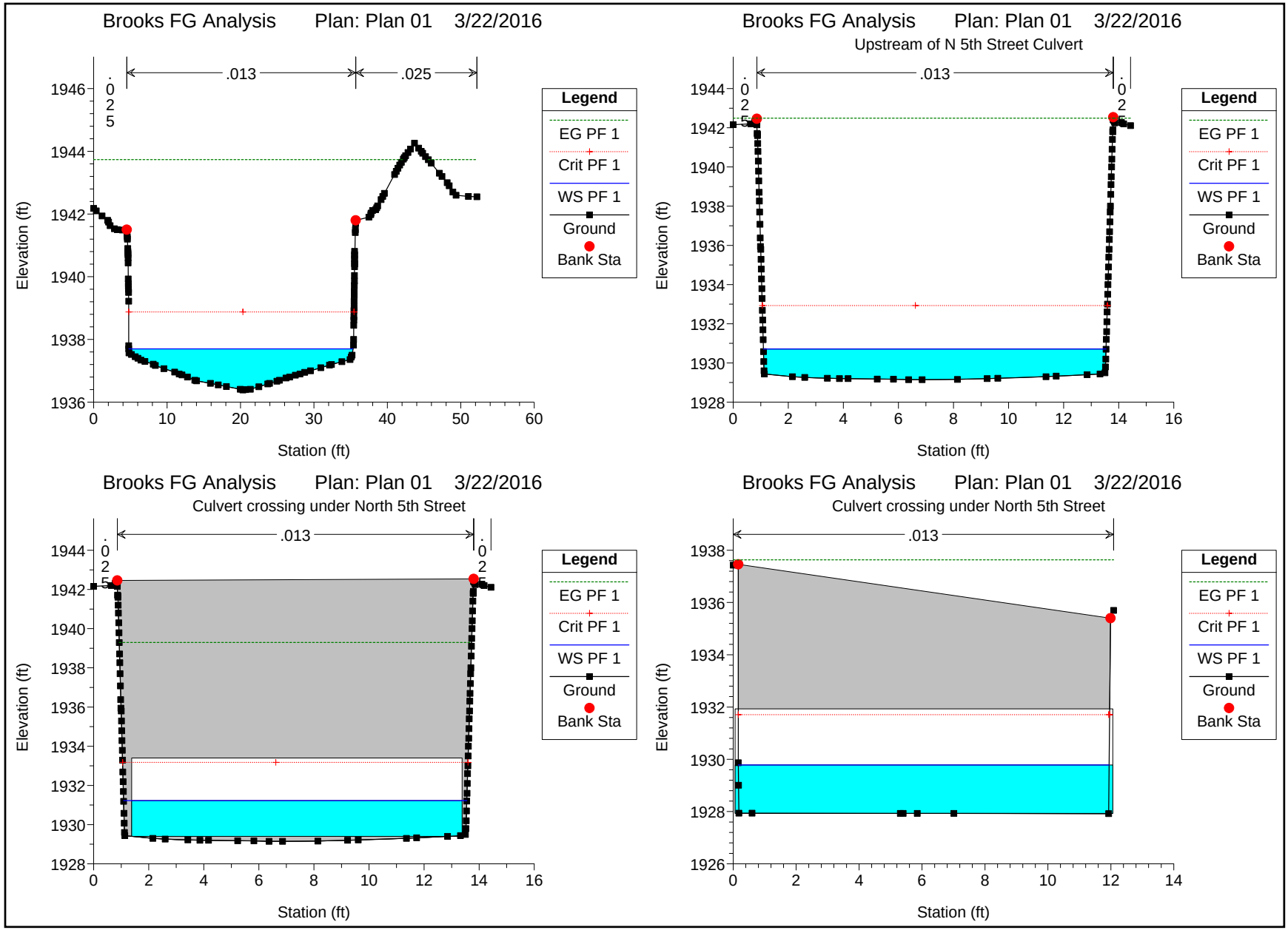
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
Legend
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Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Upstream of N 5th Street Culvert
.025
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.025
Elevation (ft)
Station (ft)
Legend
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Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Culvert crossing under North 5th Street
.025
.013
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Culvert crossing under North 5th Street
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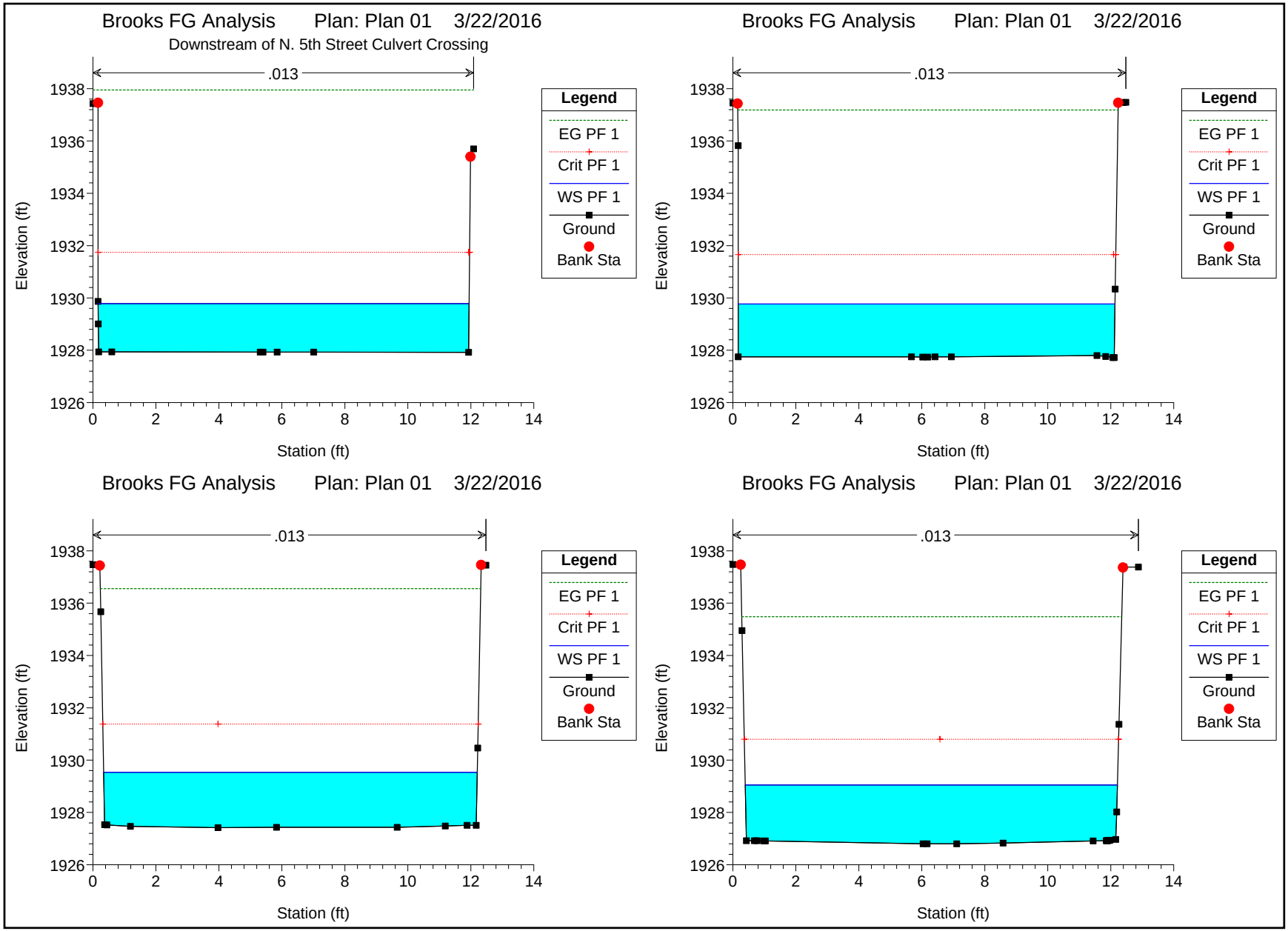
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta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Downstream of N. 5th Street Culvert Crossing
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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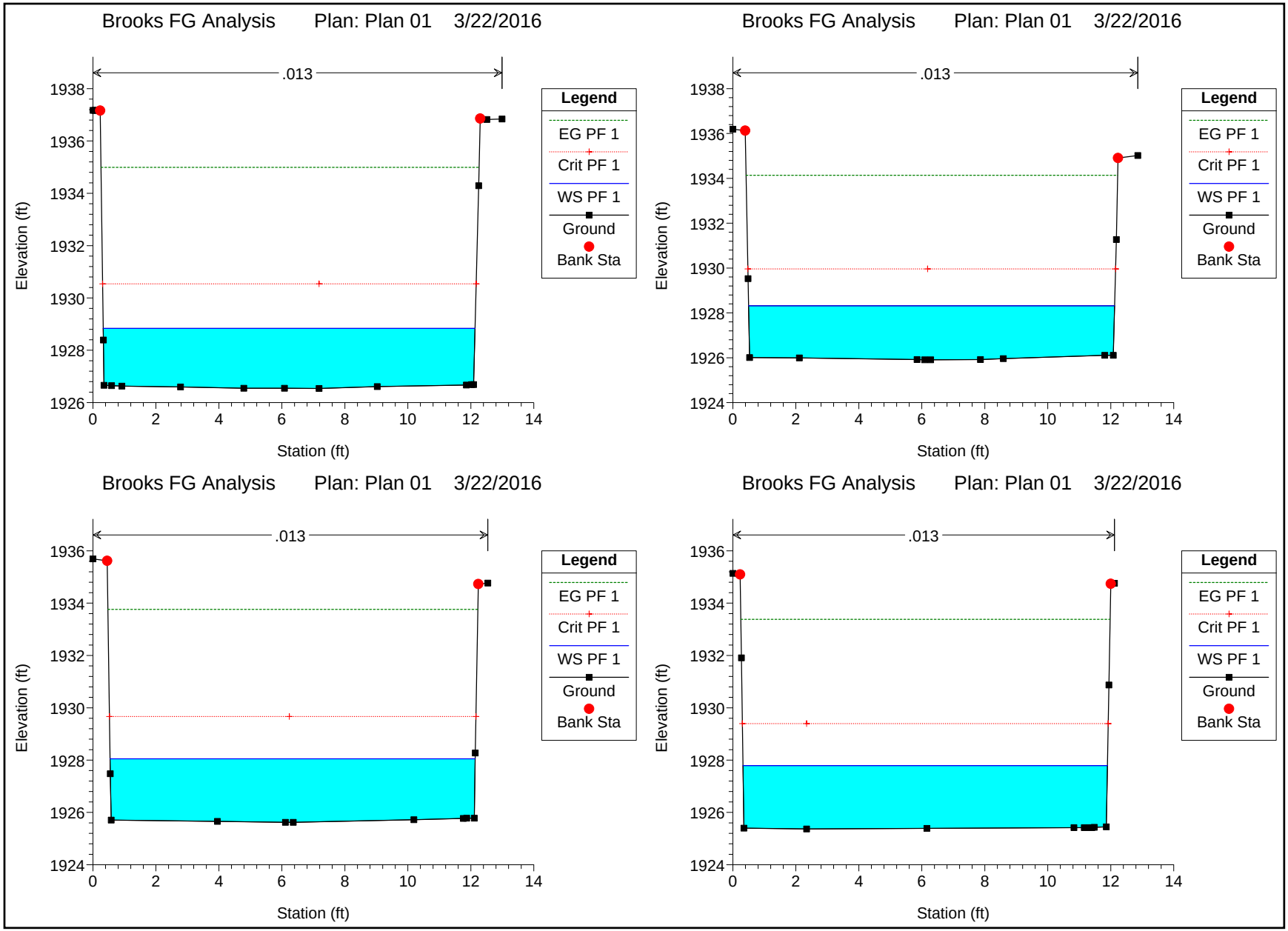
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
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EG PF 1
Crit PF 1
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Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
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EG PF 1
Crit PF 1
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Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
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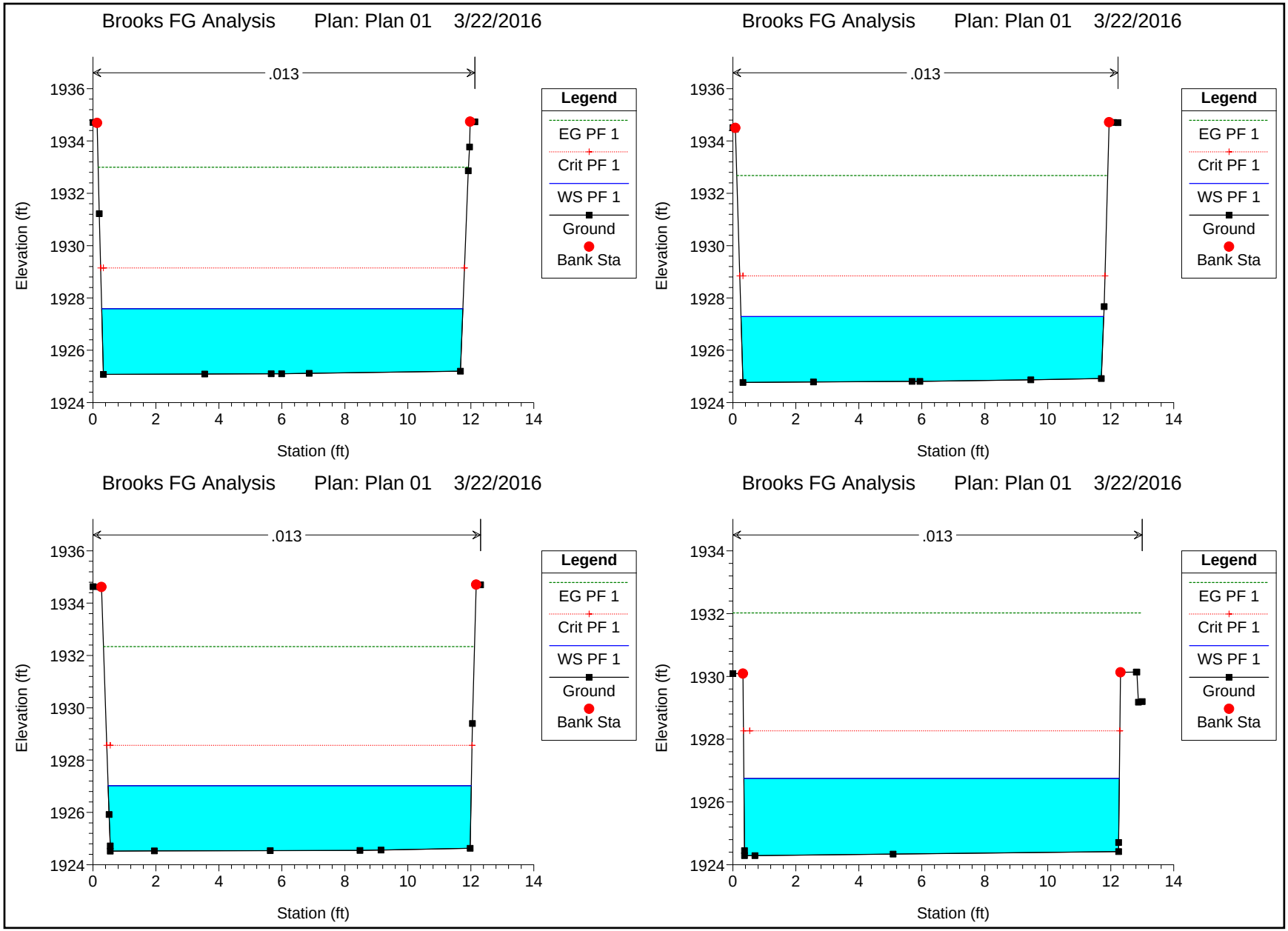
Bank Sta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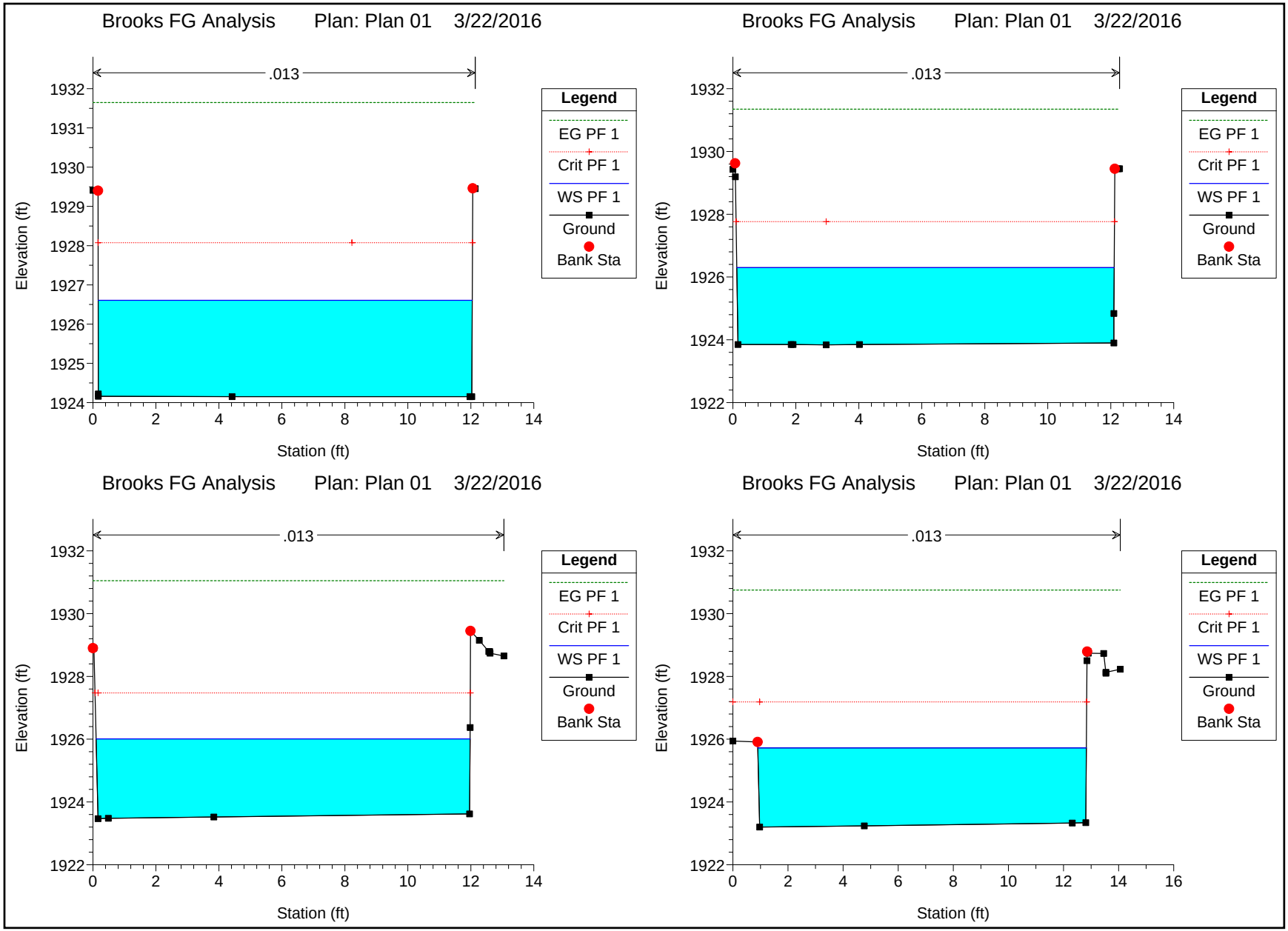
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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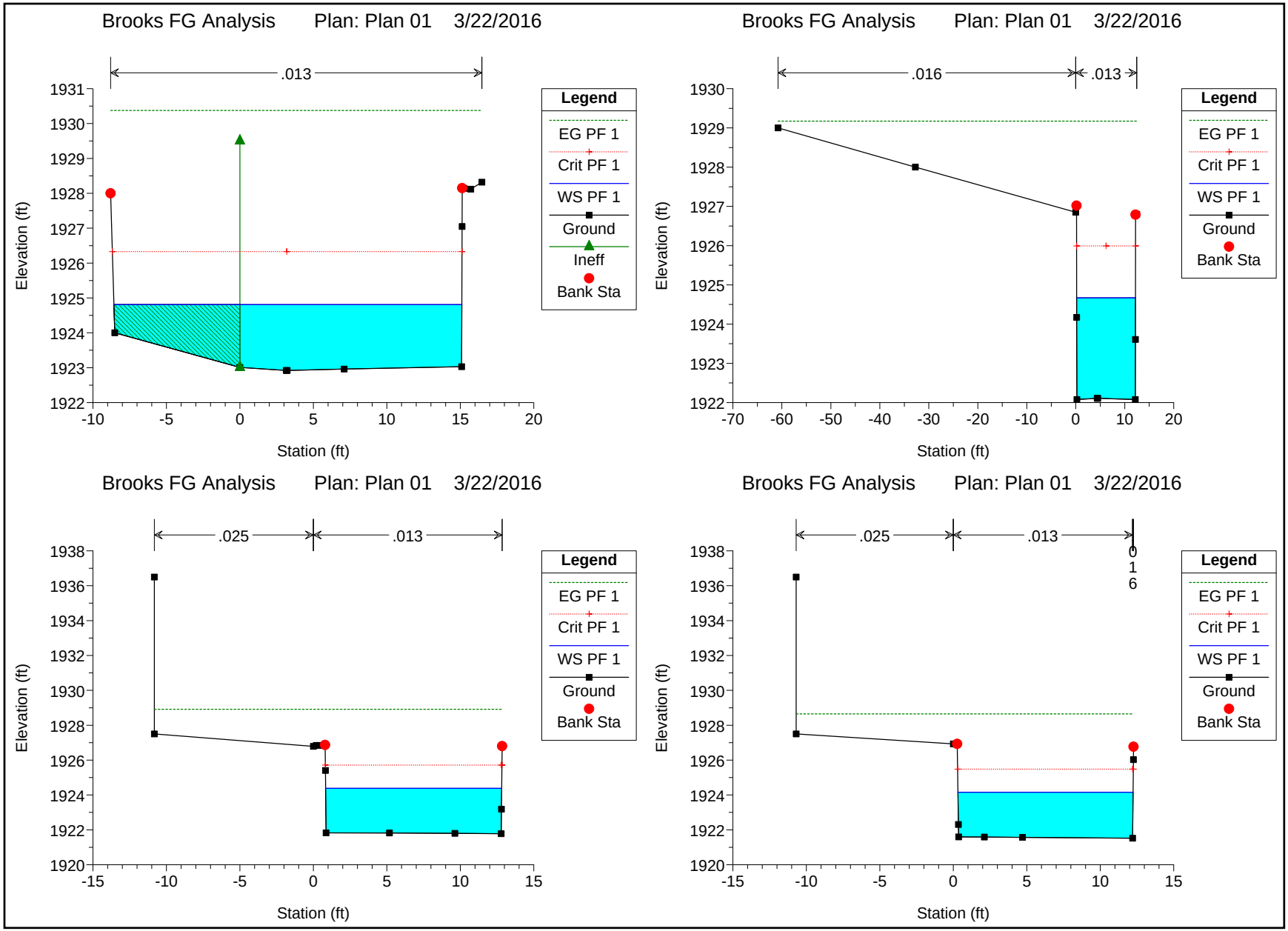
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
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Station (ft)
Legend
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Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.016
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
.025
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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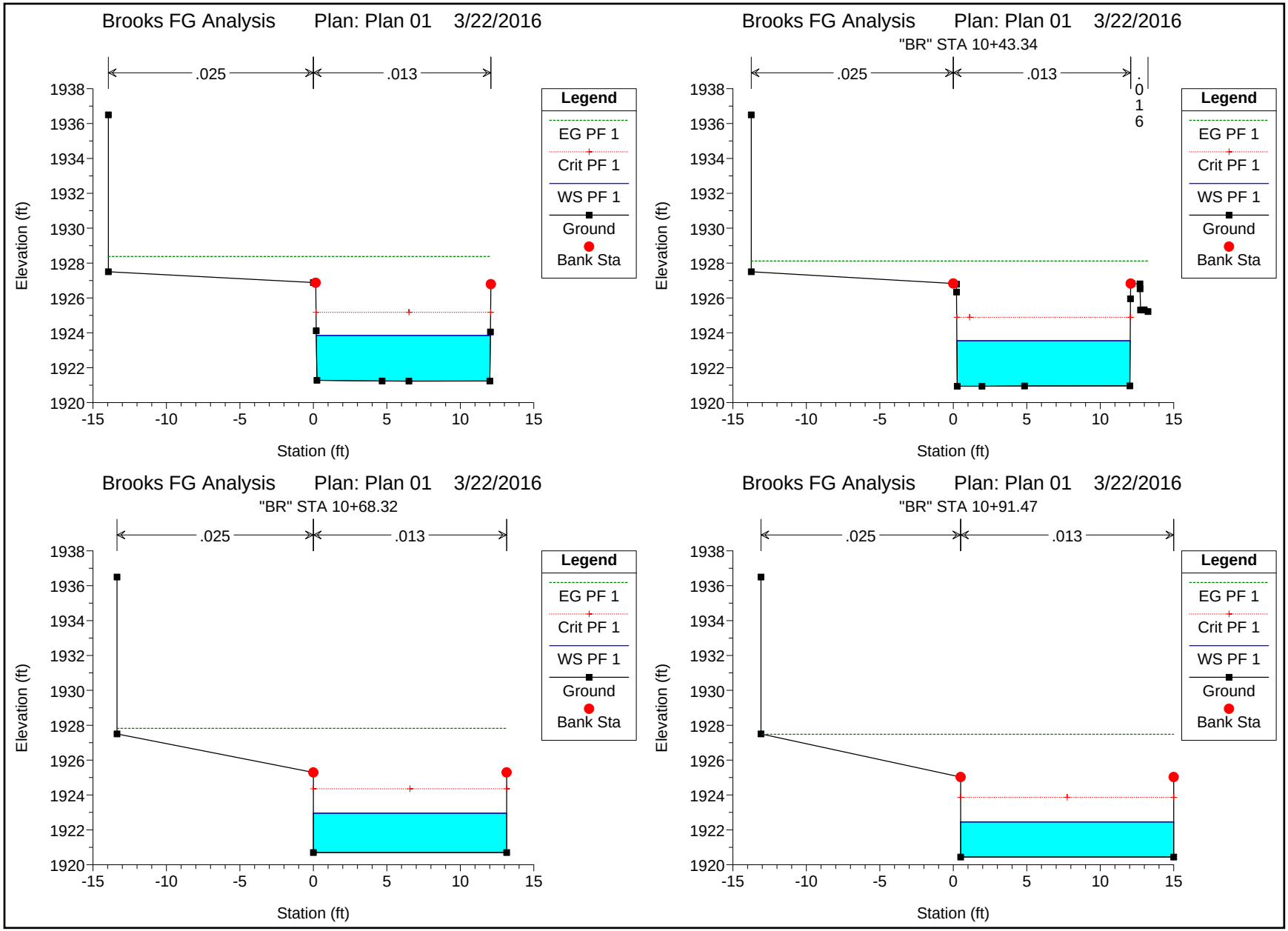
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
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.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 10+43.34
.025
.013
.016
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 10+68.32
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.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 10+91.47
.025
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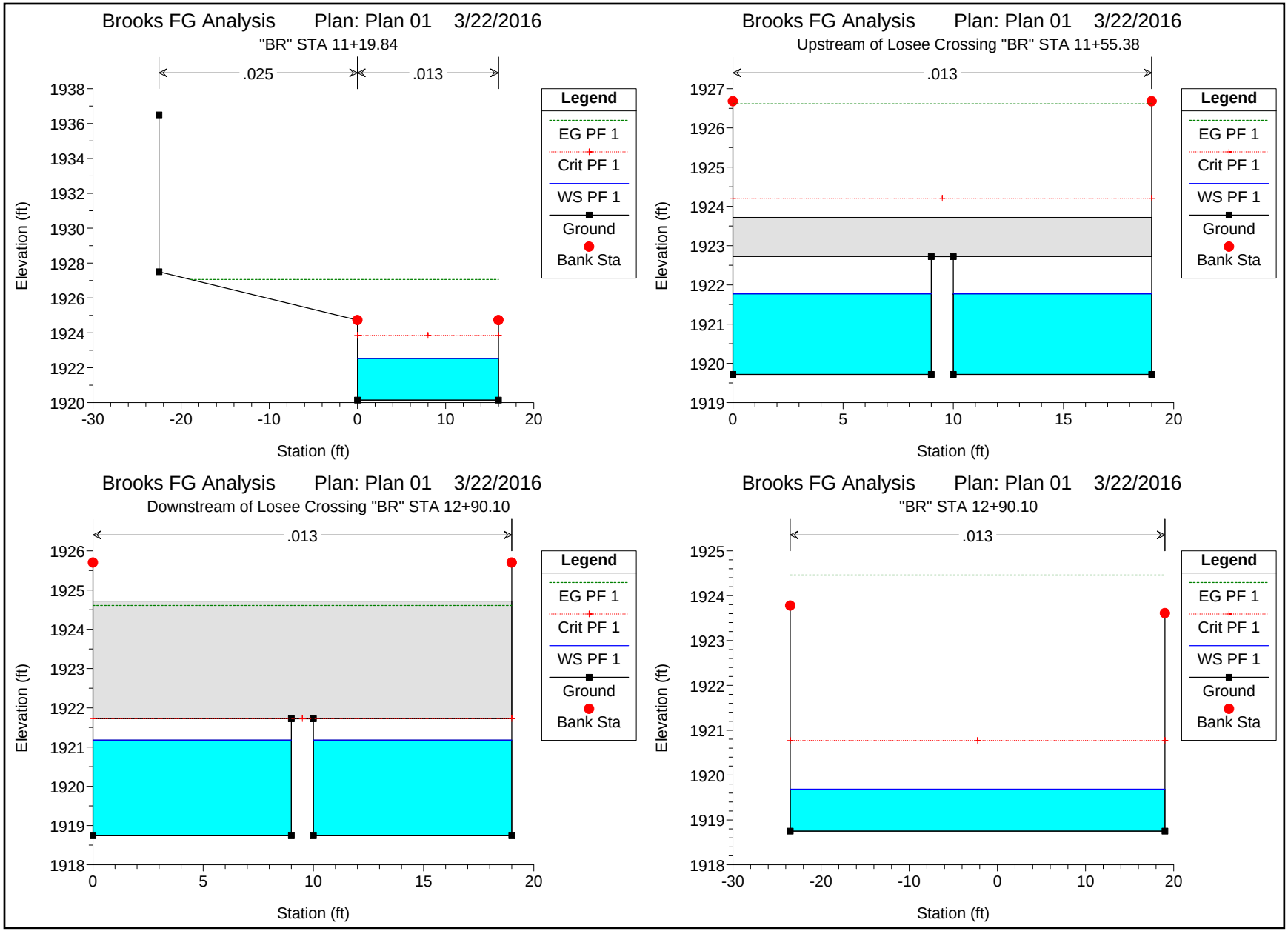
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 11+19.84
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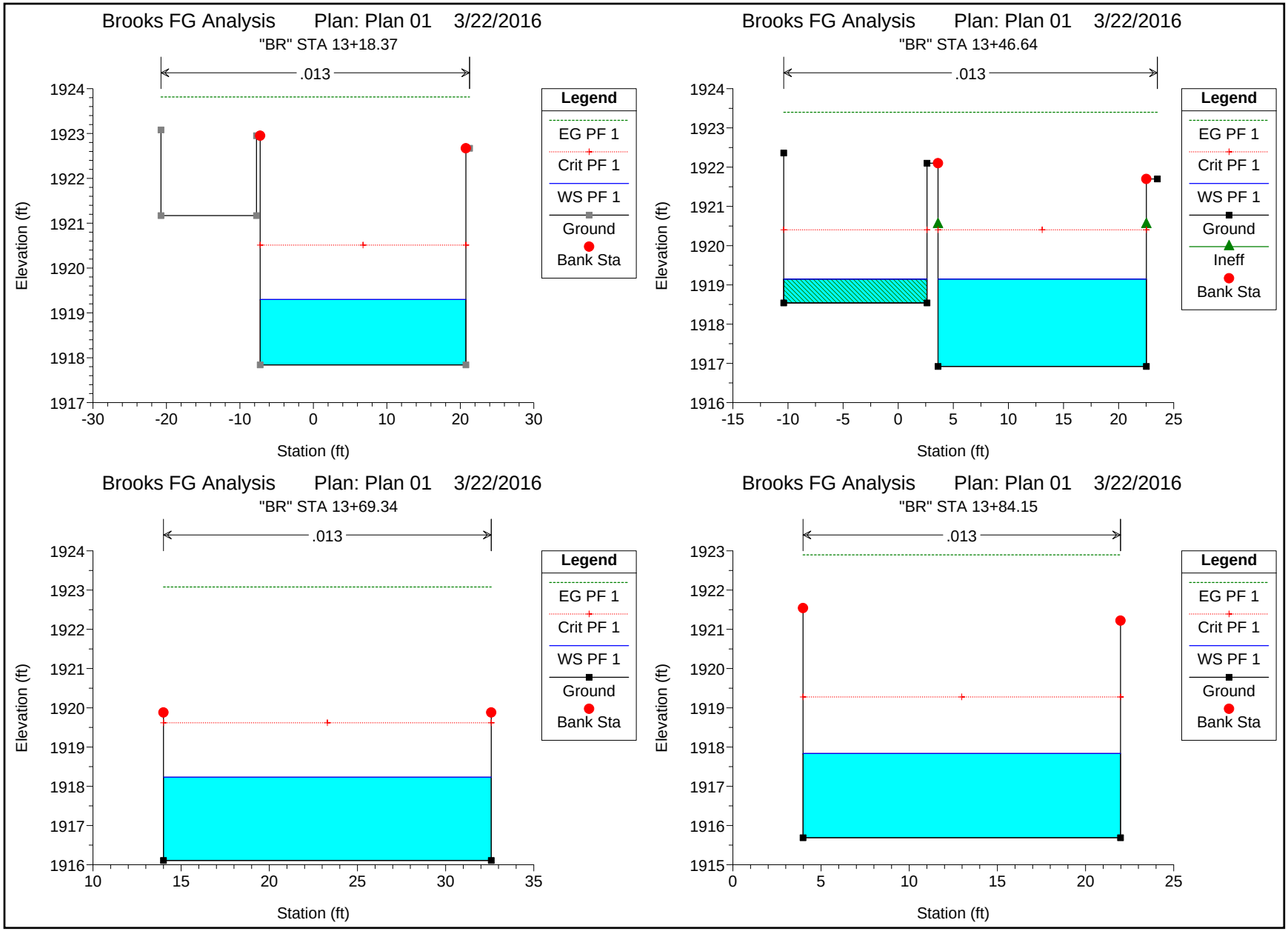
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Upstream of Losee Crossing "BR" STA 11+55.38
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
Downstream of Losee Crossing "BR" STA 12+90.10
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 12+90.10
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 13+18.37
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 13+46.64
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 13+69.34
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 13+84.15
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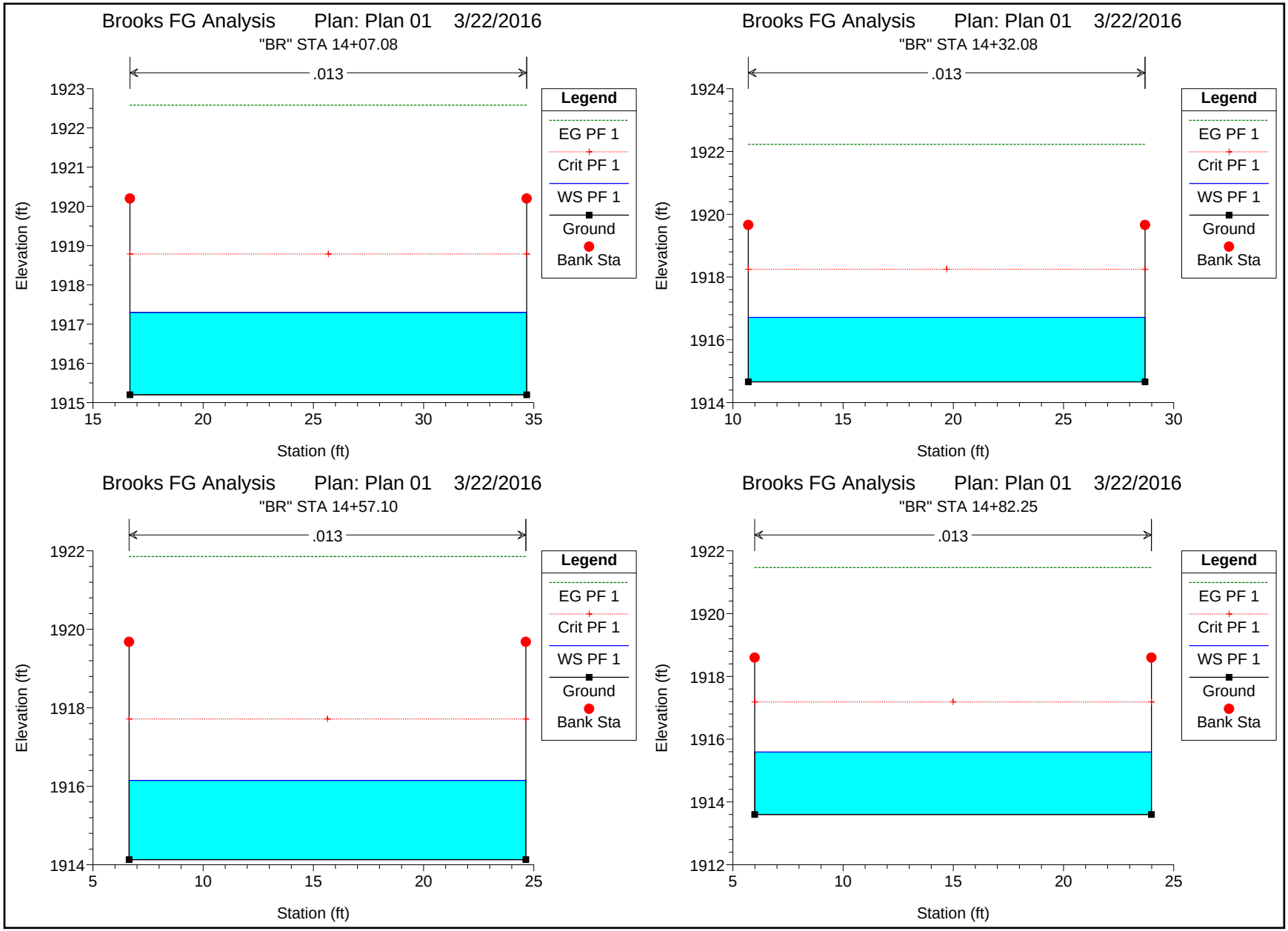
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 14+07.08
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 14+32.08
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 14+57.10
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 14+82.25
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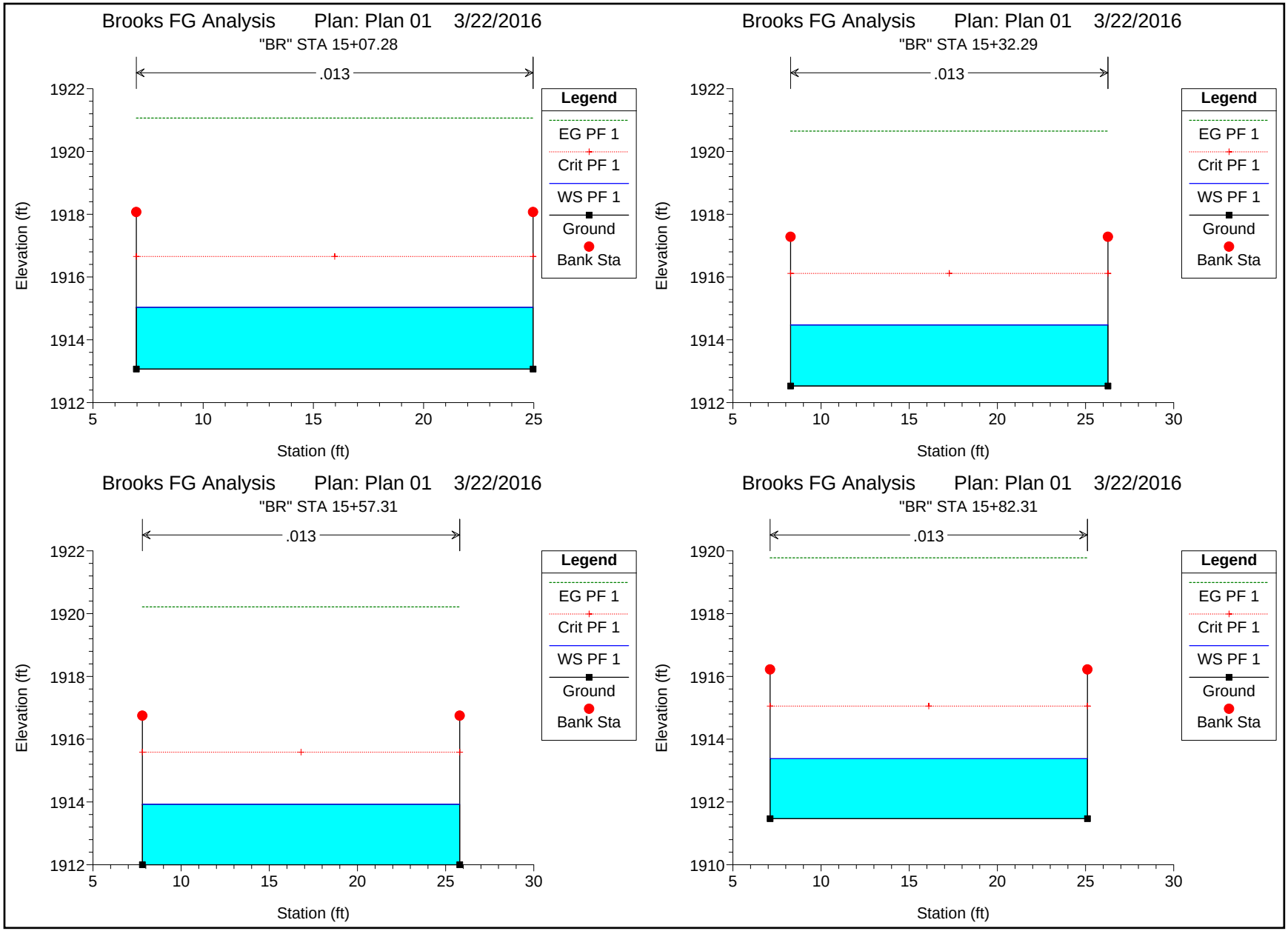
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta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"BR" STA 15+07.28
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 15+57.31
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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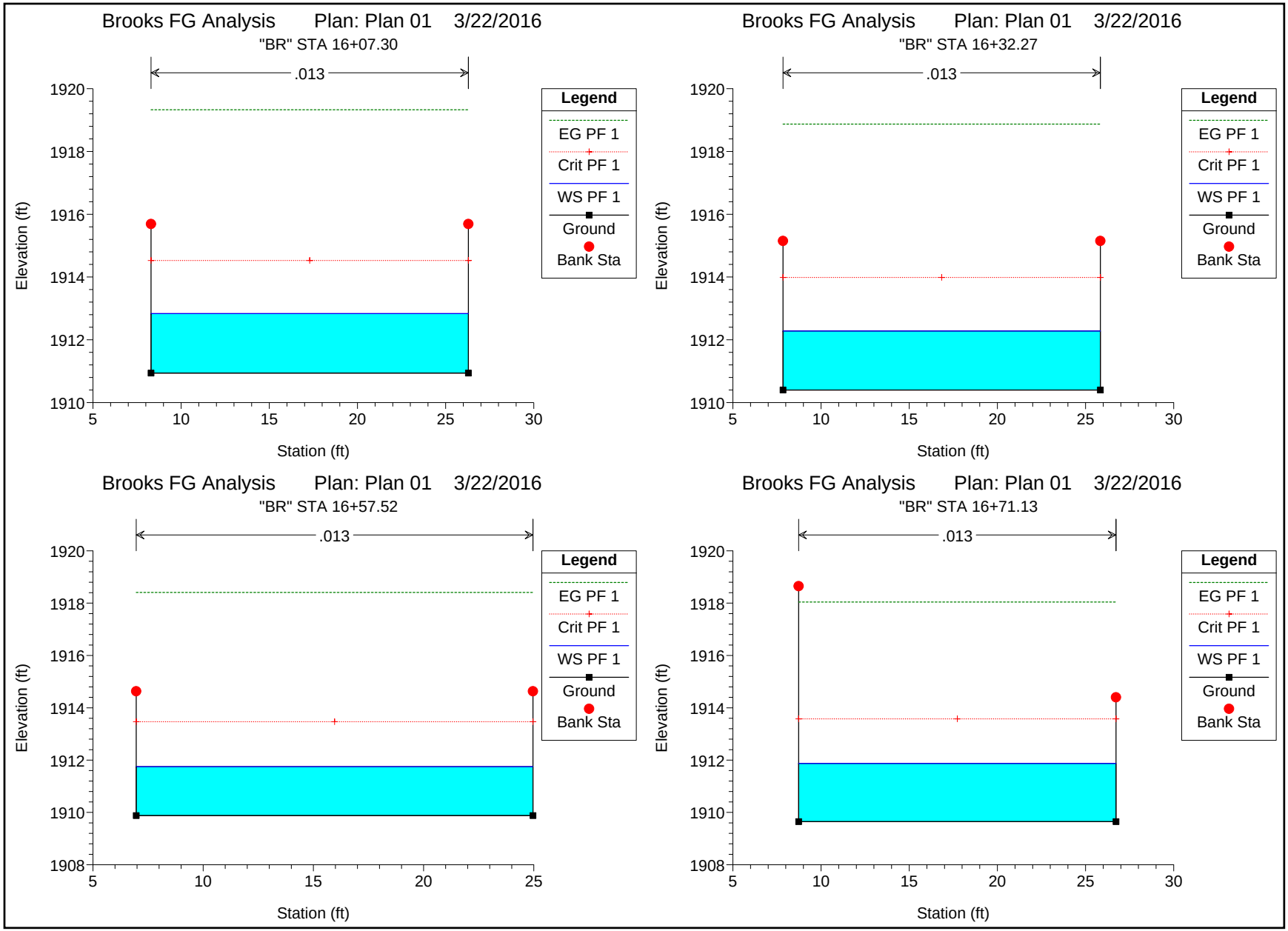
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 16+57.52
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 16+71.13
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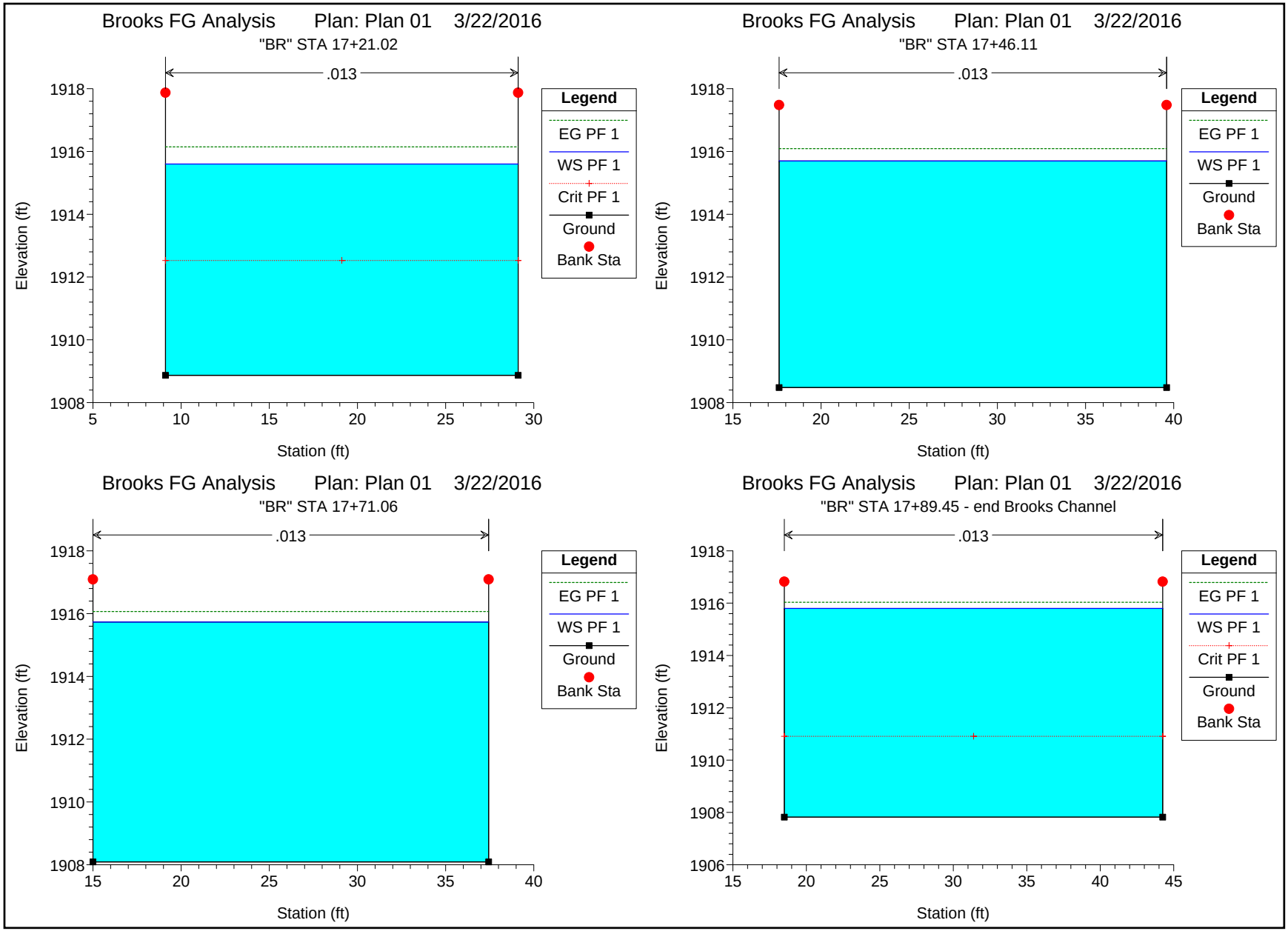
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta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Elevation (ft)
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EG PF 1
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Crit PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 17+46.11
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Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
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Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Brooks FG Analysis Plan: Plan 01 3/22/2016
"BR" STA 17+89.45 - end Brooks Channel
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta

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

```
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PROJECT DATA
Project Title: Brooks FG Analysis
Project File : BrooksFGAnalysis.prj
Run Date and Time: 3/22/2016 11:58:23 AM

Project in English units

PLAN DATA

Plan Title: Plan 01
Plan File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.p01

Geometry Title: FG TOPO W-19X3 AT LOSEE-RECT OPT 18ft-S1
Geometry File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.g18

Flow Title : Flow-Existing Condition-Ultimate
Flow File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.f07

Plan Summary Information:
Number of: Cross Sections = 86 Multiple Openings = 0
Culverts = 1 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

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

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

FLOW DATA

Flow Title: Flow-Existing Condition-Ultimate
Flow File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.f07

Flow Data (cfs)

River	Reach	RS	PF 1
FL-ALIGN	FL-ALIGN	3398.92	495
FL-ALIGN	FL-ALIGN	2998.98	495
FL-ALIGN	FL-ALIGN	2485.61	500
FL-ALIGN	FL-ALIGN	2399.9	525
FL-ALIGN	FL-ALIGN	1701.57	652
FL-ALIGN	FL-ALIGN	1529.8	697
FL-ALIGN	FL-ALIGN	1151.6	798

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
FL-ALIGN	FL-ALIGN	PF 1	Normal S = 0.0285714	Known WS = 1915.8

GEOMETRY DATA

Geometry Title: FG TOPO W-19X3 AT LOSEE-RECT OPT 18ft-S1
Geometry File : C:\Users\valdezra\Desktop\brooks clomr working\BRKS-HEC-RAS\BrooksFGAnalysis.g18

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3398.92

INPUT
Description: Mayflower
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-13.61	1978	0	1976.04	6800003	1976.04	1.09	1976.04	2.230003	1975.86
3.100002	1975.72	26.74	1975.69	27.83	1975.69	49.65	1975.7	51.53	1975.7
53.7	1975.88	56.57	1976.17	56.74	1976.18	60	1976.6		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-13.61	.016	0	.0133.100002		.016	51.53	.013	53.7	.016

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
.6800003	56.74		25.01	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3373.92

INPUT
Description: Mayflower
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3.75	1977	0	1975.32	1.27	1975.331.740002		1975.332.529999		1975.31
2.689999	1975.213.110001		1974.9	3.48	1974.934.509998		1975.01	10.74	1975.05
27.86	1975.04	47.98	1975.04	51	1975.01	51.71	1975.1	52.7	1975.07
53.18	1975.37	54.27	1975.38	57.5	1975.42	108.84	1976		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3.75	.016	0	.0134.509998		.016	47.98	.013	57.5	.016

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
1.27	53.18		25.03	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3348.92

INPUT
Description: Mayflower
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3.39	1976	0	1974.62	1.98	1974.63	2.16	1974.62	5	1974.57
5.22	1974.43	5.53	1974.05	6.06	1974.09	6.97	1974.27	28.63	1974.41
29	1974.41	30	1974.41	30.27	1974.42	32.04	1974.41	53.28	1974.25
53.51	1974.25	54.94	1973.95	54.95	1973.95	55.58	1974.56	58.55	1974.56
58.61	1974.56	60	1974.61	92.11	1975				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3.39	.016	6.97	.016	53.28	.013	53.51	.016

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
2.16	55.58		25.18	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3323.92

INPUT
Description: Mayflower
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-9.32	1975	0	1973.77	.08	1973.77	.21	1973.77	1.68	1973.75
3.92	1973.77	4.23	1973.64	4.61	1973.66	4.65	1973.39	5.04	1973.34
6.05	1973.43	11.79	1973.48	30.82	1973.59	31.35	1973.59	36.15	1973.66
52.56	1973.52	57.03	1973.44	57.97	1973.34	58.71	1973.38	59.23	1973.34
59.52	1973.49	62.73	1973.86	69.49	1974.63	70.03	1974.71	71.96	1974.72
75.67	1974.77								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-9.32	.016	0	.013	6.05	.016	57.03	.013	59.52	.025

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
.08	62.73		27.48	25	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3298.92

INPUT
Description: Mayflower
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-43.51	1976.34	-21.78	1975	0	1972.9	3.69	1972.9	4.23	1972.6
4.45	1972.47	4.86	1972.51	5.98	1972.6	7.81	1972.65	8.17	1972.65
29.58	1972.72	45.97	1972.83	48.21	1972.85	50	1972.86	50.77	1972.86
54.36	1972.92	56.32	1972.96	63.24	1973.11	73.93	1973	96.04	1972.6
96.17	1972.62	96.28	1972.93	97.84	1973.06	98.41	1973	100.74	1973.25
101.35	1973.25	102.05	1973.24	104.25	1973.31	113.55	1974.52	114.95	1974.69
117.89	1974.94	118.33	1974.91	118.89	1974.91	121.38	1974.97	121.87	1975.03
121.96	1975.02	141.7	1976.18						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-43.51	.016	0	.013	7.81	.016	96.04	.013	98.41	.025

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
3.69	101.35		28.27	25.32	26.5	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3273.6

```
INPUT
Description: Mayflower
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -44.56 1977.37  -12.17    1975       0 1973.22      .6 1973.25     .63 1973.14
     3.6 1972.89    6.93 1973.05    8.18 1972.71    8.92 1972.68   10.75 1972.66
   13.09 1972.64   20.05 1972.31   20.45 1972.31    20.8 1972.27   24.44 1972.05
   25.07 1972.05   25.17 1972.05   28.27  1972.1   78.62 1972.11   79.94 1972.11
   80.69 1972.11   80.95 1972.11   81.04 1972.12  132.93 1972.02  133.93 1971.96
  134.46 1971.94  138.17 1972.07  138.51 1972.08  139.43 1972.19  140.93 1972.16
  145.61 1972.56  160.51  1973.8  162.19    1974  162.74 1973.96   182.4    1975
  185.83 1976.33  185.83    1985

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  -44.56    .016    20.8    .013   28.27    .016  132.93    .013  139.43    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          6.93  162.19               26   24.68   24.56             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3248.92

INPUT
Description: Mayflower
Station Elevation Data    num=      33
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -49.64 1976.49  -32.94    1975  -11.98    1974       0 1972.67    8.33 1972.46
   11.62  1972.3   12.89 1972.23   19.64 1971.84    20.2 1971.84   20.64 1971.79
   24.08 1971.62   24.75 1971.63   28.19 1971.69   30.58 1971.69   51.74 1971.63
   60.02 1971.67   71.31 1971.62   75.05 1971.63   86.38 1971.67    86.4 1971.73
  108.46 1971.62  123.04 1971.65  123.63 1971.63  124.58 1971.58  128.02 1971.68
  129.24 1971.82  131.45 1971.79  134.32 1972.09  146.48  1973.4  156.98  1974.6
  157.29 1974.58 182.273 1976.33 182.273    1985

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  -49.64    .016    20.2    .013   28.19    .016  123.04    .013  131.45    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          8.33  156.98              25.13      25   30.09             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3223.92

INPUT
Description: Mayflower
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -63.12 1976.36  -42.58    1975    -7.6    1974       0 1972.89    2.64 1972.88
    4.98 1972.95   10.16 1973.08   12.81 1973.15   31.99 1973.41    36.1  1972.3
    36.7 1972.67    36.9 1972.97   45.08 1971.63   45.22  1971.6   45.45 1971.54
    45.8 1971.61   47.03 1971.58    47.6 1971.57   48.33 1971.08   48.58 1970.95
   50.18 1971.11   50.69 1971.18   50.79 1971.19   53.03 1971.18   55.74 1971.16
   57.61 1971.15   66.19 1971.11   69.97 1971.12   73.49 1971.11   74.86 1971.08
   76.21 1971.05   79.38 1971.09   81.57 1971.08   83.76  1971.1   86.76 1971.14
   89.06 1971.15   97.88 1971.15   99.96 1971.15   100.6 1971.12  102.25 1971.36
  102.86 1971.37  103.33 1971.39  103.65 1971.52   105.8 1971.58  107.13 1971.59
  108.67 1971.67  111.91 1972.06  117.59 1972.71  125.27 1973.58  125.78 1973.21
   125.9 1973.11  127.02 1973.19  127.28 1973.21  132.07 1973.38  153.91 1975.19
  181.23 1975.85

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  -63.12    .016       0    .025    45.8    .013   50.69    .016   99.96    .013
  103.65    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         31.99  125.27              14.07    13.7   14.32             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3210.22

INPUT
Description: Begin Overflow
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -87.76  1976.4  -64.08    1975   -9.73    1974       0 1973.31   13.09 1973.24
   13.44 1973.24   13.87 1973.24   14.66 1973.25   46.96 1973.66   50.19 1973.71
   50.26 1973.78   58.98 1973.84   67.54 1973.09   68.72 1972.76   69.12 1973.11
   73.29 1973.09    79.8 1971.92   82.62 1971.99   84.08 1972.04   87.65 1971.97
   92.06  1972.9   93.25 1972.93   97.84 1973.01  102.24  1973.1  105.43 1973.18
  106.03 1973.26  122.03 1973.82  126.66 1974.27  129.48 1974.59  132.16 1974.89
  133.82 1975.08  133.86 1975.05  134.44 1974.54  134.54 1974.55  135.74 1974.63
   158.3 1975.44  161.05 1975.66

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  -87.76    .016       0    .025   58.98    .035  122.03    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         58.98  133.82              11.65    11.3   11.82             .1       .3

CROSS SECTION
```

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3198.92

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-74.88	1975.96	0	1973.63	8.1	1973.59	15.04	1973.48	16.77	1973.46
27.28	1973.46	49.92	1973.76	59.33	1973.89	59.55	1974.11	72.15	1974.19
72.7	1974.62	72.83	1974.39	75.57	1974.41	81.28	1973.59	85.77	1972.75
86.82	1972.55	88.33	1972.92	97.51	1974.8	105.11	1974.31	107.86	1974.27
108.07	1974.23	109.94	1973.02	115.03	1973.34	135.02	1974.89	136.19	1974.92
139.25	1975.01	159.54	1975.74	166.95	1976.02	167.79	1975.56	168.97	1975.49

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-74.88	.016	0	.025	72.7	.035	135.02	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
72.7	136.19	25.32	25	25.98	.1	.3

Left Levee Station= 72.7 Elevation= 1974.62

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3173.92

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-47.55	1975.61	0	1974.32	18.53	1974.04	18.78	1974.03	23.09	1973.96
55.89	1973.97	56.9	1973.97	78.31	1974.27	78.35	1974.3	78.81	1974.741
78.83	1974.77	79.12	1974.84	81.36	1974.57	84.72	1974.33	91.84	1972.15
92.88	1971.82	93.69	1971.56	93.93	1971.61	94.36	1971.63	105.51	1974.16
105.77	1974.16	115.22	1974.04	116.21	1973.84	117.23	1973.17	143.08	1974.79
144.14	1974.8	148.6	1974.85	168.7	1975.79	175	1976.03	175.03	1976.01
178.17	1975.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-47.55	.016	79.12	.035	115.22	.016

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
78.8	144.14	25.43	25	25.55	.1	.3

Left Levee Station= 79.12 Elevation= 1974.84

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3148.92

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1974.8	1	1974.8	11.31	1974.63	19.98	1974.63	20.37	1974.63
74.31	1974.41	80.46	1974.5	80.91	1974.83	81.07	1974.98	84.32	1975.76
85.50999	1975.61	92.57	1972.39	95.39	1971.4996.03999		1971.62	102.06	1972.88
113.67	1973.42	115.4	1973.81	116.97	1973.83	118.45	1973.81	120.21	1973.45
120.4	1973.33	125.04	1973.62	140.82	1973.78	173.95	1974.12	175.59	1974.2
195.09	1974.5	299.74	1975.69						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	84.32	.035	116.97	.016

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
84.32	116.97	55.38	49.97	47.04	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3098.95

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1972.599.200012		1972.0524.82001		197226.23001		197246.29001		1971.56
71.74001	1971.1	88.52	1970.6891.68001		1969.2896.85001		1967.2498.57001		1966.82
102.82	1965.79	102.9	1965.77	105.28	1966.55	112.02	1967.63	114.36	1968.72
141.22	1970.75	146.9	1971.45	149.45	1971.77	151.4	1971.74	178.18	1971.45
182.49	1971.17								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	88.52	.035	149.45	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
88.52	149.45	20.29	24.98	28.02	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 3073.97

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1969.874.190002		1969.73	18.92	1969.6243.78999		1969.44	71.29	1968.95

```
   78.58 1968.73    82.8  1966.8   91.51 1962.61   94.99 1961.52   97.89  1960.8
   98.59 1960.62  102.94 1962.53  107.22  1963.9   113.1 1966.58  116.65 1967.72
  127.92 1970.03  145.05 1972.17  145.14 1972.18  153.13 1972.04  156.84    1972
  169.54 1971.17  176.89 1970.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   78.58    .035  127.92    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.58  145.05               25   25.01   25.07             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3048.96

INPUT
Description: Begin heavy vegetation
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1967.762.729996 1968.13   16.75 1967.3828.71001 1966.73   35.86  1966.4
   49.83 1964.24   74.92 1961.29    86.3 1958.32   91.55 1957.14   96.16 1955.97
   96.77 1956.15  103.04 1958.04  106.99  1959.2     115 1960.65  118.41 1961.73
  127.38 1963.57  140.65 1965.28  143.06 1965.37  163.14 1966.16  172.93 1965.32
  174.47 1965.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   35.86     .05  140.65    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.86  143.06              28.34   24.98   23.09             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 3023.98

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1963.99   15.92 1963.02   19.13 1962.82   37.04 1961.83   60.94 1956.52
   69.89 1954.62   73.99 1954.44   96.24 1953.14    96.3 1953.15  102.18 1954.21
  105.46 1954.55  121.15 1957.28  128.42 1959.27  141.65 1959.16  152.84 1959.06
  171.55 1958.22  176.84 1957.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   37.04     .05  128.42    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         37.04  128.42              21.46      25   27.03             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2998.98

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1961.01     .14    1961   11.93 1960.46   18.09 1960.04   39.61  1958.6
   59.87 1954.38    62.4 1953.83   81.23 1952.93   99.17 1951.84    99.2 1951.85
  112.96 1954.31  120.74  1955.1  139.95 1958.38  145.06 1957.96  149.42  1957.6
  174.19 1956.39  177.33 1956.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   39.61     .05  145.06    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.61  139.95              28.33   24.99   23.13             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2973.99

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1956.9518.21001 1956.55   23.47 1956.43   36.89  1955.945.45001 1955.11
   69.63 1952.59    72.7 1951.9887.14001 1951.32  100.48 1950.54  100.48 1950.55
  121.76 1954.39  133.54 1955.61  143.25 1957.29  146.88    1957  166.34 1955.43
  175.07 1955.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   36.89     .05  143.25    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         36.89  143.25               23.9      25   25.86             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2948.99
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```
INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1957.015.490005 1956.0619.01001 1955.99   26.09 1955.72   39.85 1955.19
   75.44 1951.84   79.95 1951.4580.81001 1951.28   86.18 1950.23   95.88 1949.78
  104.76 1949.25  104.78 1949.25   133.9 1954.49  149.52 1956.09  150.21 1956.03
  180.31 1953.51  181.19 1953.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   39.85     .05  150.21    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.85  150.21            26.22      25   25.08             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2923.99

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1955.44    6.48 1954.33   34.13 1954.18   43.59 1954.1343.71999 1954.12
   43.95  1954.1   48.28 1953.7380.23999 1950.9986.14999 1950.4986.74999 1950.39
93.93999 1948.9696.59999 1948.43  101.42 1948.21  105.79 1947.95  105.84 1947.95
  142.63 1954.58   146.2 1954.94  148.14 1954.78  153.26 1954.35  180.31 1953.25
  181.54 1953.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   43.59     .05   146.2    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         43.59   146.2            15.83   25.02   30.98             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2898.97

INPUT
Description:
Station Elevation Data    num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1954.28     2.7  1954.1    5.61 1953.58    9.42 1953.52   12.66 1953.45
   37.32 1952.49   46.03 1952.16   86.81 1949.02   92.01 1948.93   93.25 1948.74
   93.29 1948.7593.32001 1948.75   93.36 1948.76  104.78 1946.86  105.88 1946.68
  105.89 1946.68   105.9 1946.68  105.91 1946.68  105.92 1946.69  105.93 1946.69
  105.94 1946.69  105.96 1946.67  106.77  1946.9  132.79 1953.53  141.66 1953.48
  169.11 1953.33  173.73 1953.14   181.2  1953.3  185.66 1953.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   37.32     .05  132.79     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         37.32  132.79            17.15   24.93   30.48             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2874.04

INPUT
Description:
Station Elevation Data    num=     274
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1952.95.1199951 1952.95.6300049 1952.941.179993 1952.921.779999 1952.91
2.429993  1952.93.139999 1952.883.910004 1952.874.759995 1952.855.699997 1952.83
6.740005 1952.81   37.08 1950.6843.53999 1950.2344.24001 1950.2345.03999 1950.23
   45.94 1950.23   46.98 1950.24   48.17 1950.24   49.56 1950.24   53.31 1950.12
   53.65  1950.1      54 1950.07   54.38 1950.05   54.78 1950.02    55.2    1950
   55.64 1949.97   56.11 1949.93   56.61  1949.9   57.14 1949.87   57.71 1949.83
   84.12 1949.48   84.43  1949.4   84.75 1949.32   85.07 1949.24   85.39 1949.16
   85.73 1949.07   86.06 1948.99   86.41  1948.9   86.76 1948.81   87.11 1948.72
   87.48 1948.62   87.84 1948.53   88.22 1948.43    88.6 1948.34   88.99 1948.24
   89.39 1948.14   89.79 1948.03    90.2 1947.93   90.61 1947.82   90.92 1947.72
   91.24 1947.62   91.56 1947.51   91.88 1947.41    92.2 1947.31   92.52  1947.2
   92.71 1947.14   92.84  1947.1   92.85  1947.1   93.16    1947   93.17    1947
   93.48  1946.9   93.49  1946.9   93.79 1946.81   93.81  1946.8   94.11 1946.71
   94.13  1946.7   94.43 1946.61   94.46  1946.6   94.75 1946.51   94.78  1946.5
   95.08 1946.41    95.1  1946.4    95.2 1946.37   95.36  1946.4   95.38  1946.4
   95.84  1946.5   95.87 1946.51   96.32  1946.6   96.78 1946.69   96.81  1946.7
   97.26  1946.8   97.29  1946.8   97.75  1946.9   97.77  1946.9   98.23    1947
   98.25    1947   98.71  1947.1   98.73  1947.1    99.2  1947.2   99.21  1947.2
   99.68  1947.3    99.7  1947.3   99.95 1947.35  100.16  1947.4  100.18  1947.4
  100.65  1947.5  100.66  1947.5  101.13  1947.6  101.14  1947.6  101.62  1947.7
   102.1  1947.8  102.11  1947.8  102.58  1947.9  102.59  1947.9  103.07    1948
  103.55  1948.1   103.8 1948.15  104.04  1948.2  104.53  1948.3  104.54  1948.3
  105.02  1948.4  105.03  1948.4  105.51  1948.5  105.53  1948.5     106  1948.6
  106.03 1948.61  106.49  1948.7  106.52 1948.71  106.98  1948.8  107.01 1948.81
  107.47  1948.9  107.51 1948.91  107.96    1949     108 1949.01  108.45  1949.1
  108.49 1949.11  108.94  1949.2  108.99 1949.21  109.42  1949.3  109.48 1949.31
  109.91  1949.4  109.97 1949.41   110.4  1949.5  110.47 1949.51  110.89  1949.6
  110.96 1949.61  111.38  1949.7  111.45 1949.71  111.87  1949.8  111.94 1949.81
  112.36  1949.9  112.43 1949.91  112.85    1950  112.93 1950.01  113.34  1950.1
  113.42 1950.12  113.83  1950.2  113.91 1950.22  114.32  1950.3   114.4 1950.32
  114.81  1950.4  114.89 1950.42   115.3  1950.5  115.38 1950.52  115.79  1950.6
  115.87 1950.62  116.28  1950.7  116.36 1950.72  116.77  1950.8  116.86 1950.82
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117.26	1950.9	117.35	1950.92	117.75	1951	117.84	1951.02	118.24	1951.1
118.33	1951.12	118.73	1951.2	118.82	1951.22	119.22	1951.3	119.31	1951.32
119.71	1951.4	119.8	1951.42	120.2	1951.5	120.29	1951.52	120.69	1951.6
120.78	1951.62	121.18	1951.7	121.65	1951.8	121.66	1951.8	121.87	1951.9
121.96	1951.94	122.08	1952	122.21	1952.06	122.3	1952.1	122.44	1952.17
122.51	1952.2	122.67	1952.27	122.72	1952.3	122.89	1952.38	122.93	1952.4
122.97	1952.42	123.14	1952.5	123.19	1952.52	123.35	1952.6	123.41	1952.63
123.57	1952.7	123.63	1952.73	123.78	1952.8	123.87	1952.84	123.99	1952.9
124.12	1952.96	124.2	1953	124.4	1953.09	124.79	1953.09	127.52	1953.05
128.06	1953.09	128.18	1953.1	129.19	1953.18	129.5	1953.2	130.37	1953.27
130.82	1953.3	131.61	1953.36	132.14	1953.4	133.07	1953.47	133.46	1953.5
134.59	1953.59	134.78	1953.6	135.55	1953.66	136.09	1953.68	136.72	1953.7
137.76	1953.74	138.93	1953.78	139.43	1953.8	140.96	1953.88	141.09	1953.9
141.14	1953.91	141.64	1954	142.03	1954.07	142.95	1954.04	144.07	1954
145.49	1953.95	146.39	1953.94	146.51	1953.94	148.45	1954	150.29	1954.06
151.72	1954.1	153.24	1954.15	154.99	1954.2	155.62	1954.22	155.94	1954.23
156.12	1954.24	156.57	1954.28	157.05	1954.3	158.1	1954.34	159.48	1954.4
160.12	1954.43	160.54	1954.44	160.99	1954.5	161.73	1954.59	161.8	1954.6
162.11	1954.6	162.61	1954.6	162.85	1954.57	163.31	1954.6	163.47	1954.61
165.5	1954.7	166.59	1954.75	167.68	1954.8	169.41	1954.88	169.87	1954.9
171.09	1954.96	171.29	1954.9	171.31	1954.89	171.63	1954.8	171.7	1954.78
171.98	1954.7	172.26	1954.62	172.33	1954.6	172.64	1954.51	173	1954.5
173.25	1954.49	176.24	1954.4	177.75	1954.35	179.14	1954.31		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	84.12	.05	124.79	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
84.12	124.79	39.68	24.94	17.95	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2849.1

INPUT
Description:
Station Elevation Data num= 370

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1953.32.9499969	1953.33.139999	1953.266.040009	1953.28.220001	1953.16				
11.13	1953.1	13.17	1953.06	16.23	1953	17.95	1952.9718.10001	1952.96	
21.32001	1952.923.01001	1952.87	26.41	1952.827.90001	1952.77	31.5	1952.7		
32.76001	1952.68	36.59	1952.637.40001	1952.58	37.59	1952.5841.68001	1952.5		
42.37	1952.49	46.77	1952.447.10001	1952.3950.65001	1952.3252.99001	1952.33			
57.73	1952.35	58.64	1952.4	59.13	1952.43	60.34	1952.5	61.94	1952.59
65.89	1952.5	66.72	1952.4870.10001	1952.4	71.58	1952.36	74.3	1952.3	
76.29	1952.25	78.51	1952.2	80.9	1952.14	82.71	1952.1	85.44	1952.04
86.92	1952	87.68	1951.93	87.97	1951.9	88.02	1951.87	88.14	1951.8
88.19	1951.7788.31001	1951.7	88.36	1951.67	88.47	1951.6	88.53	1951.57	
88.64	1951.5	88.69	1951.4788.81001	1951.4	88.86	1951.37	88.98	1951.3	
89.03	1951.27	89.14	1951.2	89.2	1951.1789.31001	1951.1	89.36	1951.07	
89.48	1951	89.53	1950.97	89.64	1950.9	89.7	1950.8789.81001	1950.8	
89.87	1950.77	89.98	1950.7	90.04	1950.67	90.15	1950.6	90.2	1950.57
90.31001	1950.5	90.37	1950.46	90.48	1950.4	90.54	1950.36	90.65	1950.3
90.71	1950.26	90.82	1950.2	90.88	1950.16	90.98	1950.1	91.04	1950.06
91.15	1950	91.21	1949.96	91.32	1949.9	91.38	1949.86	91.48	1949.8
91.55	1949.76	91.65	1949.7	91.72	1949.66	91.82	1949.6	91.89	1949.56
91.99001	1949.5	92.05	1949.46	92.15	1949.4	92.22	1949.36	92.32	1949.3
92.39	1949.2692.49001	1949.292.56001	1949.16	92.65	1949.1	92.73	1949.06		
92.82	1949	92.9	1948.9592.99001	1948.9	93.07	1948.85	93.16	1948.8	
93.24001	1948.75	93.32	1948.7	93.41	1948.6593.49001	1948.6	93.58	1948.55	
93.66	1948.5	93.75	1948.45	93.83	1948.493.92001	1948.3493.99001	1948.3		
94.09	1948.24	94.16	1948.2	94.26	1948.14	94.33	1948.1	94.43	1948.04
94.49001	1948	94.61	1947.93	94.66	1947.9	94.78	1947.83	94.83	1947.8
94.95	1947.73	95	1947.7	95.13	1947.62	95.16	1947.695.31001	1947.51	
95.33	1947.595.49001	1947.41	95.5	1947.4	95.59	1947.34	95.71	1947.3	
95.98	1947.295.99001	1947.2	96.26	1947.1	96.27	1947.09	96.53	1947	
96.55	1946.9996.81001	1946.9	97.05	1946.81	97.08	1946.8	97.32	1946.71	
97.35001	1946.7	97.58	1946.62	97.63	1946.6	97.88	1946.51	97.9	1946.5
98.12	1946.42	98.65	1946.5	98.75	1946.51	99.3	1946.6	99.78	1946.67
99.95	1946.7	100.1	1946.72	100.41	1946.77	100.6	1946.8	101.04	1946.87
101.26	1946.9	101.67	1946.96	101.91	1947	102.18	1947.04	102.56	1947.1
102.87	1947.15	103.21	1947.2	103.55	1947.25	103.86	1947.3	104.24	1947.36
104.51	1947.4	104.94	1947.47	105.16	1947.5	105.64	1947.57	105.82	1947.6
106.35	1947.68	106.47	1947.7	107.07	1947.79	107.12	1947.8	107.5	1947.86
107.7	1947.9	107.71	1947.9	108.2	1948	108.23	1948.01	108.69	1948.1
108.75	1948.11	109.19	1948.2	109.26	1948.21	109.68	1948.3	109.77	1948.32
110.17	1948.4	110.28	1948.42	110.67	1948.5	110.79	1948.53	111.16	1948.6
111.3	1948.63	111.65	1948.7	111.81	1948.73	112.15	1948.8	112.32	1948.83
112.64	1948.9	112.82	1948.94	113.14	1949	113.47	1949.07	113.63	1949.1
113.99	1949.17	114.12	1949.2	114.51	1949.28	114.62	1949.3	115.04	1949.38
115.11	1949.4	115.57	1949.49	115.61	1949.5	115.96	1949.57	116.36	1949.6
116.42	1949.6	116.5	1949.6	118.09	1949.7	118.47	1949.72	119.75	1949.8
120.59	1949.85	121.41	1949.9	122.98	1949.99	123.07	1950	123.23	1950.01
123.5	1950.1	123.58	1950.13	123.79	1950.2	123.93	1950.25	124.09	1950.3
124.26	1950.36	124.39	1950.4	124.59	1950.47	124.68	1950.5	124.89	1950.57
124.98	1950.6	125.19	1950.67	125.28	1950.7	125.5	1950.77	125.57	1950.8
125.8	1950.88	125.87	1950.9	126.1	1950.98	126.17	1951	126.41	1951.08
126.47	1951.1	126.71	1951.18	126.76	1951.2	127.02	1951.29	127.06	1951.3
127.33	1951.39	127.36	1951.4	127.65	1951.5	127.73	1951.53	128.08	1951.6
128.13	1951.61	128.55	1951.7	128.66	1951.72	129.03	1951.8	129.19	1951.83
129.5	1951.9	129.7	1951.94	129.96	1952	130.13	1952.05	130.35	1952.1
130.54	1952.16	130.71	1952.2	130.92	1952.27	131.03	1952.3	131.13	1952.33
131.34	1952.4	131.42	1952.43	131.64	1952.5	131.72	1952.53	131.94	1952.6
132.01	1952.62	132.25	1952.7	132.3	1952.72	132.55	1952.8	132.59	1952.81
132.85	1952.9	132.87	1952.91	133.12	1952.99	133.15	1953	133.16	1953
133.44	1953.1	133.45	1953.1	133.72	1953.2	133.74	1953.21	134.01	1953.3
134.04	1953.31	134.29	1953.4	134.34	1953.42	134.58	1953.5	134.64	1953.52
134.86	1953.6	134.94	1953.63	135.15	1953.7	135.31	1953.76	135.43	1953.8
135.96	1953.75	136.22	1953.7	136.63	1953.62	136.72	1953.6	137.16	1953.51
137.22	1953.5	137.71	1953.4	137.72	1953.4	137.79	1953.39	138.48	1953.3
138.59	1953.29	139.29	1953.2	139.66	1953.15	140.1	1953.1	140.7	1953.03
140.99	1953.1	141.2	1953.15	141.38	1953.2	141.71	1953.28	141.77	1953.3
142.16	1953.4	142.2	1953.41	143.01	1953.47	143.36	1953.5	143.86	1953.54

144.63	1953.6	144.64	1953.6	145.51	1953.69	145.6	1953.7	146.4	1953.78		
146.55	1953.8	146.77	1953.82	147.51	1953.9	147.92	1953.94	148.46	1954		
149.21	1954.08	149.42	1954.1	149.79	1954.14	150.48	1954.1	150.63	1954.09		
152.26	1954	153.41	1953.94	154.05	1953.9	154.42	1953.91	155.72	1953.95		
156.88	1953.91	157.03	1953.92	159.07	1954	159.72	1954.06	160.09	1954.1		
160.9	1954.18	161.3	1954.2	161.66	1954.22	163.29	1954.3	164.79	1954.38		
165.27	1954.4	166.73	1954.47	167.22	1954.45	167.63	1954.44	168.09	1954.5		
168.27	1954.53	168.8	1954.6	169.15	1954.64	170.09	1954.6	172.08	1954.54		
173.57	1954.5	173.98	1954.49	177.05	1954.4	177.49	1954.39	178.94	1954.35		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	86.92	.05	135.43	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.92	135.43	38.99	24.28	10.13	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2824.82

INPUT
Description: End heavy vegetation
Station Elevation Data num= 374

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1952.89	.3500061	1952.891	.580002	1952.852	.110001	1952.857	.130005	1952.84
16.21001	1952.84	16.39999	1952.84	16.48	1952.84	19.71001	1952.82	22	1952.8
25.60001	1952.75	26.16	1952.75	27.23	1952.76	28.13	1952.74	29.87	1952.7
31.13	1952.67	34.12	1952.6	34.77	1952.58	38.38	1952.53	8.78999	1952.49
39.92999	1952.47	40.37	1952.464	0.67999	1952.46	41.97	1952.42	42.78	1952.4
45.73	1952.32	46.36	1952.3	49.71	1952.21	49.94	1952.2	49.95	1952.2
52.02	1952.14	52.92	1952.1	53.03	1952.09	54.9	1952	55.23	1951.98
56.88	1951.9	57.44	1951.87	58.85	1951.8	59.74	1951.76	60.83	1951.7
62.09	1951.64	62.8	1951.6	64.53	1951.51	64.78	1951.5	65.72	1951.45
66.89	1951.42	67.37	1951.4	69.34	1951.34	70.52	1951.3	71.99	1951.25
73.67	1951.2	74.76	1951.17	76.82	1951.1	77.61	1951.07	79.97	1951
80.52	1950.98	83.12	1950.9	83.48	1950.89	86.27	1950.8	86.46	1950.79
89.42	1950.7	89.47	1950.7	90.85	1950.65	92.32	1950.6	93.5	1950.54
94.3	1950.5	94.4	1950.44	94.42	1950.42	94.45	1950.4	94.54	1950.34
94.59	1950.3	94.67	1950.24	94.73	1950.2	94.81	1950.14	94.87	1950.1
94.95	1950.04	95.01	1950	95.09	1949.95	95.15	1949.9	95.22	1949.85
95.29	1949.8	95.36	1949.75	95.43	1949.7	95.5	1949.65	95.57	1949.6
95.64	1949.55	95.71	1949.5	95.78	1949.45	95.85	1949.4	95.92	1949.35
95.99	1949.3	96.06	1949.25	96.13	1949.2	96.15	1949.14	96.17	1949.1
96.31	1948.92	96.32	1948.93	96.33	1948.91	96.34	1948.9	96.4	1948.9
96.45	1948.81	96.46	1948.81	96.47	1948.8	96.59	1948.71	96.6	1948.7
96.61	1948.69	96.73	1948.6	96.74	1948.59	96.85	1948.5	96.86	1948.49
97.14	1948.4	97.19	1948.35	97.25	1948.3	97.31	1948.25	97.37	1948.2
97.42	1948.15	97.48	1948.1	97.54	1948.05	97.6	1948	97.66	1947.95
97.71	1947.9	97.78	1947.85	97.83	1947.8	97.89	1947.74	97.94	1947.7
98.01	1947.64	98.06	1947.6	98.13	1947.54	98.18	1947.5	98.26	1947.43
98.29	1947.4	98.38	1947.32	98.41	1947.3	98.52	1947.2	98.54	1947.18
98.79	1947.1	98.81	1947.09	99.1	1947	99.14	1946.99	99.41	1946.9
99.69	1946.81	99.71	1946.8	100.01	1946.7	100.02	1946.7	100.09	1946.68
100.44	1946.6	100.5	1946.59	100.9	1946.5	101.01	1946.48	101.36	1946.4
101.5	1946.37	101.82	1946.3	101.98	1946.26	102.28	1946.2	102.46	1946.16
102.74	1946.1	102.93	1946.06	103.2	1946	103.4	1945.96	103.66	1945.9
103.87	1945.85	104.12	1945.8	104.34	1945.75	104.58	1945.7	104.8	1945.65
105.04	1945.6	105.27	1945.55	105.49	1945.5	105.59	1945.48	105.75	1945.44
105.95	1945.4	106.31	1945.32	106.92	1945.38	107	1945.39	107.01	1945.4
107.12	1945.5	107.23	1945.6	107.24	1945.6	107.35	1945.7	107.46	1945.8
107.57	1945.9	107.58	1945.9	107.69	1946	107.8	1946.1	107.91	1946.2
107.92	1946.2	108.03	1946.3	108.14	1946.4	108.25	1946.5	108.26	1946.5
108.37	1946.6	108.48	1946.7	108.59	1946.8	108.71	1946.9	108.82	1947
108.93	1947.1	109.04	1947.2	109.05	1947.2	109.16	1947.3	109.27	1947.4
109.36	1947.48	109.38	1947.5	109.5	1947.6	109.61	1947.7	109.72	1947.8
109.83	1947.9	109.84	1947.91	109.94	1948	109.95	1948.01	110.05	1948.1
110.07	1948.12	110.31	1948.11	110.45	1948.2	111.17	1948.2	111.37	1948.15
111.67	1948.2	111.9	1948.17	112.43	1948.1	113.1	1948.01	113.48	1948.1
113.73	1948.16	114.04	1948.2	114.7	1948.27	114.99	1948.3	115.52	1948.35
115.74	1948.4	115.82	1948.42	116.23	1948.5	116.42	1948.54	116.73	1948.6
116.97	1948.65	117.22	1948.7	117.51	1948.76	117.72	1948.8	118.03	1948.86
118.21	1948.9	118.55	1948.97	118.71	1949	119.06	1949.07	119.2	1949.1
119.56	1949.17	119.69	1949.2	120.07	1949.28	120.19	1949.3	120.57	1949.38
120.68	1949.4	121.07	1949.48	121.18	1949.5	121.57	1949.58	121.67	1949.6
121.79	1949.62	122.16	1949.7	122.3	1949.73	122.66	1949.8	122.82	1949.83
123.15	1949.9	123.35	1949.94	123.65	1950	123.91	1950.05	124.14	1950.1
124.5	1950.17	124.63	1950.2	124.98	1950.27	125.53	1950.28	127.54	1950.3
127.58	1950.3	127.6	1950.3	127.93	1950.4	127.98	1950.41	128.27	1950.5
128.56	1950.59	128.6	1950.6	128.92	1950.69	128.94	1950.7	129.1	1950.75
129.2	1950.8	129.23	1950.82	129.39	1950.9	129.46	1950.94	129.58	1951
129.67	1951.05	129.77	1951.1	129.88	1951.16	129.96	1951.2	130.08	1951.26
130.15	1951.3	130.28	1951.37	130.34	1951.4	130.4	1951.43	130.53	1951.5
130.6	1951.54	130.72	1951.6	130.8	1951.64	130.91	1951.7	131	1951.75
131.1	1951.8	131.2	1951.85	131.29	1951.9	131.42	1951.97	131.48	1952
131.64	1952.09	131.67	1952.1	131.76	1952.15	134.55	1952.2	135.38	1952.22
135.64	1952.2	135.66	1952.2	135.74	1952.2	138.12	1952.1	138.96	1952.18
139.19	1952.2	139.31	1952.21	140.25	1952.3	140.34	1952.31	141.31	1952.4
141.35	1952.4	141.88	1952.45	142.33	1952.5	142.34	1952.5	143.29	1952.6
143.33	1952.6	144.26	1952.69	144.32	1952.7	144.38	1952.71	145.3	1952.8
145.45	1952.81	146.29	1952.9	146.77	1952.95	147.28	1953	149.5	1953.1
149.54	1953.1	149.68	1953.1	153.8	1953.03	154.74	1953.03	157.27	1953.04
157.42	1953	157.51	1953.02	157.51	1953	157.86	1953	158.6	1953.06
159.08	1953.1	159.92	1953.17	160.11	1953.2	160.15	1953.21	160.69	1953.3
160.83	1953.32	161.27	1953.4	161.47	1953.43	161.86	1953.5	162.09	1953.54
162.44	1953.6	162.7	1953.64	163.03	1953.7	163.26	1953.75	163.47	1953.8
163.72	1953.86	163.86	1953.9	164.15	1953.97	164.25	1954	164.6	1954.09
164.64	1954.1	164.85	1954.15	165.14	1954.19	165.19	1954.2	165.8	1954.28
165.91	1954.3	166.48	1954.38	166.64	1954.4	167.11	1954.47	168.01	1954.46
169.93	1954.42	170.8	1954.4	174.86	1954.31	175.64	1954.32		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	93.5	.05	131.67	.025

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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          93.5  131.67             22.37   25.04   27.85             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 2799.78

INPUT
Description:
Station Elevation Data    num=     429
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1951.7.7299957 1951.681.399994 1951.661.779999 1951.673.259995  1951.7
3.710007 1951.714.130005 1951.727.399994  1951.8     8.5 1951.83   11.13  1951.9
   14.89 1951.99   15.16    195215.46001 1952.0115.50999 1952.01   16.33 1952.01
   23.37 1952.05    25.5 1952.0429.49001 1952.04   30.52 1952.02   31.14    1952
   32.47 1951.9734.85001  1951.9   36.02 1951.86   37.61  1951.8   38.91 1951.75
   40.37  1951.7   41.11 1951.67   42.21 1951.63   42.85 1951.61   43.08 1951.61
   43.38  1951.6   46.07 1951.55   48.72  1951.5   49.55 1951.48    50.3 1951.45
   50.73 1951.44   50.92 1951.43   52.78 1951.42   53.22  1951.4   53.27  1951.4
   53.39 1951.39   56.06  1951.3   58.48 1951.21   58.51  1951.2   58.57 1951.17
   58.69  1951.1   58.78 1951.05   64.23  1951.1   68.97 1951.14   70.68  1951.1
   70.93 1951.09   74.49    1951   75.13 1950.98    78.3  1950.9   79.19 1950.88
   82.11  1950.8   83.18 1950.77   85.92  1950.7   87.88 1950.65   88.14  1950.6
   88.22 1950.54   88.29  1950.5   88.41 1950.42   88.44  1950.4   88.56 1950.32
   88.59  1950.3   88.72 1950.21   88.74  1950.2   88.88 1950.11   88.89  1950.1
   89.04    1950   89.07 1949.98   89.19  1949.9   89.21 1949.89   89.35  1949.8
   89.37 1949.77   89.47  1949.7   89.53 1949.66   89.62  1949.6   89.69 1949.55
   89.76  1949.5   89.84 1949.45   89.91  1949.4   89.99 1949.34   90.05  1949.3
   90.14 1949.23   90.19  1949.2   90.29 1949.13   90.34  1949.1   90.44 1949.03
   90.48    1949   90.59 1948.92   90.62  1948.9   90.66 1948.88   90.77  1948.8
    90.8 1948.78   90.91  1948.7   90.94 1948.68   91.06  1948.6   91.08 1948.58
    91.2  1948.5   91.23 1948.48   91.34  1948.4   91.37 1948.38   91.49  1948.3
   91.51 1948.28   91.63  1948.2   91.65 1948.19   91.77  1948.1   91.79 1948.09
   91.92    1948   91.93 1947.99   92.06  1947.9   92.07 1947.89   92.21  1947.8
   92.21 1947.79   92.35  1947.7   92.49  1947.6    92.5 1947.59   92.65  1947.5
    92.8  1947.4   92.81  1947.4   92.96  1947.3   92.97 1947.29   93.11  1947.2
   93.12 1947.19   93.26  1947.1   93.28 1947.09   93.41    1947   93.44 1946.98
   93.57  1946.9   93.59 1946.88   93.72  1946.8   93.75 1946.78   93.87  1946.7
   93.91 1946.68   94.03  1946.6   94.06 1946.58   94.18  1946.5   94.22 1946.47
   94.33  1946.4   94.37 1946.37   94.49  1946.3    94.6 1946.22   94.64 1946.17
    94.7 1946.16   94.91  1946.1   95.14 1946.03   95.26    1946   95.55 1945.92
   95.61  1945.9   95.92 1945.81   95.96  1945.8   96.29 1945.71   96.31  1945.7
   96.58 1945.62   96.66  1945.6   96.67  1945.6   97.04 1945.51   97.09  1945.5
   97.42 1945.42   97.51  1945.4   97.59 1945.38   97.93  1945.3   98.07 1945.26
   98.34  1945.2   98.59 1945.14   98.76  1945.1   99.16    1945   99.18    1945
   99.21 1944.99   99.32    1945   99.55 1945.01  100.99  1945.1  101.58 1945.14
  102.03 1945.16  102.65 1945.15  103.13 1945.14  103.23  1945.2  103.26 1945.22
  103.39  1945.3  103.46 1945.35  103.54  1945.4   103.7 1945.45  103.74  1945.5
  103.79 1945.57  103.85  1945.6  103.92 1945.66  103.95 1945.66  103.98  1945.7
  104.13 1945.79  104.15  1945.8  104.31  1945.9  104.48    1946  104.49    1946
  104.54 1946.03  104.67  1946.1  104.68 1946.11  104.85  1946.2  104.88 1946.21
  105.04  1946.3  105.07 1946.32  105.22  1946.4  105.36 1946.47  105.42  1946.5
  105.46 1946.52  105.62  1946.6  105.75 1946.68  105.79  1946.7  105.84 1946.73
     106  1946.8  106.03 1946.81  106.24  1946.9   106.3 1946.92  106.49    1947
   106.7 1947.08  106.76  1947.1  106.99 1947.18  107.04  1947.2  107.29 1947.29
  107.31  1947.3  107.46 1947.36  107.62  1947.4  107.65 1947.41  107.99  1947.5
  108.05 1947.52  108.36  1947.6  108.45 1947.62  108.73  1947.7  108.84 1947.73
   109.1  1947.8  109.22 1947.83  109.48  1947.9  109.85 1947.96  109.98    1948
  110.37 1948.07  110.49  1948.1   110.9 1948.17  111.01  1948.2  111.44 1948.27
  111.56  1948.3  111.72 1948.33  112.14  1948.4   112.3 1948.43  112.72  1948.5
  112.88 1948.53   113.3  1948.6  113.45 1948.63  113.88  1948.7  114.03 1948.72
  114.46  1948.8   114.6 1948.82  115.04  1948.9  115.17 1948.92  115.62    1949
  115.75 1949.02   116.2  1949.1  116.32 1949.12  116.78  1949.2  116.88 1949.22
  117.36  1949.3  117.45 1949.31  117.94  1949.4     118 1949.41  118.52  1949.5
  118.55 1949.51  118.94 1949.57  119.13  1949.6  119.21 1949.61  119.81  1949.7
  120.39 1949.79  120.49  1949.8  120.56 1949.81  121.03  1949.9  121.41 1949.97
  121.47    1950  121.49 1950.01  121.72  1950.1  121.78 1950.13  121.99  1950.2
  122.05 1950.23  122.25  1950.3  122.31 1950.33  122.51  1950.4  122.73 1950.48
  122.79  1950.5  123.01 1950.58  123.06  1950.6  123.29 1950.68  123.33  1950.7
  123.57 1950.79  123.61  1950.8  123.86 1950.89  123.88  1950.9  124.14    1951
  124.15    1951   124.4 1951.09  124.43  1951.1  124.73  1951.2  124.74  1951.2
  125.03  1951.3  125.05 1951.31  125.33  1951.4  125.36 1951.41  125.63  1951.5
  125.67 1951.51  125.94  1951.6  125.98 1951.62  126.24  1951.7   126.3 1951.72
  126.54  1951.8  126.62 1951.83  126.84  1951.9  126.94 1951.93  127.14    1952
  127.27 1952.04  127.44  1952.1  127.61 1952.16  127.74  1952.2  127.96 1952.27
  128.04  1952.3  128.33 1952.39  128.34  1952.4   128.4 1952.42  128.94  1952.5
  129.18 1952.54  129.59  1952.6  130.03 1952.67  130.61  1952.7   131.1 1952.73
  132.35  1952.8  133.91 1952.89  134.08  1952.9  134.17 1952.91  134.45 1952.92
  137.75    1953  140.61 1953.07  141.11    1953  141.23 1952.98  141.84  1952.9
  142.09 1952.87  142.58  1952.8  142.92 1952.75  143.31  1952.7  143.72 1952.64
  144.04  1952.6  144.37 1952.55  144.77  1952.5   145.2 1952.44   145.5  1952.4
  146.16 1952.31  146.23  1952.3  146.35 1952.28  146.41  1952.3  146.46 1952.31
  146.77  1952.4  146.95 1952.45  147.13  1952.5  147.36 1952.57  147.48  1952.6
  147.58 1952.63  147.84  1952.7  147.95 1952.73  148.19  1952.8  148.31 1952.83
  148.55  1952.9  148.67 1952.93  148.91    1953  149.04 1953.04  149.26  1953.1
  149.41 1953.14  149.62  1953.2  149.79 1953.25  149.98  1953.3  150.03 1953.32
  150.18 1953.36  150.33  1953.4  150.59 1953.47  150.69  1953.5  150.98 1953.58
  151.12 1953.59  151.28  1953.6  151.67 1953.62  151.71 1953.63  151.93  1953.7
  151.97 1953.71   152.3  1953.8  152.63 1953.89  152.69  1953.9  152.72 1953.91
  153.14    1954   153.3 1954.04  153.59  1954.1  153.81 1954.15  154.03  1954.2
   154.3 1954.26  154.48  1954.3  154.77 1954.36  154.93  1954.4  155.24 1954.47
  155.38  1954.5   155.7 1954.57  155.83  1954.6  156.16 1954.67  156.28  1954.7
  156.61 1954.77  156.73  1954.8  156.83 1954.82  156.85  1954.9  156.92 1954.92
  157.32    1955  157.38 1955.03  157.42  1955.1  157.58 1955.17  157.66  1955.2
  157.83 1955.27  157.89  1955.3  158.08 1955.38  158.13  1955.4  158.33 1955.48
  158.37  1955.5  158.58 1955.59  158.61  1955.6  158.84  1955.7  158.91 1955.73
  160.22  1955.8  161.35 1955.86  163.48 1955.82  163.61 1955.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   87.88    .035  140.61    .025

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

87.88	140.61		23.04	25.15	28.16	

.1 .3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2774.63

INPUT
Description:
Station Elevation Data num= 416

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1950.87	2.080002	1950.95	.649994	1950.94	10.25999	195	113.98999	1951.04
15.31999	1951.07	16.81	1951.07	21.52	195	125.03999	1950.96	26.02	1950.9
27.20999	1950.83	27.66	1950.8	28.08	1950.77	29.31	1950.7	29.38	1950.7
29.56999	1950.68	32.03	1950.62	32.64999	1950.6	34.96	1950.54	36.23	1950.5
37.89	1950.45	39.74	1950.44	2.07999	1950.34	43.28	1950.3	44.74	1950.26
46.6	1950.2	46.98	1950.19	47.41	1950.18	49.03	1950.13	49.31	1950.13
50.25999	1950.1	50.39	1950.1	50.42	1950.1	50.43	1950.1	50.49	1950.09
52.03	1950.03	52.31	1950.1	52.71	1950.2	52.72	1950.2	52.75999	1950.21
52.91	1950.21	54.27	1950.27	55.37	1950.23	56.54	1950.2	58.12	1950.15
59.99	1950.16	2.64999	1950.02	64.92	1950.01	65.24	1950	65.63	1949.99
66.63	1949.99	66.87	1949.99	69.82999	1949.97	2.68999	1949.81	75.87	1949.9
76.29	1949.92	77.1	1950	77.78	1950.06	78.16	1950.17	8.89999	1950.17
79.22	1950.2	80.05	1950.28	80.28	1950.3	81.23	1950.39	81.34	1950.4
82.00999	1950.46	83.32	1950.49	83.92	1950.58	6.39999	1950.55	88.11	1950.58
88.32999	1950.5	88.43	1950.46	88.6	1950.48	8.75999	1950.34	88.87	1950.3
89.06	1950.23	89.14	1950.28	9.32999	1950.13	89.41	1950.1	89.61	1950.03
89.68	1950	89.89	1949.92	89.95	1949.9	90.17	1949.82	90.22	1949.8
90.45	1949.71	90.49	1949.7	90.74	1949.61	90.75999	1949.6	90.89	1949.55
90.99	1949.5	91	1949.59	1.18999	1949.4	91.21	1949.39	91.38	1949.3
91.42	1949.28	91.57999	1949.2	91.62	1949.18	91.78	1949.19	1.93999	1949.02
91.98	194	92.14999	1948.91	92.17	1948.9	92.36	1948.81	92.37	1948.8
92.56	1948.71	92.57	1948.7	92.73	1948.6	92.88	1948.5	92.89	1948.49
93.04	1948.4	93.06	1948.39	93.2	1948.3	93.22	1948.29	93.35	1948.2
93.38	1948.18	93.50999	1948.1	93.53	1948.08	93.66	194	93.68999	1947.98
93.82	1947.9	93.85	1947.88	93.97	1947.89	4.00999	1947.77	94.12	1947.7
94.16	1947.67	94.27	1947.6	94.32	1947.57	94.43	1947.5	94.47	1947.47
94.57999	1947.4	94.62	1947.37	94.73	1947.3	94.78	1947.26	94.88	1947.2
94.93	1947.16	95.03	1947.19	5.07999	1947.06	95.17	194	95.25999	1946.94
95.32	1946.9	95.41	1946.83	95.46	1946.8	95.56	1946.73	95.6	1946.7
95.71	1946.62	95.74	1946.6	95.86	1946.52	95.88	1946.59	6.00999	1946.41
96.03	1946.4	96.17	1946.39	6.17999	1946.29	96.35	1946.2	96.37	1946.19
96.53999	1946.19	6.56999	1946.08	96.72	194	696.75999	1945.98	6.89999	1945.9
96.96	1945.87	97.09	1945.89	7.14999	1945.77	97.27	1945.7	97.34	1945.66
97.46	1945.6	97.53	1945.56	97.64	1945.59	7.75999	1945.44	97.81999	1945.4
97.97	1945.32	98.00999	1945.3	98.14	1945.23	98.28999	1945.2	98.35	1945.19
98.8	1945.1	99.06999	1945.05	99.3	194	599.53999	1944.95	99.8	1944.9
100.18	1944.82	100.3	1944.8	100.55	1944.75	101.33	1944.8	102.07	1944.85
102.93	1944.9	103.33	1944.93	104.53	1945	104.7	1945.01	105.5	1945.06
105.71	1945.1	105.73	1945.1	105.88	1945.13	106.24	1945.2	106.31	1945.21
106.77	1945.3	106.88	1945.32	107.3	1945.4	107.43	1945.42	107.83	1945.5
108.04	1945.54	108.37	1945.6	108.57	1945.66	108.64	1945.7	108.75	1945.77
108.81	1945.8	108.92	1945.87	108.98	1945.9	109.09	1945.97	109.14	1946
109.25	1946.07	109.31	1946.1	109.42	1946.17	109.48	1946.2	109.59	1946.27
109.64	1946.3	109.75	1946.37	109.81	1946.4	109.92	1946.47	109.98	1946.5
110.08	1946.57	110.14	1946.6	110.25	1946.67	110.31	1946.7	110.42	1946.77
110.47	1946.8	110.54	1946.84	110.64	1946.9	110.71	1946.94	110.81	1947
110.88	1947.05	110.97	1947.1	111.06	1947.15	111.14	1947.2	111.24	1947.26
111.31	1947.3	111.45	1947.39	111.55	1947.4	111.72	1947.42	111.94	1947.44
113.09	1947.4	114.61	1947.35	114.78	1947.4	115.1	1947.5	115.12	1947.51
115.42	1947.6	115.44	1947.61	115.74	1947.7	116.08	1947.79	116.11	1947.8
116.53	1947.9	116.54	1947.9	116.55	1947.9	116.73	1947.94	116.89	1948
116.97	1948.03	117.17	1948.1	117.33	1948.16	117.44	1948.2	117.64	1948.27
117.72	1948.3	117.94	1948.38	117.99	1948.4	118.23	1948.49	118.27	1948.5
118.52	1948.59	118.55	1948.6	118.81	1948.7	118.82	1948.7	119.09	1948.8
119.1	1948.8	119.37	1948.9	119.7	1949	119.71	1949	120.02	1949.09
120.05	1949.1	120.35	1949.19	120.39	1949.2	120.68	1949.29	120.73	1949.3
121.01	1949.38	121.07	1949.4	121.35	1949.48	121.41	1949.5	121.68	1949.58
121.75	1949.6	122.01	1949.68	122.09	1949.7	122.35	1949.78	122.43	1949.8
122.68	1949.88	122.77	1949.9	123.02	1949.97	123.1	1950	123.35	1950.07
123.44	1950.1	123.56	1950.13	123.78	1950.2	123.95	1950.25	124.12	1950.3
124.42	1950.39	124.99	1950.4	125.93	1950.36	127.68	1950.3	128.16	1950.28
128.22	1950.3	128.25	1950.31	128.59	1950.4	128.86	1950.48	128.95	1950.5
129.28	1950.59	129.32	1950.6	129.58	1950.67	130.26	1950.6	131.11	1950.51
131.21	1950.5	131.23	1950.5	131.25	1950.5	131.26	1950.5	131.66	1950.6
131.86	1950.65	132.07	1950.7	132.34	1950.77	132.48	1950.8	132.79	1950.88
132.89	1950.9	133.21	1950.98	133.3	1951	133.44	1951.03	133.71	1951.1
133.89	1951.14	134.12	1951.2	134.41	1951.27	134.54	1951.3	135.06	1951.3
135.36	1951.25	138.34	1951.3	138.82	1951.26	139.6	1951.2	140.69	1951.11
140.85	1951.1	141.15	1951.08	141.33	1951.1	141.46	1951.12	142.06	1951.2
142.53	1951.26	142.8	1951.3	143.4	1951.38	143.53	1951.4	144.04	1951.47
144.05	1951.47	144.14	1951.5	144.16	1951.51	144.37	1951.57	144.43	1951.6
144.47	1951.62	144.56	1951.66	144.64	1951.7	144.73	1951.74	144.84	1951.8
144.95	1951.85	145.05	1951.9	145.17	1951.96	145.25	1952	145.38	1952.06
145.46	1952.1	145.59	1952.16	145.66	1952.2	145.74	1952.24	145.87	1952.3
145.96	1952.35	146.07	1952.4	146.19	1952.46	146.27	1952.5	146.43	1952.58
146.48	1952.6	146.68	1952.7	146.69	1952.7	146.7	1952.7	147.22	1952.8
147.39	1952.83	147.75	1952.9	148.04	1952.95	148.28	1953	148.65	1953.07
148.8	1953.1	149.24	1953.18	149.33	1953.2	149.84	1953.27	149.87	1953.27
149.92	1953.3	149.99	1953.34	151.62	1953.36	152.49	1953.4	153.82	1953.46
155.13	1953.5	155.78	1953.52	156	1953.6	156.13	1953.65	156.28	1953.7
156.48	1953.77	156.55	1953.8	156.79	1953.89	156.83	1953.9	157.09	1954
157.1	1954	157.27	1954.06	157.43	1954.1	157.48	1954.11	157.84	1954.2
158.08	1954.26	158.26	1954.3	158.51	1954.36	158.99	1954.3	159.31	1954.26
159.56	1954.23								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	88.11	.035	124.99	.025

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

88.11	124.99		36.1	24.19	18.16	

.1 .3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2750.44

INPUT
Description:
Station Elevation Data num= 325

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1950.025.209991		19507.179993	1949.997.559998	1949.98	14.09	1949.95		
17.92999	1949.919.70999	1949.8720.67999	1949.8621.64999	1949.8626.25999	1949.85				
27.48999	1949.8	29.92	1949.71	30.73	1949.7	30.84	1949.731.98999	1949.65	
33.31	1949.6133.56999	1949.6	35.8	1949.53	36.17	1949.57	36.98	1949.5	
39.5	1949.539.96999	1949.56	43.16	1949.57	44.77	1949.52	45.32	1949.53	
45.84	1949.52	47.09	1949.5653.18999	1949.555.25999	1949.4863.21999	1949.43			
67.17	1949.44	67.46	1949.44	68.23	1949.4	69.7	1949.32	70.12	1949.3
71.75	1949.21	72.05	1949.21	74.53	1949.22	75.34	1949.2	77.18	1949.15
78.50999	1949.1	80.34	1949.0382.18999	194986.75999	1949.0987.07999	1949.09			
87.50999	1949.1	90.41	1949.19	90.87	1949.2	94.17	1949.3	94.18	1949.3
94.24	1949.31	94.49	1949.3694.68999	1949.395.00999	1949.2195.03999	1949.2			
95.37	1949.1	95.38	1949.195.71999	1949	95.73	1949	95.8	1948.98	
96.12	1948.9196.14999	1948.9	96.55	1948.81	96.6	1948.8	96.64	1948.79	
97.03999	1948.7	97.12	1948.68	97.49	1948.6	97.6	1948.58	97.93	1948.5
98.07999	1948.47	98.38	1948.498.57999	1948.36	98.82	1948.399.07999	1948.24		
99.27	1948.2	99.6	1948.1399.71999	1948.1	100.13	1948.01	100.16	1948	
100.31	1947.97	100.52	1947.9	100.54	1947.89	100.82	1947.8	100.89	1947.78
101.13	1947.7	101.27	1947.65	101.44	1947.6	101.69	1947.52	101.74	1947.5
101.78	1947.49	101.89	1947.42	101.98	1947.4	102.01	1947.39	102.26	1947.3
102.3	1947.28	102.54	1947.2	102.58	1947.18	102.82	1947.1	103	1947.02
103.05	1947	103.23	1946.92	103.27	1946.9	103.45	1946.82	103.48	1946.8
103.67	1946.71	103.7	1946.7	103.9	1946.61	103.92	1946.6	104.12	1946.51
104.14	1946.5	104.34	1946.41	104.36	1946.4	104.57	1946.31	104.58	1946.3
104.59	1946.29	104.79	1946.2	105	1946.1	105.01	1946.1	105.23	1946
105.24	1946	105.36	1945.94	105.47	1945.9	105.71	1945.8	105.72	1945.8
105.94	1945.71	105.96	1945.7	105.98	1945.69	106.22	1945.6	106.26	1945.58
106.48	1945.5	106.56	1945.47	106.73	1945.4	106.87	1945.35	106.99	1945.3
107.2	1945.22	107.25	1945.2	107.36	1945.16	108.95	1945.1	109.52	1945.08
111.71	1945	114.34	1944.9	114.43	1944.9	116.1	1944.81	116.18	1944.9
116.22	1944.94	116.28	1945	116.32	1945.04	116.37	1945.1	116.42	1945.14
116.47	1945.2	116.51	1945.24	116.56	1945.29	116.59	1945.3	116.6	1945.3
116.99	1945.4	117.12	1945.43	117.36	1945.49	117.38	1945.5	117.77	1945.6
117.78	1945.6	118.08	1945.67	118.23	1945.7	118.26	1945.7	118.84	1945.8
119.01	1945.83	119.45	1945.9	119.8	1945.96	120.06	1946	120.65	1946.1
120.68	1946.1	120.72	1946.11	120.99	1946.2	121.01	1946.21	121.28	1946.3
121.32	1946.31	121.57	1946.4	121.62	1946.42	121.85	1946.5	121.93	1946.52
122.14	1946.6	122.23	1946.63	122.43	1946.7	122.53	1946.73	122.72	1946.8
122.82	1946.84	123.02	1946.9	123.14	1946.94	123.39	1947	123.51	1947.04
123.76	1947.1	123.88	1947.14	124.13	1947.2	124.31	1947.24	124.54	1947.3
124.75	1947.35	124.96	1947.4	125.19	1947.46	125.37	1947.5	125.64	1947.56
125.79	1947.6	126.09	1947.67	126.21	1947.7	126.55	1947.78	126.63	1947.8
127.02	1947.89	127.04	1947.9	127.21	1947.94	127.49	1948	127.52	1948.01
127.97	1948.1	128.04	1948.11	128.45	1948.2	128.55	1948.22	128.92	1948.3
129.1	1948.34	129.4	1948.4	129.73	1948.47	129.88	1948.5	130.12	1948.55
130.5	1948.6	130.67	1948.62	131.26	1948.7	131.76	1948.76	132.03	1948.8
132.29	1948.84	132.41	1948.9	132.55	1948.97	132.62	1949	132.77	1949.07
132.82	1949.1	132.99	1949.18	133.03	1949.2	133.21	1949.29	133.24	1949.3
133.44	1949.39	133.45	1949.4	133.55	1949.45	133.68	1949.5	133.71	1949.51
133.95	1949.6	134.01	1949.62	134.22	1949.7	134.31	1949.73	134.49	1949.8
134.6	1949.84	134.76	1949.9	134.89	1949.95	135.03	1950	135.17	1950.05
135.3	1950.1	135.45	1950.16	135.57	1950.2	135.73	1950.26	135.84	1950.3
135.97	1950.35	136.11	1950.4	136.35	1950.49	136.38	1950.5	136.42	1950.51
138.93	1950.6	141.82	1950.69	141.97	1950.7	142.38	1950.71	147.02	1950.74
147.26	1950.72	147.58	1950.72	147.71	1950.8	147.82	1950.86	147.88	1950.9
148.01	1950.98	148.05	1951	148.19	1951.08	148.22	1951.1	148.37	1951.18
148.39	1951.2	148.55	1951.29	148.57	1951.3	148.73	1951.4	148.74	1951.4
148.81	1951.44	148.95	1951.5	148.97	1951.51	149.21	1951.6	149.24	1951.61
149.46	1951.7	149.52	1951.72	149.71	1951.8	149.79	1951.83	149.97	1951.9
150.07	1951.94	150.14	1951.97	150.22	1952	150.35	1952.05	150.48	1952.1
150.63	1952.16	150.74	1952.2	150.86	1952.25	151	1952.3	151.12	1952.35
151.27	1952.4	151.38	1952.44	151.53	1952.5	151.64	1952.54	151.79	1952.6
151.9	1952.64	152.05	1952.7	152.12	1952.72	152.12	1952.73	152.34	1952.78
153.39	1952.78	157.36	1952.76	157.84	1952.8	157.97	1952.81	158.94	1952.9
159.49	1952.95	160.04	1953	160.93	1953.08	161.64	1953.08	163.76	1953.07
164.52	1953	164.85	1952.97	165.57	1952.9	166.2	1952.84	166.45	1952.82

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	94.24	.035	136.35	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.24	136.35	30.61	25.02	22.4	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2725.42

INPUT
Description:
Station Elevation Data num= 331

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1949.165.279999	1949.158.429993	1949.1411.81999	1949.1619.70999	1949.19				
20.25999	1949.1920.65999	1949.19	22.06	1949.16	23.98	1949.126.40999	1949.02		
27.84	1949.128.42999	1949.13	32.37	1949.233.32999	1949.22	33.88	1949.2		
35.13999	1949.1637.28999	1949.138.96999	1949.05	39.6	1949	40.05	1948.98		
41.53	1948.9	43.03	1948.8445.03999	1948.8549.32999	1948.8852.17999	1948.89			
52.62	1948.8952.89999	1948.9	52.98	1948.9	53.13	1948.9	60.06	1948.8	
61.87	1948.7863.53999	1948.7666.99999	1948.75	70.42	1948.7572.68999	1948.72			
73.52	1948.73	76.73	1948.877.18999	1948.8177.63999	1948.84	78.09	1948.87		
78.28	1948.89	78.53	1948.89	82.34	1948.9	85.12	1948.9385.46999	1948.92	
85.66	1948.91	85.67	1948.985.67999	1948.985.96999	1948.81	85.99	1948.8		
86.31999	1948.71	86.35	1948.7	86.67	1948.61	86.7	1948.6	86.74	1948.59
87.06999	1948.587.10999	1948.4987.42999	1948.4	87.49	1948.39	87.8	1948.3		
87.85999	1948.28	88.17	1948.2	88.23	1948.18	88.53	1948.188.60999	1948.08	
88.89999	1948	88.99	1947.98	89.27	1947.989.35999	1947.8889.63999	1947.8		
89.74	1947.7790.00999	1947.7	90.12	1947.67	90.38	1947.6	90.49	1947.57	

```
90.74999  1947.5   90.87 1947.47   91.12  1947.491.24999 1947.37   91.49  1947.3
   91.63 1947.26   91.87  1947.2   92.02 1947.1692.23999  1947.192.39999 1947.06
   92.62    1947   92.78 1946.9692.98999  1946.9   93.16 1946.85   93.37  1946.8
   93.55 1946.7593.73999  1946.793.92999 1946.65   94.12  1946.694.31999 1946.55
    94.5  1946.5    94.7 1946.45   94.87  1946.4   95.09 1946.34   95.25  1946.3
   95.48 1946.2495.62999  1946.2   95.87 1946.1496.00999  1946.196.25999 1946.04
96.39999    194696.53999 1945.96   96.78  1945.9   96.95 1945.86   97.17  1945.8
   97.37 1945.75   97.56  1945.797.82999 1945.6397.93999  1945.698.21999 1945.53
   98.28  1945.5    98.3 1945.49    98.5  1945.498.67999 1945.3298.71999  1945.3
   98.92 1945.2198.93999  1945.2   99.16  1945.1   99.17  1945.199.25999 1945.06
99.64999    1945   99.84 1944.97  100.34  1944.9  100.76 1944.84  101.04  1944.8
  101.59 1944.72  101.73  1944.7  102.38 1944.61  102.43  1944.6   102.9 1944.53
  103.48  1944.6  103.75 1944.63  103.93  1944.6  103.94  1944.6  104.53  1944.5
  104.56 1944.49  105.12  1944.4  105.18 1944.39  105.71  1944.3  105.79 1944.28
  106.29  1944.2   106.4 1944.18  106.87  1944.1   107.4 1944.01  107.46    1944
  107.51 1944.01  107.92  1944.1  108.24 1944.17  108.25 1944.18  108.36  1944.2
  108.71 1944.28   108.8  1944.3  109.16 1944.38  109.24  1944.4  109.62 1944.49
  109.68  1944.5  110.07 1944.59  110.12  1944.6  110.24 1944.62  110.58  1944.7
  110.67 1944.72  111.02  1944.8   111.1 1944.82  111.46  1944.9  111.52 1944.91
   111.9    1945  111.94 1945.01  112.34  1945.1  112.39 1945.11  112.74  1945.2
  112.75  1945.2  113.13  1945.3  113.15 1945.31  113.52  1945.4  113.55 1945.41
  113.91  1945.5  113.94 1945.51  114.21  1945.6  114.24 1945.61  114.42  1945.7
   114.6 1945.78  114.64  1945.8  114.83  1945.9  114.85 1945.91  115.03    1946
  115.05 1946.01   115.1  1946.1  115.19 1946.14  115.32  1946.2  115.42 1946.24
  115.55  1946.3  115.65 1946.34  115.77  1946.4  115.88 1946.45     116  1946.5
  116.12 1946.55  116.23  1946.6  116.36 1946.65  116.46  1946.7   116.6 1946.76
  116.69  1946.8   116.8 1946.85  116.92  1946.9  117.08 1946.96  117.16    1947
  117.35 1947.08  117.52  1947.1  117.66 1947.12  118.29  1947.2  118.58 1947.24
  119.05  1947.3  119.41 1947.35  119.81  1947.4  120.54  1947.5  120.58  1947.5
  120.64 1947.52   120.9 1947.56  120.96  1947.6  121.15  1947.7  121.17 1947.71
  121.35 1947.79  121.37  1947.8  121.58 1947.89  121.61  1947.9  121.81 1947.99
  121.84    1948  122.04 1948.08  122.07  1948.1  122.27 1948.18  122.31  1948.2
   122.5 1948.28  122.54  1948.3  122.58 1948.32  122.78  1948.4  122.82 1948.42
  123.01  1948.5  123.07 1948.53  123.24  1948.6  123.31 1948.63  123.48  1948.7
  123.56 1948.74  123.71  1948.8  123.81 1948.84  123.94  1948.9  124.06 1948.95
  124.18    1949  124.31 1949.06  124.41  1949.1  124.57 1949.17  124.64  1949.2
  124.83 1949.28  124.88  1949.3   125.1 1949.39  125.11  1949.4   125.2 1949.44
  125.89 1949.47  126.35  1949.5  127.03 1949.54  128.14  1949.6  128.24 1949.61
  128.46 1949.62   128.7  1949.7  128.71  1949.7     129  1949.8  129.02 1949.81
   129.3  1949.9  129.33 1949.91  129.59    1950  129.63 1950.01  129.88  1950.1
  130.03 1950.15  130.04 1950.15  131.19 1950.16  131.25 1950.16  131.27 1950.16
  131.73  1950.2  131.98 1950.22  133.26  1950.3  133.81 1950.34  134.78  1950.4
  140.82 1950.46  141.99 1950.47  142.08 1950.48  142.09 1950.48   142.1 1950.48
  142.18 1950.47  144.09  1950.4  144.58 1950.38   145.1 1950.37  145.82  1950.4
  146.63 1950.44  146.86  1950.5  146.99 1950.53  147.23  1950.6  147.46 1950.66
  147.61  1950.7  147.73 1950.73  147.98  1950.8   148.1 1950.83  148.35  1950.9
  148.47 1950.93  148.72    1951  148.83 1951.03  149.09  1951.1   149.2 1951.13
  149.46  1951.2  149.57 1951.23  149.83  1951.3  150.21 1951.26  150.28  1951.3
  151.45  1951.3   151.5 1951.29  152.11  1951.2  152.12  1951.2  152.64 1951.12
  152.76  1951.1  153.39    1951   153.4    1951  154.02  1950.9  154.06 1950.89
  154.66  1950.8  154.78 1950.78  155.29  1950.7  155.79 1950.62  156.07  1950.7
  156.12 1950.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   85.12    .035  125.11    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         85.12  149.83             21.47   25.25    27.5             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2700.17

INPUT
Description:
Station Elevation Data    num=     234
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.811.389999  1948.89.380005 1948.76   11.75 1948.7712.85001 1948.76
   13.25 1948.7613.68001 1948.75   17.17 1948.7717.43001 1948.7619.65001 1948.72
20.99001  1948.724.09001 1948.6427.76001  1948.6   29.28 1948.5931.60001 1948.57
   42.02  1948.545.86001 1948.4749.61001  1948.4   52.77 1948.3452.92001 1948.33
53.86001  1948.3   54.59 1948.2755.24001 1948.27   59.16 1948.27   62.73  1948.3
63.10001 1948.31   63.45  1948.3   63.65 1948.2965.04001  1948.266.35001 1948.12
   66.62  1948.168.17001    1948    68.2    194868.31001 1947.99   70.91  1947.9
   71.44 1947.88   74.01  1947.8   75.13 1947.75   76.23  1947.777.10001 1947.66
78.50001  1947.6   79.76 1947.5580.82001  1947.582.71001 1947.42   83.27  1947.4
84.79001 1947.3485.35001  1947.386.81001  1947.286.82001  1947.287.82001  1947.1
88.31001 1947.0588.81001    1947   89.38 1946.9489.81001  1946.9   90.45 1946.84
    90.8  1946.8   91.55 1946.73    91.8  1946.7    92.7 1946.6192.79001  1946.6
   93.22 1946.56   93.48  1946.5   93.51 1946.49   93.94  1946.493.99001 1946.39
94.39001  1946.3   94.48 1946.28   94.84  1946.2   95.22 1946.12    95.3  1946.1
    95.7 1946.0195.75001    1946   96.19  1945.996.21001  1945.996.49001 1945.84
96.61001  1945.896.64001 1945.7996.93001  1945.7   97.02 1945.6797.25001  1945.6
   97.38 1945.5697.57001  1945.5   97.73 1945.45   97.89  1945.498.07001 1945.34
98.21001  1945.3   98.41 1945.2498.53001  1945.298.74001 1945.1398.85001  1945.1
99.07001 1945.0399.17001    194599.40001 1944.9399.49001  1944.9   99.73 1944.83
99.81001  1944.8  100.06 1944.72  100.13  1944.7  100.38 1944.62  100.45  1944.6
  100.71 1944.52  100.77  1944.5  101.03 1944.42  101.09  1944.4  101.36 1944.32
  101.42  1944.3  101.68 1944.22  101.74  1944.2   101.8 1944.18  102.06  1944.1
  102.16 1944.07  102.38    1944  102.58 1943.94   102.7  1943.9  102.96 1943.87
   106.4 1943.81  107.28  1943.8  113.07 1943.75  114.35  1943.8  116.62  1943.9
  116.64  1943.9  116.67  1943.9  116.73  1943.9  116.76 1943.91  116.87 1943.92
  117.22    1944  117.51 1944.07  117.66  1944.1  118.03 1944.18  118.11  1944.2
   118.5 1944.29  118.55  1944.3  118.95 1944.39  118.99  1944.4   119.4 1944.49
  119.43  1944.5  119.85  1944.6  119.87  1944.6   120.3  1944.7  120.32  1944.7
  120.74  1944.8  120.76  1944.8  121.19  1944.9   121.2  1944.9  121.63    1945
  121.64    1945  122.07  1945.1  122.08  1945.1  122.52  1945.2  122.96  1945.3
  122.97  1945.3   123.4  1945.4  123.41  1945.4  123.84  1945.5  123.85  1945.5
  124.29  1945.6  124.73  1945.7  125.17  1945.8  125.18  1945.8  125.61  1945.9
  125.62  1945.9  126.06    1946   126.5  1946.1  126.94  1946.2  127.38  1946.3
  127.39  1946.3  127.82  1946.4  127.83  1946.4  128.27  1946.5  128.71  1946.6
  129.15  1946.7  129.59  1946.8  130.04  1946.9  130.48    1947  130.75 1947.06
  130.92  1947.1  131.37  1947.2  131.81  1947.3  131.82  1947.3  132.26  1947.4
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  132.71  1947.5  133.15  1947.6  133.16  1947.6   133.6  1947.7  133.61  1947.7
  134.04  1947.8  134.09 1947.81  134.49  1947.9  135.13 1947.99   135.2    1948
  136.16  1948.1   136.2  1948.1  137.19  1948.2   137.2  1948.2  138.19  1948.3
   138.2  1948.3  139.19  1948.4   139.2  1948.4   140.2  1948.5   141.2  1948.6
  141.37 1948.62   142.2  1948.7   143.2  1948.8  143.22  1948.8  143.34 1948.81
  143.39 1948.82  143.49 1948.83   144.5 1948.89  144.65  1948.9  145.83 1948.98
  146.18    1949  147.12 1949.06  147.71  1949.1  148.39 1949.14  149.24  1949.2
  149.61 1949.22  150.77  1949.3  150.79  1949.3  150.85 1949.31  152.05 1949.35
  153.42  1949.4  153.55  1949.4  153.74 1949.41   154.6  1949.5  154.71 1949.51
  155.57  1949.6  155.83 1949.63  156.55  1949.7  157.39 1949.79   158.8  1949.7
  159.01 1949.69  159.53 1949.66  160.35 1949.67  161.38  1949.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02563.10001    .035  141.37    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        62.73  141.37             16.35   24.37   29.93             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2675.8

INPUT
Description:
Station Elevation Data    num=     272
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1948.9     .03  1948.91.570007 1948.863.650009  1948.84.930008 1948.76
5.860001 1948.737.290009 1948.768.740005 1948.7517.96001  1948.720.96001 1948.65
   26.41  1948.626.54001  1948.627.64001 1948.5833.18001 1948.51   34.38  1948.5
37.50001 1948.49    39.2 1948.4742.39001 1948.4248.43001 1948.4453.51001  1948.4
   58.63 1948.3158.80001  1948.359.12001 1948.29   59.27 1948.2959.50001  1948.3
60.17001 1948.3262.46001  1948.463.14001 1948.4264.08001 1948.4365.31001  1948.5
65.40001  1948.565.53001  1948.567.33001 1948.5367.73001 1948.5468.06001  1948.5
68.24001 1948.48   68.91  1948.469.35001 1948.35   69.77  1948.3   70.34 1948.23
70.62001  1948.271.01001 1948.1672.03001 1948.1572.42001  1948.173.01001 1948.04
73.71001    194874.68001 1947.9475.23001  1947.976.24001 1947.8276.30001 1947.82
   76.52 1947.8176.61001 1947.82   81.41 1947.8485.12001 1947.8685.92001  1947.8
86.46001 1947.76   87.34  1947.788.35001 1947.6388.76001  1947.690.00001 1947.51
90.18001  1947.590.35001 1947.4991.60001  1947.4   91.66  1947.491.89001 1947.38
92.15001 1947.3492.30001  1947.392.36001 1947.2892.65001  1947.292.78001 1947.16
93.01001  1947.193.17001 1947.0593.36001    194793.53001 1946.9593.72001  1946.9
93.90001 1946.8594.07001  1946.894.26001 1946.7594.42001  1946.794.62001 1946.65
94.78001  1946.694.97001 1946.54   95.13  1946.595.33001 1946.4495.49001  1946.4
95.69001 1946.34   95.84  1946.396.05001 1946.24    96.2  1946.296.40001 1946.14
96.55001  1946.196.76001 1946.04   96.91    194697.11001 1945.9497.26001  1945.9
97.47001 1945.8497.62001  1945.897.82001 1945.7497.97001  1945.798.18001 1945.64
98.33001  1945.698.53001 1945.5498.68001  1945.598.84001 1945.4599.03001  1945.4
99.23001 1945.3499.39001  1945.399.64001 1945.2399.74001  1945.2  100.09  1945.1
   100.1  1945.1  100.14 1945.09  100.81    1945  100.96 1944.98  101.56  1944.9
  101.83 1944.86  102.31  1944.8  102.67 1944.75  103.08  1944.7  103.46 1944.65
  103.81  1944.6  104.24 1944.54  104.56  1944.5  105.03 1944.44  105.31  1944.4
  105.83 1944.33  106.07  1944.3  106.65 1944.22  106.82  1944.2  107.49 1944.11
  107.57  1944.1  107.65 1944.09  108.45    1944  108.81 1943.96  109.22  1943.9
  109.57 1943.86  109.99  1943.8  110.16 1943.78  110.33 1943.76  110.75  1943.7
  111.27 1943.63  112.52  1943.6   115.5 1943.66  117.17  1943.7  119.85 1943.76
  121.55 1943.78  122.55 1943.79  122.67  1943.8   122.7  1943.8  123.75  1943.9
  123.88 1943.91  124.84    1944  124.91 1944.01  125.77 1944.09   125.9  1944.1
  125.93  1944.1  126.93 1944.19  127.08  1944.2  127.22 1944.21  128.23  1944.3
  128.59 1944.33   129.5  1944.4  130.45 1944.49  130.55  1944.5  130.83 1944.53
  131.06  1944.6  131.11 1944.62  131.34  1944.7  131.53 1944.76  131.64  1944.8
  131.83 1944.86  131.93  1944.9  132.12 1944.97  132.22    1945  132.42 1945.07
  132.52  1945.1  132.72 1945.17  132.81  1945.2  133.02 1945.27  133.11  1945.3
  133.32 1945.37   133.4  1945.4  133.61 1945.47   133.7  1945.5  133.91 1945.57
  133.99  1945.6  134.21 1945.67  134.29  1945.7  134.51 1945.78  134.58  1945.8
  134.81 1945.88  134.88  1945.9  135.11 1945.98  135.17    1946  135.41 1946.08
  135.47  1946.1  135.71 1946.18  135.76  1946.2  136.01 1946.28  136.05  1946.3
  136.31 1946.39  136.35  1946.4  136.61 1946.49  136.64  1946.5  136.91 1946.59
  136.94  1946.6  137.21 1946.69  137.23  1946.7  137.52  1946.8  137.53  1946.8
  137.82  1946.9  137.93 1946.94   138.1    1947  138.11    1947  138.38  1947.1
  138.39  1947.1  138.65 1947.19  138.67  1947.2  138.93 1947.29  138.95  1947.3
   139.2 1947.39  139.23  1947.4  139.48 1947.49   139.5  1947.5  139.75 1947.59
  139.78  1947.6  140.03 1947.69  140.06  1947.7   140.3 1947.79  140.34  1947.8
  140.58 1947.88  140.62  1947.9  140.86 1947.98   140.9    1948  141.13 1948.08
  141.18  1948.1  141.41 1948.18  141.46  1948.2  141.69 1948.28  141.74  1948.3
  141.96 1948.38  142.02  1948.4  142.24 1948.48   142.3  1948.5  142.52 1948.58
  142.58  1948.6   142.8 1948.68  142.86  1948.7  143.07 1948.78  143.14  1948.8
  143.35 1948.88  143.42  1948.9  143.49 1948.93   143.7    1949  143.79 1949.03
  143.98  1949.1  144.11 1949.15  144.26  1949.2  144.45 1949.27  144.52  1949.3
  144.71 1949.36  145.92  1949.3  147.48 1949.22  147.91  1949.2  148.67 1949.16
  149.14 1949.17  152.75  1949.2  160.47 1949.27  160.85  1949.3  162.11 1949.39
  162.79  1949.4  162.82  1949.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02567.33001    .035  144.52    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        59.27  144.52              25.2   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2650.79

INPUT
Description:
Station Elevation Data    num=     294
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.36     .21 1948.35    1.49  1948.3     4.8 1948.23    5.96  1948.2
     6.8 1948.25    7.74  1948.2    8.05 1948.21    8.09  1948.2     8.4 1948.21
   12.98 1948.22   13.66 1948.22    15.4 1948.22   15.93 1948.21   16.15  1948.2
    16.7 1948.18   17.06  1948.2   17.64 1948.24   18.63  1948.3   19.44 1948.35
```

20.2	1948.4	20.62	1948.43	20.96	1948.45	22.08	1948.44	23.15	1948.44
24.32	1948.4	25.61	1948.36	25.77	1948.36	26.15	1948.4	26.32	1948.43
26.67	1948.5	26.85	1948.53	27.2	1948.6	27.44	1948.65	28.18	1948.6
28.54	1948.58	31.08	1948.5	33.97	1948.41	34.39	1948.4	37.08	1948.32
37.62	1948.3	37.65	1948.3	40.49	1948.2	40.74	1948.19	40.75	1948.19
40.9	1948.19	43.62	1948.1	44.54	1948.11	44.78	1948.1	45.12	1948.12
51.81	1948.1	52.12	1948.1	54.79	1948.12	55.23	1948.1	55.48	1948.12
55.52	1948.1	56.42	1948.08	56.76	1948.09	60.91	1948.04	65.66	1948.02
66.05	1948.06	66.7	1948.1	66.84	1948.11	68.2	1948.2	68.27	1948.2
68.28	1948.2	68.42	1948.2	68.61	1948.2	72.88	1948.25	75.56	1948.28
75.85	1948.2	75.93	1948.18	76.14	1948.17	76.48	1948.1	77	1948.17
77.19	1948.2	77.78	1948.28	78.26	1948.2	78.65	1948.13	78.84	1948.1
79.42	1948	79.43	1948	79.47	1947.99	79.56	1947.9	79.57	1947.88
79.65	1947.8	79.68	1947.77	79.75	1947.7	79.79	1947.66	79.84	1947.6
79.89	1947.55	79.94	1947.5	79.99	1947.45	80.03	1947.4	80.08	1947.35
80.13	1947.3	80.19	1947.24	80.22	1947.2	80.31	1947.1	80.32	1947.1
80.32	1947.09	80.58	1947	80.64	1946.98	80.87	1946.9	81	1946.87
81.23	1946.8	81.36	1946.76	81.59	1946.7	81.73	1946.66	81.95	1946.6
82.1	1946.56	82.31	1946.5	82.47	1946.46	82.67	1946.4	82.84	1946.35
83.03	1946.3	83.21	1946.25	83.39	1946.2	83.58	1946.15	83.75	1946.1
83.95	1946.04	84.11	1946	84.32	1945.94	84.47	1945.9	84.7	1945.84
84.83	1945.8	85.08	1945.73	85.19	1945.7	85.46	1945.63	85.55	1945.6
85.84	1945.52	85.91	1945.5	86.22	1945.41	86.27	1945.4	86.61	1945.3
86.63	1945.3	86.8	1945.25	86.96	1945.2	86.98	1945.2	87.27	1945.1
87.32	1945.08	87.58	1945	87.68	1944.97	87.9	1944.9	88.04	1944.85
88.21	1944.8	88.42	1944.73	88.52	1944.7	88.82	1944.6	88.83	1944.6
89.32	1944.5	89.33	1944.49	89.78	1944.4	89.83	1944.39	90.26	1944.3
90.33	1944.29	90.74	1944.2	90.82	1944.18	91.21	1944.1	91.31	1944.08
91.69	1944	92.09	1943.92	92.17	1943.9	92.61	1943.81	92.72	1943.8
92.77	1943.8	94.34	1943.7	94.89	1943.67	95.96	1943.6	96.93	1943.54
97.57	1943.5	98.35	1943.45	99	1943.46	99.9	1943.47	101.57	1943.48
106.54	1943.4	106.68	1943.41	108.1	1943.5	108.87	1943.55	109.61	1943.6
110.39	1943.65	111.12	1943.7	111.9	1943.75	112.63	1943.8	113.42	1943.85
114.15	1943.9	114.95	1943.95	115.66	1944	116.5	1944.06	117.17	1944.1
117.49	1944.13	118.14	1944.2	118.44	1944.3	118.45	1944.3	118.51	1944.32
118.73	1944.38	118.79	1944.4	119.05	1944.47	119.13	1944.5	119.38	1944.57
119.48	1944.6	119.71	1944.67	119.82	1944.7	120.05	1944.77	120.17	1944.8
120.39	1944.87	120.51	1944.9	120.74	1944.96	120.86	1945	121.08	1945.06
121.2	1945.1	121.42	1945.16	121.55	1945.2	121.77	1945.26	121.89	1945.3
122.11	1945.36	122.24	1945.4	122.45	1945.46	122.58	1945.5	122.8	1945.56
122.93	1945.6	123.14	1945.66	123.27	1945.7	123.49	1945.76	123.62	1945.8
123.83	1945.86	123.96	1945.9	124.18	1945.96	124.31	1946	124.52	1946.06
124.65	1946.1	124.86	1946.16	125	1946.2	125.21	1946.26	125.34	1946.3
125.55	1946.36	125.69	1946.4	125.9	1946.46	126.03	1946.5	126.24	1946.56
126.38	1946.6	126.59	1946.66	126.72	1946.7	126.93	1946.76	127.07	1946.8
127.28	1946.86	127.41	1946.9	127.62	1946.96	127.76	1947	127.97	1947.06
128.1	1947.1	128.31	1947.16	128.45	1947.2	128.65	1947.26	128.79	1947.3
129	1947.36	129.14	1947.4	129.34	1947.46	129.48	1947.5	129.69	1947.56
129.83	1947.6	130.03	1947.66	130.17	1947.7	130.38	1947.76	130.51	1947.8
130.72	1947.86	130.86	1947.9	131.07	1947.96	131.2	1948	131.41	1948.06
131.55	1948.1	131.76	1948.16	131.89	1948.2	132.1	1948.26	132.24	1948.3
132.45	1948.36	132.58	1948.4	132.75	1948.45	132.93	1948.5	133.14	1948.56
133.27	1948.6	133.57	1948.69	133.62	1948.7	133.73	1948.73	134.38	1948.7
134.6	1948.69	136.37	1948.6	137.45	1948.55	138.37	1948.5	139	1948.51
140.66	1948.55	145.87	1948.55	148.27	1948.5	150.6	1948.53		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	77.78	.035	133.73	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
77.78	133.73	21.98	24.6	26.83	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2626.19

INPUT
Description:
Station Elevation Data num= 286

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1948.43.1599884	1948.442.809998	1948.45.799988	1948.368.909988	1948.3
9.769989	1948.28	16.39	1948.216.48999	1948.2	16.62	1948.220.01999	1948.2
20.09	1948.220.10999	1948.220.12999	1948.2	20.62	1948.320.80999	1948.34
21.13999	1948.421.32999	1948.4422.21999	1948.4522.23999	1948.522.64999	1948.45
23.69999	1948.4623.88999	1948.524.87999	1948.5	25.16	1948.44	25.34	1948.4
25.62	1948.34	25.8	1948.3	26.09	1948.2426.25999	1948.2	26.55	1948.14
26.70999	1948.127.16999	194827.53999	1947.9733.39999	1947.9738.95999	1947.96
42.53999	1947.9543.78999	1947.9544.87999	1947.9646.14999	1947.9547.70999	1947.95
51.8	1947.9354.18999	1947.91	55.91	1947.956.84999	1947.8563.92999	1947.82
65.28999	1947.8465.75999	1947.8766.03999	1947.9	66.09	1947.94	66.16	1948
66.23	1948.0666.26999	1948.166.34999	1948.1766.38999	1948.266.46999	1948.27
66.50999	1948.3	66.59	1948.3766.62999	1948.466.70999	1948.4766.73999	1948.5
66.77999	1948.5366.85999	1948.666.92999	1948.66	66.98	1948.767.05999	1948.77
67.24	1948.868.57999	1948.7268.70999	1948.7	68.87	1948.67	69.34	1948.6
69.48	1948.58	69.87	1948.5270.06999	1948.570.59999	1948.45	70.8	1948.4
71.12	1948.371.12999	1948.371.44999	1948.271.45999	1948.271.77999	1948.1
71.78999	1948.172.10999	1948	72.12	194872.43999	1947.972.44999	1947.9
72.76999	1947.872.77999	1947.873.10999	1947.773.14999	1947.6973.41999	1947.6
73.42999	1947.673.73999	1947.573.74999	1947.5	74.05	1947.474.06999	1947.39
74.37	1947.374.39999	1947.2974.67999	1947.274.71999	1947.1974.99999	1947.1
75.03999	1947.0975.30999	1947	75.37	1946.9875.62999	1946.975.68999	1946.88
75.93999	1946.876.01999	1946.7876.24999	1946.7	76.34	1946.6776.56999	1946.6
76.66999	1946.5776.87999	1946.576.99999	1946.4677.19999	1946.477.31999	1946.36
77.50999	1946.377.64999	1946.2677.82999	1946.2	77.98	1946.1578.13999	1946.1
78.30999	1946.0578.45999	194678.64999	1945.9478.76999	1945.9	78.98	1945.83
79.09	1945.879.31999	1945.7379.39999	1945.779.64999	1945.6279.71999	1945.6
79.98999	1945.5180.02999	1945.580.32999	1945.480.34999	1945.480.48999	1945.36
80.69999	1945.381.07999	1945.2	81.09	1945.281.46999	1945.181.48999	1945.1
81.85999	1945.0181.87999	194582.23999	1944.9182.26999	1944.982.62999	1944.81
82.65999	1944.883.01999	1944.7183.04999	1944.783.39999	1944.6183.43999	1944.6
83.78999	1944.5183.82999	1944.584.17999	1944.4184.21999	1944.484.56999	1944.31
84.60999	1944.384.95999	1944.2185.00999	1944.2	85.34	1944.1185.39999	1944.1
85.73	1944.0185.78999	1944	86.12	1943.9186.17999	1943.986.50999	1943.81

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86.56999  1943.886.89999 1943.7286.95999  1943.787.28999 1943.6287.34999  1943.6
87.67999 1943.5287.73999  1943.588.06999 1943.4288.12999  1943.488.45999 1943.32
88.52999  1943.388.67999 1943.26   89.81 1943.2390.15999 1943.2290.24999  1943.2
   92.95 1943.23   98.92  1943.3  100.58 1943.35  100.89  1943.4  101.09 1943.43
  101.51  1943.5  101.91 1943.56  102.13  1943.6  102.31 1943.63  102.76  1943.7
     103 1943.74  103.38  1943.8  103.99  1943.9     104  1943.9  104.03  1943.9
  105.84    1944  107.58 1944.09  107.59  1944.1  107.74  1944.2  107.77 1944.22
  107.88  1944.3  108.01 1944.39  108.03  1944.4  108.17  1944.5   108.2 1944.52
  108.61  1944.6  108.68 1944.62  109.09  1944.7  109.23 1944.73  109.58  1944.8
  109.75 1944.84  110.07  1944.9  110.27 1944.94  110.55    1945  110.77 1945.04
  111.04  1945.1  111.28 1945.15  111.53  1945.2  111.78 1945.25  112.04  1945.3
  112.29 1945.35  112.54  1945.4   112.8 1945.46  112.99  1945.5  113.32 1945.57
  113.48  1945.6  113.84 1945.68  113.96  1945.7  114.37 1945.78  114.45  1945.8
  114.89 1945.89  114.94  1945.9  115.38 1945.99  115.43    1946  115.95  1946.1
     116 1946.11  116.47  1946.2  116.56 1946.22     117  1946.3  117.11 1946.32
  117.52  1946.4  117.66 1946.43  118.04  1946.5   118.2 1946.53  118.56  1946.6
  118.74 1946.63  119.09  1946.7  119.28 1946.74  119.61  1946.8  119.82 1946.84
  120.13  1946.9  120.35 1946.94  120.66    1947  120.89 1947.04  121.18  1947.1
  121.42 1947.15   121.7  1947.2  121.95 1947.25  122.22  1947.3  122.48 1947.35
  122.75  1947.4  123.01 1947.45  123.27  1947.5  123.54 1947.55  123.79  1947.6
  124.07 1947.65  124.32  1947.7  124.59 1947.75  124.84  1947.8  125.17 1947.86
  125.36  1947.9  125.78 1947.98  125.88    1948  126.29 1948.08  129.52 1948.08
   136.2  1948.1  140.57 1948.11  140.72  1948.1  140.84 1948.09  142.23    1948
     143 1947.95  143.74  1947.9  144.77 1947.83  145.25  1947.8   145.7 1947.77
  146.18 1947.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   67.24    .035  126.29    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        67.24  126.29             19.32   24.41   28.81             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2601.78

INPUT
Description:
Station Elevation Data    num=     280
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1948.01.6100006    19483.910004 1947.954.110001 1947.945.410004  1947.9
6.419998 1947.87 8.51001  1947.89.840012 1947.7611.60001  1947.7    13.7 1947.67
13.96001 1947.6715.32001 1947.67   19.87 1947.64   23.09  1947.625.42001 1947.57
   26.58 1947.5732.47001  1947.5    35.7 1947.45   35.76 1947.4536.47001 1947.43
   38.77 1947.4738.79001 1947.48   39.02 1947.4841.56001  1947.5   42.76 1947.51
   48.69 1947.5251.03001 1947.5251.92001  1947.553.85001 1947.4656.46001  1947.4
   58.83 1947.3559.64001 1947.33   59.84  1947.460.06001 1947.48   60.13  1947.5
60.39001 1947.5960.42001  1947.6    60.7  1947.760.90001 1947.77   60.98  1947.8
60.99001  1947.861.24001  1947.9   61.26 1947.9161.50001    194861.54001 1948.01
   61.76  1948.161.81001 1948.12   62.02  1948.262.07001 1948.2262.28001  1948.3
   62.34 1948.3262.54001  1948.462.60001 1948.43    62.8  1948.5   62.87 1948.53
63.06001  1948.6   63.13 1948.6363.32001  1948.763.40001 1948.73   63.58  1948.8
   63.77 1948.8764.31001 1948.83   64.53  1948.9   64.95 1948.84   65.05  1948.8
65.14001 1948.76   65.27  1948.7   65.37 1948.6665.49001  1948.6   65.59 1948.56
65.71001  1948.565.81001 1948.4665.93001  1948.466.04001 1948.3566.15001  1948.3
   66.26 1948.25   66.38  1948.266.49001 1948.1566.60001  1948.1    66.7 1948.04
66.78001    1948   66.87 1947.96   67.02  1947.9   67.12 1947.86   67.27  1947.8
67.39001 1947.7567.50001  1947.7   67.62 1947.6567.72001  1947.667.82001 1947.55
   67.94  1947.5   68.01 1947.45   68.12  1947.4   68.19 1947.35   68.26  1947.3
   68.33 1947.2468.40001  1947.2   68.48 1947.1468.53001  1947.1   68.62 1947.04
68.67001    1947   68.77 1946.9368.81001  1946.9   68.91 1946.83   68.95  1946.8
69.06001 1946.72   69.09  1946.769.21001 1946.6169.22001  1946.669.35001  1946.5
69.36001  1946.569.43001 1946.4569.54001  1946.4   69.55  1946.4   69.77  1946.3
    69.8 1946.2970.00001  1946.270.04001 1946.18   70.23  1946.170.28001 1946.08
70.46001    1946   70.52 1945.97   70.69  1945.9   70.76 1945.8770.92001  1945.8
71.00001 1945.7771.15001  1945.7   71.23 1945.66   71.38  1945.671.47001 1945.56
71.61001  1945.5    71.7 1945.46   71.84  1945.4   71.94 1945.3672.07001  1945.3
72.21001 1945.24    72.3  1945.2   72.51 1945.11   72.58  1945.172.64001 1945.09
73.74001    194574.32001 1944.9574.89001  1944.9    75.8 1944.82   76.05  1944.8
76.37001 1944.77   76.94  1944.7   77.55 1944.62   77.72  1944.6   78.44 1944.51
78.51001  1944.5   78.97 1944.4479.07001  1944.4   79.13 1944.3779.31001  1944.3
   79.47 1944.2479.56001  1944.279.76001 1944.12    79.8  1944.180.04001    1944
   80.05    194480.17001 1943.9580.32001  1943.9   80.61  1943.8   80.88 1943.71
   80.91  1943.781.17001 1943.6181.21001  1943.681.24001 1943.5981.51001  1943.5
82.21001 1943.41    82.3  1943.483.18001 1943.3584.32001 1943.3984.64001  1943.4
   85.33 1943.4285.53001  1943.4   85.61 1943.3986.46001  1943.3    86.8 1943.26
87.39001  1943.287.90001 1943.1488.31001  1943.1    88.7 1943.0689.24001    1943
90.40001    1943   91.16 1943.0791.43001  1943.191.67001 1943.1292.46001  1943.2
   92.69 1943.2293.48001  1943.3   94.45 1943.3994.51001  1943.4   95.02 1943.45
95.43001  1943.595.46001  1943.596.26001 1943.59   96.33  1943.697.10001 1943.69
97.21001  1943.7   97.95 1943.78   98.09  1943.898.81001 1943.8898.96001  1943.9
99.67001 1943.98   99.84    1944  100.53 1944.08  100.72  1944.1   101.4 1944.18
   101.6  1944.2  102.27 1944.28  102.47  1944.3   102.7 1944.32  103.44  1944.4
  103.71 1944.43  104.49  1944.5  104.77 1944.53  105.55  1944.6  105.84 1944.63
   106.6  1944.7  106.91 1944.73  107.66  1944.8     108 1944.83  108.72  1944.9
  109.11 1944.94  109.64    1945  110.12 1945.04  110.79  1945.1  111.41 1945.18
   111.6 1945.19  111.64  1945.2   111.7 1945.21  111.91  1945.3  112.12 1945.39
  112.14  1945.4  112.24 1945.45  112.39 1945.49  112.41  1945.5  112.69 1945.59
  112.72  1945.6  112.99 1945.69  113.04  1945.7   113.3 1945.78  113.35  1945.8
   113.6 1945.88  113.66  1945.9  113.91 1945.98  113.98    1946  114.22 1946.08
  114.29  1946.1  114.54 1946.18   114.6  1946.2  114.85 1946.28  114.91  1946.3
  115.16 1946.38  115.23  1946.4  115.47 1946.48  115.54  1946.5  115.78 1946.58
  115.85  1946.6  116.09 1946.68  116.17  1946.7  116.41 1946.78  116.48  1946.8
  116.72 1946.88  116.79  1946.9  117.03 1946.98  117.11    1947  117.34 1947.08
  117.42  1947.1  117.66 1947.18  117.73  1947.2  118.32 1947.24  119.53  1947.3
  121.17 1947.38  122.81 1947.37  125.71 1947.37   131.8 1947.35  139.99 1947.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   64.53     .05  121.17    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        64.53  121.17             24.17   25.19   26.43             .1       .3
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CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2576.59

INPUT
Description:
Station Elevation Data num= 277

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1947.141.360001	1947.13.070007	1947.05	4.51001	19477.070007	1946.92			
7.650009	1946.97.979996	1946.8710.04001	1946.9	10.11	1946.92	11.03	1946.9		
12.04001	1946.9513.01001	1947	14.38	1947.08	14.72	1947.115.01001	1947.13		
17.60001	1947.13	18.39	1947.13	19.7	1947.14	22.05	1947.1622.06001	1947.16	
22.59	1947.12	23.13	1947.2	23.34	1947.23	23.84	1947.324.10001	1947.34	
24.54	1947.424.85001	1947.4525.24001	1947.5	25.61	1947.55	25.93	1947.6		
26.36	1947.66	26.62	1947.7	32.94	1947.79	33.19	1947.79	33.3	1947.79
33.88	1947.77	34.18	1947.8	35	1947.87	35.28	1947.9	35.3	1947.9
36.2	1948	36.28	1948.01	37.12	1948.1	37.28	1948.12	38.04	1948.2
38.31001	1948.23	38.55	1948.26	38.96	1948.3	39.41	1948.35	39.87	1948.4
40.63	1948.48	40.79	1948.541.10001	1948.53	41.46	1948.5	41.87	1948.46	
42.51	1948.4	43.48	1948.31	47.05	1948.3	48.79	1948.3	48.84	1948.3
48.86	1948.3	50.15	1948.4	50.53	1948.43	51.45	1948.5	52.12	1948.55
52.75	1948.6	55.68	1948.69	55.73	1948.7	58.22	1948.79	58.26	1948.79
58.27	1948.79	59.71	1948.8	63.26	1948.7	63.51	1948.69	64.11	1948.68
64.35001	1948.6	64.43	1948.57	64.65	1948.5	64.78	1948.46	64.96	1948.4
65.12	1948.35	65.26	1948.3	65.44	1948.24	65.57	1948.2	65.76	1948.14
65.87	1948.1	66.08	1948.03	66.18	1948	66.39	1947.93	66.48	1947.9
66.7	1947.83	66.79	1947.8	67.01	1947.73	67.09	1947.767.17001	1947.67	
67.4	1947.6	67.48	1947.57	67.7	1947.5	67.79	1947.47	68	1947.4
68.10001	1947.3768.31001	1947.3	68.41	1947.27	68.61	1947.2	68.72	1947.16	
68.91	1947.1	69.03	1947.06	69.21	1947	69.34	1946.96	69.47	1946.9
69.60001	1946.86	69.69	1946.8	69.79	1946.76	69.88	1946.7	69.97	1946.64
70.05	1946.6	70.14	1946.54	70.22	1946.570.31001	1946.44	70.39	1946.4	
70.48	1946.34	70.55	1946.3	70.65	1946.24	70.72	1946.2	70.82	1946.14
70.89	1946.170.99001	1946.0471.06001	1946	71.16	1945.94	71.22	1945.9		
71.32	1945.84	71.39	1945.871.49001	1945.74	71.55	1945.7	71.66	1945.63	
71.72	1945.6	71.82	1945.53	71.88	1945.571.99001	1945.43	72.05	1945.4	
72.16	1945.33	72.21	1945.3	72.32	1945.23	72.4	1945.2	72.51	1945.13
72.60001	1945.1	72.71	1945.03	72.8	1945	73.03	1944.91	73.07	1944.9
73.18	1944.86	73.59	1944.8	73.8	1944.77	74.25	1944.7	74.61	1944.65
74.91	1944.6	75.34	1944.54	75.57	1944.5	75.84	1944.46	76.23	1944.4
76.58	1944.35	76.9	1944.3	77.37	1944.2377.56001	1944.2	78.14	1944.11	
78.32	1944.1	78.54	1944.09	79.79	1944	80.27	1943.9780.56001	1943.9	
80.64	1943.88	80.98	1943.8	81.36	1943.71	81.41	1943.7	81.7	1943.63
82.03	1943.6	82.17	1943.59	83.03	1943.583.43001	1943.46	84.03	1943.4	
84.58	1943.35	85.04	1943.3	85.42	1943.26	86.04	1943.2	86.76	1943.13
87.04	1943.187.68001	1943.06	88.03	1943.06	89.47	1943.191.32001	1943.13		
92.64	1943.2	93.2	1943.23	94.41	1943.3	95.64	1943.3796.18001	1943.4	
97.84	1943.49	97.92	1943.5	97.98	1943.5	99.25	1943.6	99.88	1943.65
100.59	1943.7	101.49	1943.77	101.89	1943.8	102.72	1943.88	102.92	1943.9
103.6	1943.98	103.79	1944	104.48	1944.08	104.66	1944.1	104.82	1944.12
105.53	1944.2	105.72	1944.22	106.41	1944.3	106.61	1944.32	107.28	1944.4
107.51	1944.43	108.16	1944.5	108.41	1944.53	109.03	1944.6	109.31	1944.63
109.91	1944.7	110.48	1944.77	110.75	1944.77	110.98	1944.8	111.19	1944.82
111.91	1944.9	112.14	1944.93	112.84	1945	113.08	1945.03	113.77	1945.1
114.17	1945.14	114.71	1945.2	115.45	1945.28	115.65	1945.3	115.93	1945.33
116.2	1945.4	116.31	1945.43	116.58	1945.5	116.82	1945.56	116.97	1945.6
117.12	1945.64	117.35	1945.7	117.49	1945.74	117.73	1945.8	117.86	1945.83
118.12	1945.9	118.22	1945.93	118.5	1946	118.57	1946.02	118.88	1946.1
118.9	1946.1	118.95	1946.12	119.55	1946.18	119.7	1946.2	120.3	1946.27
120.6	1946.3	121.09	1946.35	121.51	1946.4	121.96	1946.45	122.41	1946.5
123.01	1946.57	123.32	1946.6	124.08	1946.68	124.31	1946.7	124.35	1946.7
124.83	1946.73	125.73	1946.77	126.51	1946.77	127.18	1946.8	128.08	1946.81
131.75	1946.88	133	1946.9	133.98	1946.92	138.6	1947	139.97	1947.02
144.2	1947.1	144.94	1947.11						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	59.71	.035	124.83	.025

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

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
59.71	124.83	36.89	25.23	18.12	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2551.36

INPUT
Description:
Station Elevation Data num= 361

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1947.19	.41	1947.12	.54	1947.1	.58	1947.09	.86	1947
1.049	1946.94	1.16	1946.9	1.45	1946.81	1.471	1946.81.529999	1946.78	
2.23999	1946.78	4.48999	1946.754.830002	1946.84.839996	1946.81	4.87999	1946.8		
5.080002	1946.786.789993	1946.78.119995	1946.638.799988	1946.69.729996	1946.55				
10.47	1946.5211.14999	1946.611.68999	1946.6711.81999	1946.7	11.89	1946.72			
12.22	1946.812.40999	1946.85	12.61	1946.912.87999	1946.9713.00999	1947			
13.33	1947.0813.40999	1947.1	13.48	1947.1213.79999	1947.213.92999	1947.23			
14.2	1947.3	14.45	1947.35	14.59	1947.4	14.75	1947.4614.81999	1947.49	
14.86	1947.49	14.87	1947.514.87999	1947.5	15.17	1947.615.18999	1947.61		
15.45999	1947.715.50999	1947.7115.75999	1947.8	15.83	1947.82	16.06	1947.9		
16.17	1947.9416.34999	194816.51999	1948.0616.64999	1948.116.89999	1948.19				
16.93999	1948.217.04999	1948.2317.23999	1948.2	17.75	1948.11	17.81	1948.1		
17.84999	1948.0917.87999	1948.1	17.92	1948.1118.28999	1948.2	18.47	1948.25		
18.59	1948.21	18.62	1948.2	18.87	1948.12	18.95	1948.1	19.17	1948.03
19.27999	194819.46999	1947.9419.60999	1947.919.78999	1947.8519.92999	1947.8				
20.09999	1947.7520.25999	1947.7	20.42	1947.65	20.59	1947.6	20.74	1947.55	
20.92	1947.521.17999	1947.4221.24999	1947.421.31999	1947.38	21.48	1947.4			
21.60999	1947.4522.03999	1947.45	22.2	1947.422.42999	1947.3322.52999	1947.3			
22.81999	1947.2123.82999	1947.2724.24999	1947.29	24.42	1947.324.95999	1947.32			
25.06999	1947.425.10999	1947.43	25.2	1947.525.27999	1947.55	25.34	1947.6		
25.42999	1947.67	25.48	1947.725.56999	1947.7725.60999	1947.825.71999	1947.88			

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25.74999  1947.9   25.87 1947.99   25.88    1948   25.95 1948.0526.00999    1948
   26.02 1947.99   26.12  1947.926.14999 1947.88   26.23  1947.8   26.27 1947.77
26.34999  1947.726.38999 1947.6626.45999  1947.626.50999 1947.5526.56999  1947.5
26.63999 1947.4426.67999  1947.426.78999  1947.3    26.8 1947.2927.63999  1947.2
   28.34  1947.128.77999 1947.04   29.16 1947.04   29.55 1947.0530.64999  1947.1
   30.73 1947.1430.84999  1947.230.96999 1947.26   31.05  1947.331.17999 1947.37
   31.24  1947.431.38999 1947.4731.43999  1947.531.59999 1947.5831.63999  1947.6
31.81999 1947.69   31.84  1947.731.96999 1947.7732.24999  1947.832.34999 1947.81
   33.12  1947.9   33.62 1947.9633.99999    194834.57999 1948.0735.25999 1948.01
35.38999    194836.25999 1947.9336.57999  1947.9   37.24 1947.8437.74999  1947.8
    38.2 1947.7638.89999  1947.739.14999 1947.68   40.02  1947.640.07999  1947.6
40.31999 1947.57   40.81  1947.5   41.23 1947.44   42.77 1947.43   46.67 1947.42
   46.99  1947.447.70999 1947.36   48.95  1947.349.28999 1947.28   50.17  1947.2
50.56999 1947.1651.21999  1947.1   52.92 1947.07   53.31    1947   53.67 1946.91
53.71999  1946.9   53.95 1946.84   54.34 1946.85   55.06 1946.86   55.38 1946.85
56.07999 1946.83   57.05 1946.8359.06999 1946.8159.27999  1946.8   61.73 1946.71
   61.84  1946.762.57999 1946.6463.06999 1946.6763.17999 1946.6863.28999  1946.7
63.38999 1946.72   63.87  1946.864.25999 1946.87   64.45  1946.964.49999 1946.91
64.92999 1946.91   64.95  1946.9   64.98 1946.89   65.17  1946.865.20999 1946.78
65.38999  1946.765.42999 1946.6865.60999  1946.6   65.66 1946.5865.82999  1946.5
65.88999 1946.47   66.05  1946.4   66.12 1946.37   66.27  1946.366.35999 1946.26
   66.49  1946.266.59999 1946.1566.70999  1946.166.85999 1946.0366.92999    1946
   67.13  1945.967.13999  1945.9   67.17 1945.89   67.48  1945.867.53999 1945.78
   67.84  1945.767.95999 1945.6768.18999  1945.6   68.48 1945.55   68.84  1945.5
69.09999 1945.4769.57999  1945.4   69.67 1945.3969.89999 1945.3670.03999 1945.31
70.07999  1945.370.31999 1945.2270.38999  1945.2   70.62 1945.13    70.7  1945.1
   70.92 1945.03   71.02    1945    71.3 1944.93   71.42  1944.9    71.8 1944.81
71.85999  1944.8   72.24 1944.7172.31999  1944.772.32999  1944.7   72.92  1944.6
   72.99 1944.5973.50999  1944.5   73.63 1944.4874.09999  1944.474.24999 1944.37
74.67999  1944.375.14999 1944.2275.24999  1944.2   75.48 1944.1677.71999  1944.1
   79.84 1944.04   80.34    194480.45999 1943.99   81.48  1943.9   81.77 1943.87
   82.62  1943.8   83.05 1943.7684.37999  1943.786.03999 1943.6286.50999  1943.6
    86.7 1943.59   88.03 1943.53   88.64 1943.53   89.41 1943.53   89.75 1943.53
   89.95 1943.51      90  1943.590.67999 1943.4290.84999  1943.490.98999 1943.38
    91.7  1943.3   92.28 1943.2393.32999  1943.297.03999 1943.2797.51999  1943.3
    98.8 1943.3998.92999  1943.4   99.28 1943.42  101.56  1943.5  102.92 1943.55
  103.54  1943.6  103.77 1943.62  104.67  1943.7  105.74 1943.79   105.8  1943.8
  105.93 1943.81  109.77  1943.9  110.26 1943.96  110.47    1944  110.57 1944.02
  110.98  1944.1  111.16 1944.14  111.48  1944.2  111.71 1944.24  111.99  1944.3
  112.23 1944.35   112.5  1944.4  112.75 1944.45     113  1944.5  113.26 1944.55
  113.51  1944.6  113.78 1944.65  114.01  1944.7  114.29 1944.75  114.52  1944.8
   114.8 1944.85  115.03  1944.9  115.31 1944.96  115.53    1945  115.82 1945.06
  116.04  1945.1  116.32 1945.16  116.54  1945.2  116.83 1945.26  117.05  1945.3
  117.34 1945.36  117.56  1945.4  117.88 1945.46  118.33  1945.5  118.66 1945.52
  120.71  1945.6  121.77 1945.64  122.49  1945.7  122.62 1945.71  123.67  1945.8
  123.94 1945.82  124.85  1945.9   125.2 1945.93  126.03    1946  126.44 1946.03
  127.21  1946.1  128.06 1946.17  128.39  1946.2  129.53  1946.3  129.57  1946.3
  129.68 1946.31  131.28  1946.4  131.79 1946.43  132.75 1946.48  133.04  1946.5
  133.85 1946.55  134.81  1946.6  135.79 1946.66  136.58  1946.7  137.68 1946.76
  138.34  1946.8  139.07 1946.84  140.11  1946.9  141.01 1946.95  141.87    1947
  143.06 1947.07  143.64  1947.1  145.31 1947.19  145.41  1947.2  145.63 1947.21
  147.01 1947.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .02564.92999    .035  118.33    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         64.45  117.88             19.09   24.92   30.78             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2526.44

INPUT
Description:
Station Elevation Data    num=     269
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1944.511.610001 1944.572.520004  1944.64.099991 1944.655.490005  1944.7
6.529999 1944.738.459991  1944.88.770004 1944.819.490005 1944.8312.53999 1944.86
15.39999  1944.9   22.92 1944.98   23.23 1944.97   24.88 1944.92   25.42 1944.92
   25.86 1944.91   26.17 1944.91   26.45 1944.93   26.56 1944.93   32.37  1944.9
    34.6 1944.8935.43999 1944.88   35.47 1944.88    35.7 1944.88   36.21  1944.9
   38.15 1944.99   38.35    1945   38.43    194538.50999    1945   39.58 1944.95
    42.7 1944.94   44.58 1944.94    45.8    1945   47.21 1945.07   47.82  1945.1
    48.1 1945.11   48.99 1945.14   49.83  1945.150.75999 1945.19   50.91  1945.2
51.00999 1945.21   51.29 1945.22   52.03 1945.26   52.91 1945.24   53.71 1945.22
   54.59  1945.3    55.4 1945.37   55.71  1945.3   55.92 1945.23   55.99  1945.2
   56.08 1945.17   56.28  1945.1   56.38 1945.07   56.57    1945   56.67 1944.96
   56.85  1944.9   56.98 1944.85   57.14  1944.8   57.32 1944.74   57.42  1944.7
   57.65 1944.62   57.97  1944.7   58.04 1944.72   58.16  1944.758.18999  1944.7
   58.83  1944.6   59.03 1944.57    59.5  1944.5   59.91 1944.44   60.18  1944.4
   60.54 1944.35   60.85  1944.3   61.16 1944.26   61.53  1944.2   61.75 1944.17
    62.2  1944.1   62.29 1944.09   62.49 1944.06    62.6    1944   62.79  1943.9
    62.8 1943.89   62.99  1943.8   63.17  1943.7   63.18  1943.7   63.25 1943.67
   63.63 1943.63   64.04  1943.6   64.66 1943.55   65.24  1943.5   65.74 1943.45
   66.39  1943.4   67.07 1943.3467.50999  1943.3   68.32 1943.22   68.59  1943.2
   69.52 1943.11   69.67  1943.1   70.68    1943   70.73    1943   71.35 1942.94
   71.78 1942.91   71.84  1942.971.93999 1942.89   73.06  1942.8   73.72 1942.75
   74.27  1942.7   74.68 1942.67   75.74 1942.62   75.96 1942.61   76.11  1942.6
76.18999 1942.59   77.47  1942.5   78.23 1942.45   78.86  1942.4   79.91 1942.33
   80.28  1942.3   81.89 1942.21      82  1942.2    82.1 1942.19   82.56 1942.17
   83.42 1942.16   84.98 1942.15   85.49 1942.16   86.27  1942.1   86.82 1942.07
88.00999 1942.09   88.57  1942.1    91.1 1942.14   91.35  1942.1   91.41 1942.09
   91.98    1942   92.28 1941.95   92.61  1941.9   93.03 1941.83   93.56  1941.9
93.92999 1941.95   94.37    1942   95.02 1942.0895.17999  1942.1   95.98  1942.2
   95.99  1942.2      96  1942.2   96.05  1942.2   96.07 1942.21    96.3  1942.2
   97.47 1942.15   98.39 1942.17   99.82  1942.2  100.87 1942.22  101.29 1942.25
  101.52  1942.3  101.53  1942.3  102.06  1942.4  102.29 1942.44  102.61  1942.5
  102.62  1942.5  103.17  1942.6  103.19  1942.6  103.72  1942.7  103.77 1942.71
  104.28  1942.8  104.34 1942.81  104.84  1942.9  104.93 1942.92  105.39    1943
  105.52 1943.02  105.95  1943.1  106.12 1943.13   106.5  1943.2  106.74 1943.24
  107.06  1943.3  107.38 1943.36  107.62  1943.4  108.06 1943.48  108.17  1943.5
  108.49 1943.56  108.73  1943.6  108.75  1943.6   109.3  1943.7  109.42 1943.72
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109.87	1943.8	110.33	1943.79	110.48	1943.78	111.32	1943.77	112.16	1943.8
112.68	1943.72	112.85	1943.7	113.03	1943.67	113.38	1943.7	113.53	1943.71
114.7	1943.8	114.82	1943.81	115.15	1943.82	116.19	1943.84	117.63	1943.81
118.23	1943.83	118.81	1943.85	118.92	1943.85	119.87	1943.9	120.41	1943.94
121.73	1944	121.96	1944.02	122.87	1944.1	122.97	1944.11	123.09	1944.12
123.18	1944.1	123.22	1944.09	123.62	1944	123.81	1943.96	123.83	1943.94
123.85	1943.9	124.44	1943.85	127.65	1943.86	128.84	1943.8	129.55	1943.76
129.63	1943.76	130.38	1943.8	131.44	1943.86	132.51	1943.86	133.26	1943.86
133.96	1943.8	134.34	1943.76	134.91	1943.7	135.77	1943.6	138.34	1943.6
138.52	1943.6	140.51	1943.7	142.29	1943.79	142.53	1943.8	143.05	1943.85
143.64	1943.9	143.85	1943.92	144.1	1944	144.18	1944.03	144.42	1944.1
144.55	1944.14	144.73	1944.2	144.9	1944.25	145.05	1944.3	145.22	1944.35
145.36	1944.4	145.56	1944.46	145.68	1944.5	145.91	1944.57	145.99	1944.6
146.27	1944.69	146.31	1944.7	146.55	1944.78	146.82	1944.79	147.15	1944.8
148.18	1944.84	149.6	1944.89	149.61	1944.9	149.72	1945	149.73	1945.01
149.82	1945.1	149.85	1945.12	149.93	1945.2	149.96	1945.23	150.03	1945.3
150.07	1945.34	150.14	1945.4	150.18	1945.44	150.24	1945.5	150.31	1945.56
150.35	1945.6	150.62	1945.56	150.77	1945.5	150.92	1945.44		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	55.4	.035	122.97	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
55.4	122.87	44.23	24.96	30.79	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2501.48

INPUT
Description:
Station Elevation Data num= 128

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1942.18	.36	1942.1	1.15	1941.94	1.9	1941.8	2.03	1941.74
2.25	1941.63	2.83	1941.53	3.22	1941.5	3.92	1941.49	4.52	1941.5
4.530003	1941.37	4.560001	1941.34	4.580002	1941.25	4.59	1941.24	4.650002	1940.9
4.66	1940.84	4.670002	1940.75	4.68	1940.7	4.69	1940.6	4.7	1940.44
4.71	1939.93	4.720001	1939.78	4.73	1939.74	4.740002	1939.6	4.75	1939.5
4.77	1939.22	4.780003	1937.74	4.780003	1937.84	4.810001	1937.57	5.150002	1937.52
5.66	1937.45	6.030003	1937.46	6.440002	1937.34	6.98	1937.38	8.110001	1937.21
8.400002	1937.17	9.57	1937.07	11.04	1936.96	11.65	1936.9	12.04	1936.87
12.77	1936.8	13.78	1936.7	14.02	1936.68	15.9	1936.6	16.96	1936.55
18.08	1936.5	19.96	1936.41	20.32	1936.39	20.69	1936.4	21.34	1936.41
22.5	1936.49	23.71	1936.58	23.95	1936.6	24.95	1936.67	25.31	1936.7
26.19	1936.77	26.7	1936.8	27.46	1936.86	28.1	1936.9	28.74	1936.95
29.53	1937	30.93	1937.1	32.12	1937.18	32.39	1937.2	33.8	1937.29
34.92	1937.36	35.08	1937.44	35.19	1937.5	35.39	1937.82	35.4	1938
35.42	1938.45	35.43	1938.62	35.44	1938.72	35.45	1938.92	35.46	1939.02
35.47	1939.22	35.48	1939.42	35.49	1939.52	35.5	1939.72	35.51	1939.86
35.52	1940.04	35.53	1940.81	35.53	1940.71	35.53	1940.51	35.54	1940.32
35.54	1940.42	35.54	1940.58	35.54	1940.68	35.55	1940.4	35.63	1941.41
35.64	1941.5	35.68	1941.7	35.7	1941.8	37.49	1941.9	37.74	1941.98
37.78	1942.03	37.98	1942.11	38.41	1942.14	38.55	1942.2	38.68	1942.26
39.14	1942.46	39.37	1942.56	39.6	1942.66	40.98	1943.26	41.21	1943.36
41.44	1943.46	41.67	1943.56	41.9	1943.65	42.18	1943.75	42.31	1943.8
42.48	1943.86	42.81	1943.96	43.14	1944.07	43.7	1944.26	44.26	1944.1
44.62	1944	44.81	1943.94	45.2	1943.83	45.58	1943.73	45.96	1943.62
47.08	1943.3	47.44	1943.2	48.14	1943	48.42	1942.9	48.92	1942.7
49.35	1942.6	51.03	1942.56	52.2	1942.55				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	4.52	.013	35.7	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
4.52	35.7	20.64	15.87	22.6	.1	.3

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2485.61

INPUT
Description: Upstream of N 5th Street Culvert
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1942.16	.64	1942.2	.78	1942.31	.83	1942.4	.86	1942.46
.86	1942.4	.86	1942.38	.86	1942.3	.86	1942.27	.86	1942.2
.86	1942.15	.87	1941.71	.88	1941.6	.88	1941.67	.89	1941.2
.9	1940.79	.91	1940.3	.92	1939.79	.93	1939.29	.94	1938.71
.95	1938.26	.96	1937.7	.97	1937.08	.98	1936.38	.99	1935.94
1	1935.8	1.01	1935.29	1.02	1934.79	1.03	1934.29	1.04	1933.79
1.05	1933.29	1.06	1932.69	1.07	1932.19	1.08	1931.69	1.09	1931.19
1.1	1930.58	1.11	1930.07	1.12	1929.6	1.13	1929.44	2.15	1929.3
2.6	1929.26	3.42	1929.22	3.86	1929.2	4.17	1929.2	5.23	1929.18
5.82	1929.17	6.37	1929.15	6.86	1929.15	8.14	1929.16	9.22	1929.2
9.61	1929.22	11.36	1929.3	11.73	1929.33	12.85	1929.4	13.32	1929.44
13.5	1929.5	13.52	1929.8	13.53	1930.2	13.54	1930.7	13.55	1931.2
13.56	1931.6	13.57	1932.1	13.58	1932.6	13.59	1933	13.6	1933.5
13.61	1934	13.62	1934.4	13.63	1934.9	13.64	1935.4	13.65	1935.8
13.66	1936.3	13.67	1936.7	13.68	1937.2	13.69	1937.7	13.7	1938
13.71	1938.6	13.72	1939.1	13.73	1939.5	13.74	1940	13.75	1940.4
13.76	1940.9	13.77	1941.4	13.78	1941.81	13.79	1941.9	13.79	1941.8
13.8	1942.4	13.8	1942.41	13.8	1942.5	13.8	1942.54	13.81	1942.48
13.83	1942.36	13.85	1942.3	13.86	1942.25	14.1	1942.27	14.18	1942.2
14.43	1942.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	.86	.013	13.8	.025

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

.86 13.8 85.04 85.71 86.5 .1 .3

CULVERT

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2484.00

INPUT
Description: Culvert crossing under North 5th Street

Distance from Upstream XS = 1
Deck/Roadway Width = 70
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
.86	1942.46	1929.1	13.8	1942.54	1929.1

Upstream Bridge Cross Section Data
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1942.16	.64	1942.2	.78	1942.31	.83	1942.4	.86	1942.46
.86	1942.4	.86	1942.38	.86	1942.3	.86	1942.27	.86	1942.2
.86	1942.15	.87	1941.71	.88	1941.6	.88	1941.67	.89	1941.2
.9	1940.79	.91	1940.3	.92	1939.79	.93	1939.29	.94	1938.71
.95	1938.26	.96	1937.7	.97	1937.08	.98	1936.38	.99	1935.94
1	1935.8	1.01	1935.29	1.02	1934.79	1.03	1934.29	1.04	1933.79
1.05	1933.29	1.06	1932.69	1.07	1932.19	1.08	1931.69	1.09	1931.19
1.1	1930.58	1.11	1930.07	1.12	1929.6	1.13	1929.44	2.15	1929.3
2.6	1929.26	3.42	1929.22	3.86	1929.2	4.17	1929.2	5.23	1929.18
5.82	1929.17	6.37	1929.15	6.86	1929.15	8.14	1929.16	9.22	1929.2
9.61	1929.22	11.36	1929.3	11.73	1929.33	12.85	1929.4	13.32	1929.44
13.5	1929.5	13.52	1929.8	13.53	1930.2	13.54	1930.7	13.55	1931.2
13.56	1931.6	13.57	1932.1	13.58	1932.6	13.59	1933	13.6	1933.5
13.61	1934	13.62	1934.4	13.63	1934.9	13.64	1935.4	13.65	1935.8
13.66	1936.3	13.67	1936.7	13.68	1937.2	13.69	1937.7	13.7	1938
13.71	1938.6	13.72	1939.1	13.73	1939.5	13.74	1940	13.75	1940.4
13.76	1940.9	13.77	1941.4	13.78	1941.81	13.79	1941.9	13.79	1941.8
13.8	1942.4	13.8	1942.41	13.8	1942.5	13.8	1942.54	13.81	1942.48
13.83	1942.36	13.85	1942.3	13.86	1942.25	14.1	1942.27	14.18	1942.2
14.43	1942.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	.86	.013	13.8	.025

Bank Sta: Left Right Coeff Contr. Expan.
.86 13.8 .1 .3

Downstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
.16	1937.46	1927.94	11.99	1935.4	1927.92

Downstream Bridge Cross Section Data
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1937.43	.16	1937.46	.16	1929.87	.17	1929.01	.18	1927.94
.61	1927.939	5.31	1927.93	5.4	1927.93	5.85	1927.93	7.01	1927.93
11.93	1927.92	11.99	1935.4	12.09	1935.7				

Manning's n Values num= 1

Sta	n Val
0	.013

Bank Sta: Left Right Coeff Contr. Expan.
.16 11.99 .1 .3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	4	12

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

Culvert Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
1	67	.013	.013	0	.4	1

Upstream Elevation = 1929.4
Centerline Station = 7.38
Downstream Elevation = 1927.93
Centerline Station = 6.06

CROSS SECTION

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 2399.9

INPUT
Description: Downstream of N. 5th Street Culvert Crossing
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1937.43	.16	1937.46	.16	1929.87	.17	1929.01	.18	1927.94
.61	1927.939	5.31	1927.93	5.4	1927.93	5.85	1927.93	7.01	1927.93
11.93	1927.92	11.99	1935.4	12.09	1935.7				

Manning's n Values num= 1

```
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .16   11.99            23.41   23.41   23.41             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2376.49

INPUT
Description:
Station Elevation Data    num=      18
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1937.45     .15 1937.43     .17 1935.82     .17 1927.75    5.67 1927.75
     6.03 1927.74    6.19 1927.74    6.42 1927.75    6.94 1927.75   11.56  1927.8
    11.84 1927.76   12.07 1927.72   12.11 1927.72   12.14 1930.34   12.24 1937.46
    12.35 1937.47    12.4 1937.47   12.48 1937.48

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .15   12.24              25      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2351.49

INPUT
Description:
Station Elevation Data    num=      15
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1937.47     .22 1937.44     .25 1935.67     .37 1927.53     .44 1927.52
     1.19 1927.47    3.97 1927.42    5.83 1927.43    9.66 1927.43   11.19 1927.48
    11.88 1927.51   12.17 1927.51   12.22 1930.46   12.33 1937.46   12.48 1937.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .22   12.33              50      50      50             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2301.49

INPUT
Description:
Station Elevation Data    num=      26
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1937.48     .25 1937.47     .25 1937.45     .29 1934.95     .43 1926.92
      .68 1926.92     .77 1926.92     .99 1926.91    1.03 1926.91    6.04  1926.8
     6.17  1926.8    7.11  1926.8    8.58 1926.83   11.44 1926.91   11.86 1926.92
    11.87 1926.92   11.88 1926.92    11.9 1926.92   11.95 1926.93   11.97 1926.94
    12.16 1926.97   12.19 1928.02   12.26 1931.37   12.39 1937.36   12.42 1937.38
    12.88 1937.38

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .25   12.39              25   25.01      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2276.48

INPUT
Description:
Station Elevation Data    num=      20
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1937.17    .059 1937.17     .06 1937.17     .23 1937.16     .33 1928.39
      .35 1926.66     .59 1926.65     .92 1926.63    2.78  1926.6    4.79 1926.55
     6.08 1926.55    7.18 1926.54    9.03 1926.61   11.86 1926.67   12.02 1926.69
    12.09 1926.69   12.25 1934.29    12.3 1936.86   12.51 1936.82   12.99 1936.84

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .23    12.3            50.02      50   49.99             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2226.48

INPUT
Description:
Station Elevation Data    num=      15
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 1936.19     .39 1936.13     .48 1929.53     .53 1926.01    2.11 1925.99
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```
    5.85 1925.92    6.09 1925.91    6.28 1925.91    7.86 1925.92    8.59 1925.96
   11.81 1926.11   12.08 1926.11   12.18 1931.27   12.23 1934.91   12.86 1935.02

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .39   12.23               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2201.48

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1935.69     .45 1935.62     .55 1927.48     .58 1925.71    3.95 1925.66
    6.11 1925.62    6.36 1925.62   10.19 1925.72   11.76 1925.77   11.87 1925.78
   12.11 1925.78   12.14 1928.27   12.24 1934.73   12.54 1934.77

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .45   12.24               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2176.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1935.14     .23  1935.1     .27 1931.91     .35  1925.4    2.34 1925.37
    6.16 1925.39   10.83 1925.42   11.16 1925.42   11.31 1925.42    11.4 1925.42
   11.48 1925.43   11.86 1925.45   11.94 1930.87      12 1934.74   12.12 1934.76

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .23      12               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2151.48

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.71     .13 1934.69      .2 1931.22     .33 1925.08    3.55 1925.09
    5.66  1925.1    5.99  1925.1    6.87 1925.12   11.67  1925.2   11.92 1932.86
   11.96 1933.77   11.98 1934.74      12 1934.74   12.03 1934.73   12.13 1934.73

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .13   11.98             25.18      25   24.82             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2126.48

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.51    .003 1934.51     .08  1934.5     .08 1934.45.3199997 1924.77
2.559999 1924.79    5.69 1924.81    5.94 1924.819.459999 1924.87    11.7 1924.92
   11.79 1927.67   11.95 1934.72   12.09 1934.71   12.23  1934.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .08   11.95             25.01   25.01   25.01             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2101.47

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1934.63     .22 1934.62     .27 1934.62     .51 1925.92     .55 1924.72
     .55 1924.52    1.95 1924.53    5.63 1924.54    8.48 1924.55    9.15 1924.56
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   11.98 1924.63   12.05  1929.4   12.17 1934.71   12.31  1934.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .27   12.17               25   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2076.46

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1930.09     .32 1930.09     .37 1924.45     .37 1924.29      .7 1924.29
    5.09 1924.34   12.25 1924.42   12.25 1924.71   12.31 1930.13   12.81 1930.14
   12.83 1930.14   12.88 1929.18      13  1929.2

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .32   12.31               25   25.01   25.01             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2051.45

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1929.41     .16  1929.4     .17 1924.22     .17 1924.16    4.42 1924.15
   11.97 1924.15   11.98 1924.15   12.03 1924.15   12.06 1929.45   12.06 1929.46
   12.14 1929.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   12.06             24.83   24.93   25.12             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2026.52

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1929.43     .07 1929.62     .08 1929.19     .16 1923.85    1.85 1923.85
    1.91 1923.85    2.96 1923.84    4.02 1923.85    12.1  1923.9    12.1 1924.84
   12.13 1929.45   12.24 1929.45   12.28 1929.45

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .07   12.13               25      25   25.02             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 2001.52

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1928.9     .03  1928.9     .16 1923.47     .49 1923.48    3.84 1923.52
   11.96 1923.62   11.98 1926.37   11.99 1929.45   12.27 1929.15   12.57 1928.79
    12.6 1928.79   12.61 1928.74   13.05 1928.65

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0   11.99             25.02      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1976.52

INPUT
Description:
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1925.94      .9 1925.91     .97  1923.2    4.77 1923.24   12.32 1923.33
   12.81 1923.34   12.85  1928.5   12.86 1928.76   12.86 1928.79   12.89 1928.79
    12.9 1928.74   13.46 1928.73   13.54  1928.1   13.54 1928.13   14.06 1928.23
```

```
Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .9   12.86           25.12      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1951.52

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    -8.8    1928   -8.52    1924       0 1923.01    3.15 1922.92    3.22 1922.92
     7.1 1922.96   15.09 1923.03   15.12 1927.05   15.13 1928.15   15.26 1928.14
   15.71 1928.12   16.47 1928.32

Manning's n Values        num=       1
     Sta   n Val
    -8.8    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -8.8   15.13           75.59   74.96   75.08             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    -8.8       0  1929.5       F

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1876.56

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -60.79    1929  -32.75    1928       0 1926.85     .16 1927.02     .18 1924.17
    .23 1922.08    4.37 1922.11    4.48 1922.11   12.15 1922.08   12.18 1923.61
  12.22 1926.79   12.46  1926.8

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -60.79    .016       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   12.22             25      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1851.56

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -10.82  1936.5  -10.82  1927.5       0 1926.79     .19 1926.84     .36 1926.84
      .8 1926.87     .82 1925.41     .86 1921.83    5.18 1921.82    9.63  1921.8
  12.78 1921.78    12.8 1923.19   12.85  1926.8

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -10.82    .025       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .8   12.85           25.01      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1826.56

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -10.69  1936.5  -10.69  1927.5       0 1926.93     .18 1926.92     .27 1926.93
     .35 1922.31     .36  1921.6    2.11 1921.59    4.71 1921.57    12.2 1921.52
  12.26 1926.03   12.27 1926.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -10.69    .025       0    .013    12.2    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .27   12.27             25      25      25             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1801.56

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -13.95  1936.5  -13.95  1927.5       0 1926.88     .16 1926.87     .19 1924.12
```

```
     .24 1921.28    4.68 1921.24     6.5 1921.23   12.01 1921.24   12.05 1924.05
   12.08 1926.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -13.95    .025       0    .013   12.08    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16   12.08               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1776.56

INPUT
Description: "BR" STA 10+43.34
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -13.75  1936.5  -13.75  1927.5       0 1926.83     .22 1926.79     .22 1926.34
     .27 1920.94    1.95 1920.94    4.85 1920.95   12.02 1920.96   12.06 1925.95
   12.07 1926.82   12.15 1926.82    12.7 1926.81   12.71 1926.52   12.74 1925.31
   12.97 1925.32      13 1925.31   13.25 1925.22

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  -13.75    .025       0    .013   12.07    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0   12.07             24.9   24.98   25.08             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1751.58

INPUT
Description: "BR" STA 10+68.32
Station Elevation Data    num=       6
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -13.36  1936.5  -13.36  1927.5       0 1925.29       0  1920.7   13.15  1920.7
   13.15 1925.29

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -13.36    .025       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0   13.15               25   25.01      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1726.57

INPUT
Description: "BR" STA 10+91.47
Station Elevation Data    num=       6
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -13.09  1936.5  -13.09  1927.5      .5 1925.03      .5 1920.44      15 1920.44
      15 1925.03

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -13.09    .025      .5    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            .5      15            25.01      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1701.57

INPUT
Description: "BR" STA 11+19.84
Station Elevation Data    num=       6
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -22.52  1936.5  -22.52  1927.5       0 1924.73       0 1920.14      16 1920.14
      16 1924.73

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
  -22.52    .025       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0      16            39.81   34.17   29.44             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1667.4

INPUT
Description: Upstream of Losee Crossing "BR" STA 11+55.38
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1926.68       0 1919.72       9 1919.72       9 1922.72      10 1922.72
      10 1919.72      19 1919.72      19 1926.68

Manning's n Values        num=       1
```

```
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0      19            141.4  136.64   130.2             .1       .3
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0 1923.72 1922.72      19 1923.72 1922.72

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1530.0

INPUT
Description: Downstream of Losee Crossing "BR" STA 12+90.10
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  1925.7       0 1918.74       9 1918.74       9 1921.72      10 1921.72
      10 1918.74      19 1918.74      19  1925.7

Manning's n Values        num=       1
     Sta   n Val
       0    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0      19                 1       1       1             .1       .3
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0 1924.72 1921.72      19 1924.72 1921.72

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1529.8

INPUT
Description: "BR" STA 12+90.10
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   -23.5 1923.78   -23.5 1918.75      19 1918.75      19 1923.61

Manning's n Values        num=       1
     Sta   n Val
   -23.5    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -23.5      19            28.27   28.27   28.27             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1515.66*

INPUT
Description: "BR" STA 13+18.37
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -20.74 1923.08  -20.74 1921.17   -7.74 1921.17   -7.74 1922.95   -7.24 1922.95
   -7.24 1917.84   20.76 1917.84   20.76 1922.67   21.26 1922.67

Manning's n Values        num=       1
     Sta   n Val
  -20.74    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -7.24   20.76            28.27   28.27   28.27             .1       .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1501.53

INPUT
Description: "BR" STA 13+46.64
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  -10.39 1922.36  -10.39 1918.54    2.61 1918.54    2.61  1922.1    3.61  1922.1
    3.61 1916.92   22.52 1916.92   22.52  1921.7   23.52  1921.7

Manning's n Values        num=       1
     Sta   n Val
  -10.39    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.61   22.52           25.04   25.04   25.04             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  -10.39    3.61 1920.54       F
   22.52   23.52 1920.54       F

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1476.5

INPUT
Description: "BR" STA 13+69.34
Station Elevation Data    num=       4
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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      14 1919.88      14 1916.11   32.59 1916.11   32.59 1919.88

Manning's n Values        num=       1
     Sta   n Val
      14    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           14   32.59            12.84   12.84   12.84             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1462.50

INPUT
Description: "BR" STA 13+84.15
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    3.98 1921.54    3.98 1915.69   21.98 1915.69   21.98 1921.22

Manning's n Values        num=       1
     Sta   n Val
    3.98    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.98   21.98            23.32   23.32   23.32             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1451.37

INPUT
Description: "BR" STA 14+07.08
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   16.68  1920.2   16.68  1915.2   34.68  1915.2   34.68  1920.2

Manning's n Values        num=       1
     Sta   n Val
   16.68    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         16.68   34.68              25   25.01      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1426.37

INPUT
Description: "BR" STA 14+32.08
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    10.7 1919.66    10.7 1914.66    28.7 1914.66    28.7 1919.66

Manning's n Values        num=       1
     Sta   n Val
    10.7    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          10.7    28.7            25.38   25.02   25.08             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1401.35

INPUT
Description: "BR" STA 14+57.10
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    6.64 1919.68    6.64 1914.13   24.64 1914.13   24.64 1919.68

Manning's n Values        num=       1
     Sta   n Val
    6.64    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          6.64   24.64            27.16   25.15   22.91             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1376.2

INPUT
Description: "BR" STA 14+82.25
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    5.99  1918.6    5.99  1913.6   23.99  1913.6   23.99  1918.6

Manning's n Values        num=       1
     Sta   n Val
    5.99    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          5.99   23.99            25.55   25.03   24.62             .1      .3

CROSS SECTION
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```
RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1351.17

INPUT
Description: "BR" STA 15+07.28
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    6.97 1918.07    6.97 1913.07   24.97 1913.07   24.97 1918.07

Manning's n Values        num=       1
     Sta   n Val
    6.97    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          6.97   24.97             25.06   25.01   24.96             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1326.16

INPUT
Description: "BR" STA 15+32.29
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8.27 1917.28    8.27 1912.53   26.27 1912.53   26.27 1917.28

Manning's n Values        num=       1
     Sta   n Val
    8.27    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          8.27   26.27             27.06   25.02   23.19             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1301.14

INPUT
Description: "BR" STA 15+57.31
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     7.8 1916.75     7.8    1912    25.8    1912    25.8 1916.75

Manning's n Values        num=       1
     Sta   n Val
     7.8    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           7.8    25.8               25      25      25             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1276.14

INPUT
Description: "BR" STA 15+82.31
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    7.11 1916.22    7.11 1911.47   25.11 1911.47   25.11 1916.22

Manning's n Values        num=       1
     Sta   n Val
    7.11    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          7.11   25.11             25.88   24.99   24.17             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1251.15

INPUT
Description: "BR" STA 16+07.30
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8.29 1915.69    8.29 1910.94   26.29 1910.94   26.29 1915.69

Manning's n Values        num=       1
     Sta   n Val
    8.29    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          8.29   26.29             25.55   24.97   24.47             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN          RS: 1226.18

INPUT
Description: "BR" STA 16+32.27
20.17   1912.17
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    7.84 1915.15    7.84  1910.4   25.84  1910.4   25.84 1915.15
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```
Manning's n Values        num=       1
     Sta   n Val
    7.84    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          7.84   25.84             26.31   24.84    23.7             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1201.34

INPUT
Description: "BR" STA 16+57.52
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    6.96 1914.63    6.96 1909.88   24.96 1909.88   24.96 1914.63

Manning's n Values        num=       1
     Sta   n Val
    6.96    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          6.96   24.96             14.02   14.02   14.02             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1151.6

INPUT
Description: "BR" STA 16+71.13
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8.73 1918.65    8.73 1909.65   26.73 1909.65   26.73  1914.4

Manning's n Values        num=       1
     Sta   n Val
    8.73    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          8.73   26.73              51.5   49.89   51.66             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1101.71

INPUT
Description: "BR" STA 17+21.02
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9.11 1917.87    9.11 1908.87   29.11 1908.87   29.11 1917.87

Manning's n Values        num=       1
     Sta   n Val
    9.11    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9.11   29.11             25.09   25.09   25.09             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1076.62

INPUT
Description: "BR" STA 17+46.11
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   17.62 1917.48   17.62 1908.48    39.6 1908.48    39.6 1917.48

Manning's n Values        num=       1
     Sta   n Val
   17.62    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         17.62    39.6             24.95   24.95   24.95             .1      .3

CROSS SECTION


RIVER: FL-ALIGN
REACH: FL-ALIGN           RS: 1051.67

INPUT
Description: "BR" STA 17+71.06
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      15 1917.09      15 1908.09   37.44 1908.09   37.44 1917.09

Manning's n Values        num=       1
     Sta   n Val
      15    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            15   37.44             17.29   17.29   17.29             .1      .3

CROSS SECTION
```

RIVER: FL-ALIGN
REACH: FL-ALIGN RS: 1034.38

INPUT
Description: "BR" STA 17+89.45 - end Brooks Channel
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18.5	1916.82	18.5	1907.82	44.25	1907.82	44.25	1916.82

Manning's n Values num= 1

Sta	n Val
18.5	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
18.5	44.25	.1	.3

SUMMARY OF MANNING'S N VALUES

River:FL-ALIGN

Reach	River Sta.	n1	n2	n3	n4	n5	n6
FL-ALIGN	3398.92	.016	.013	.016	.013	.016	
FL-ALIGN	3373.92	.016	.013	.016	.013	.016	
FL-ALIGN	3348.92	.016	.016	.013	.016		
FL-ALIGN	3323.92	.016	.013	.016	.013	.025	
FL-ALIGN	3298.92	.016	.013	.016	.013	.025	
FL-ALIGN	3273.6	.016	.013	.016	.013	.016	
FL-ALIGN	3248.92	.016	.013	.016	.013	.016	
FL-ALIGN	3223.92	.016	.025	.013	.016	.013	.016
FL-ALIGN	3210.22	.016	.025	.035	.016		
FL-ALIGN	3198.92	.016	.025	.035	.025		
FL-ALIGN	3173.92	.016	.035	.016			
FL-ALIGN	3148.92	.025	.035	.016			
FL-ALIGN	3098.95	.025	.035	.025			
FL-ALIGN	3073.97	.025	.035	.025			
FL-ALIGN	3048.96	.025	.05	.025			
FL-ALIGN	3023.98	.025	.05	.025			
FL-ALIGN	2998.98	.025	.05	.025			
FL-ALIGN	2973.99	.025	.05	.025			
FL-ALIGN	2948.99	.025	.05	.025			
FL-ALIGN	2923.99	.025	.05	.025			
FL-ALIGN	2898.97	.025	.05	.05			
FL-ALIGN	2874.04	.025	.05	.025			
FL-ALIGN	2849.1	.025	.05	.025			
FL-ALIGN	2824.82	.025	.05	.025			
FL-ALIGN	2799.78	.025	.035	.025			
FL-ALIGN	2774.63	.025	.035	.025			
FL-ALIGN	2750.44	.025	.035	.025			
FL-ALIGN	2725.42	.025	.035	.025			
FL-ALIGN	2700.17	.025	.035	.025			
FL-ALIGN	2675.8	.025	.035	.025			
FL-ALIGN	2650.79	.025	.035	.025			
FL-ALIGN	2626.19	.025	.035	.025			
FL-ALIGN	2601.78	.025	.05	.025			
FL-ALIGN	2576.59	.025	.035	.025			
FL-ALIGN	2551.36	.025	.035	.025			
FL-ALIGN	2526.44	.025	.035	.025			
FL-ALIGN	2501.48	.025	.013	.025			
FL-ALIGN	2485.61	.025	.013	.025			
FL-ALIGN	2484.00	Culvert					
FL-ALIGN	2399.9	.013					
FL-ALIGN	2376.49	.013					
FL-ALIGN	2351.49	.013					
FL-ALIGN	2301.49	.013					
FL-ALIGN	2276.48	.013					
FL-ALIGN	2226.48	.013					
FL-ALIGN	2201.48	.013					
FL-ALIGN	2176.48	.013					
FL-ALIGN	2151.48	.013					
FL-ALIGN	2126.48	.013					
FL-ALIGN	2101.47	.013					
FL-ALIGN	2076.46	.013					
FL-ALIGN	2051.45	.013					
FL-ALIGN	2026.52	.013					
FL-ALIGN	2001.52	.013					
FL-ALIGN	1976.52	.013					
FL-ALIGN	1951.52	.013					
FL-ALIGN	1876.56	.016	.013				
FL-ALIGN	1851.56	.025	.013				
FL-ALIGN	1826.56	.025	.013	.016			
FL-ALIGN	1801.56	.025	.013	.016			
FL-ALIGN	1776.56	.025	.013	.016			
FL-ALIGN	1751.58	.025	.013				
FL-ALIGN	1726.57	.025	.013				
FL-ALIGN	1701.57	.025	.013				
FL-ALIGN	1667.4	.013					
FL-ALIGN	1530.0	.013					
FL-ALIGN	1529.8	.013					
FL-ALIGN	1515.66*	.013					
FL-ALIGN	1501.53	.013					
FL-ALIGN	1476.5	.013					
FL-ALIGN	1462.50	.013					
FL-ALIGN	1451.37	.013					
FL-ALIGN	1426.37	.013					
FL-ALIGN	1401.35	.013					
FL-ALIGN	1376.2	.013					
FL-ALIGN	1351.17	.013					
FL-ALIGN	1326.16	.013					
FL-ALIGN	1301.14	.013					
FL-ALIGN	1276.14	.013					
FL-ALIGN	1251.15	.013					
FL-ALIGN	1226.18	.013					
FL-ALIGN	1201.34	.013					

FL-ALIGN	1151.6	.013
FL-ALIGN	1101.71	.013
FL-ALIGN	1076.62	.013
FL-ALIGN	1051.67	.013
FL-ALIGN	1034.38	.013

SUMMARY OF REACH LENGTHS

River: FL-ALIGN

Reach	River Sta.	Left	Channel	Right
FL-ALIGN	3398.92	25.01	25	25.02
FL-ALIGN	3373.92	25.03	25	25.05
FL-ALIGN	3348.92	25.18	25	26.53
FL-ALIGN	3323.92	27.48	25	31.71
FL-ALIGN	3298.92	28.27	25.32	26.5
FL-ALIGN	3273.6	26	24.68	24.56
FL-ALIGN	3248.92	25.13	25	30.09
FL-ALIGN	3223.92	14.07	13.7	14.32
FL-ALIGN	3210.22	11.65	11.3	11.82
FL-ALIGN	3198.92	25.32	25	25.98
FL-ALIGN	3173.92	25.43	25	25.55
FL-ALIGN	3148.92	55.38	49.97	47.04
FL-ALIGN	3098.95	20.29	24.98	28.02
FL-ALIGN	3073.97	25	25.01	25.07
FL-ALIGN	3048.96	28.34	24.98	23.09
FL-ALIGN	3023.98	21.46	25	27.03
FL-ALIGN	2998.98	28.33	24.99	23.13
FL-ALIGN	2973.99	23.9	25	25.86
FL-ALIGN	2948.99	26.22	25	25.08
FL-ALIGN	2923.99	15.83	25.02	30.98
FL-ALIGN	2898.97	17.15	24.93	30.48
FL-ALIGN	2874.04	39.68	24.94	17.95
FL-ALIGN	2849.1	38.99	24.28	10.13
FL-ALIGN	2824.82	22.37	25.04	27.85
FL-ALIGN	2799.78	23.04	25.15	28.16
FL-ALIGN	2774.63	36.1	24.19	18.16
FL-ALIGN	2750.44	30.61	25.02	22.4
FL-ALIGN	2725.42	21.47	25.25	27.5
FL-ALIGN	2700.17	16.35	24.37	29.93
FL-ALIGN	2675.8	25.2	25.01	25.01
FL-ALIGN	2650.79	21.98	24.6	26.83
FL-ALIGN	2626.19	19.32	24.41	28.81
FL-ALIGN	2601.78	24.17	25.19	26.43
FL-ALIGN	2576.59	36.89	25.23	18.12
FL-ALIGN	2551.36	19.09	24.92	30.78
FL-ALIGN	2526.44	44.23	24.96	30.79
FL-ALIGN	2501.48	20.64	15.87	22.6
FL-ALIGN	2485.61	85.04	85.71	86.5
FL-ALIGN	2484.00	Culvert		
FL-ALIGN	2399.9	23.41	23.41	23.41
FL-ALIGN	2376.49	25	25	25
FL-ALIGN	2351.49	50	50	50
FL-ALIGN	2301.49	25	25.01	25
FL-ALIGN	2276.48	50.02	50	49.99
FL-ALIGN	2226.48	25	25	25
FL-ALIGN	2201.48	25	25	25
FL-ALIGN	2176.48	25	25	25
FL-ALIGN	2151.48	25.18	25	24.82
FL-ALIGN	2126.48	25.01	25.01	25.01
FL-ALIGN	2101.47	25	25.01	25.01
FL-ALIGN	2076.46	25	25.01	25.01
FL-ALIGN	2051.45	24.83	24.93	25.12
FL-ALIGN	2026.52	25	25	25.02
FL-ALIGN	2001.52	25.02	25	25
FL-ALIGN	1976.52	25.12	25	25
FL-ALIGN	1951.52	75.59	74.96	75.08
FL-ALIGN	1876.56	25	25	25
FL-ALIGN	1851.56	25.01	25	25
FL-ALIGN	1826.56	25	25	25
FL-ALIGN	1801.56	25	25	25
FL-ALIGN	1776.56	24.9	24.98	25.08
FL-ALIGN	1751.58	25	25.01	25
FL-ALIGN	1726.57	25.01	25	25
FL-ALIGN	1701.57	39.81	34.17	29.44
FL-ALIGN	1667.4	141.4	136.64	130.2
FL-ALIGN	1530.0	1	1	1
FL-ALIGN	1529.8	28.27	28.27	28.27
FL-ALIGN	1515.66*	28.27	28.27	28.27
FL-ALIGN	1501.53	25.04	25.04	25.04
FL-ALIGN	1476.5	12.84	12.84	12.84
FL-ALIGN	1462.50	23.32	23.32	23.32
FL-ALIGN	1451.37	25	25.01	25
FL-ALIGN	1426.37	25.38	25.02	25.08
FL-ALIGN	1401.35	27.16	25.15	22.91
FL-ALIGN	1376.2	25.55	25.03	24.62
FL-ALIGN	1351.17	25.06	25.01	24.96
FL-ALIGN	1326.16	27.06	25.02	23.19
FL-ALIGN	1301.14	25	25	25
FL-ALIGN	1276.14	25.88	24.99	24.17
FL-ALIGN	1251.15	25.55	24.97	24.47
FL-ALIGN	1226.18	26.31	24.84	23.7
FL-ALIGN	1201.34	14.02	14.02	14.02
FL-ALIGN	1151.6	51.5	49.89	51.66
FL-ALIGN	1101.71	25.09	25.09	25.09
FL-ALIGN	1076.62	24.95	24.95	24.95
FL-ALIGN	1051.67	17.29	17.29	17.29
FL-ALIGN	1034.38			

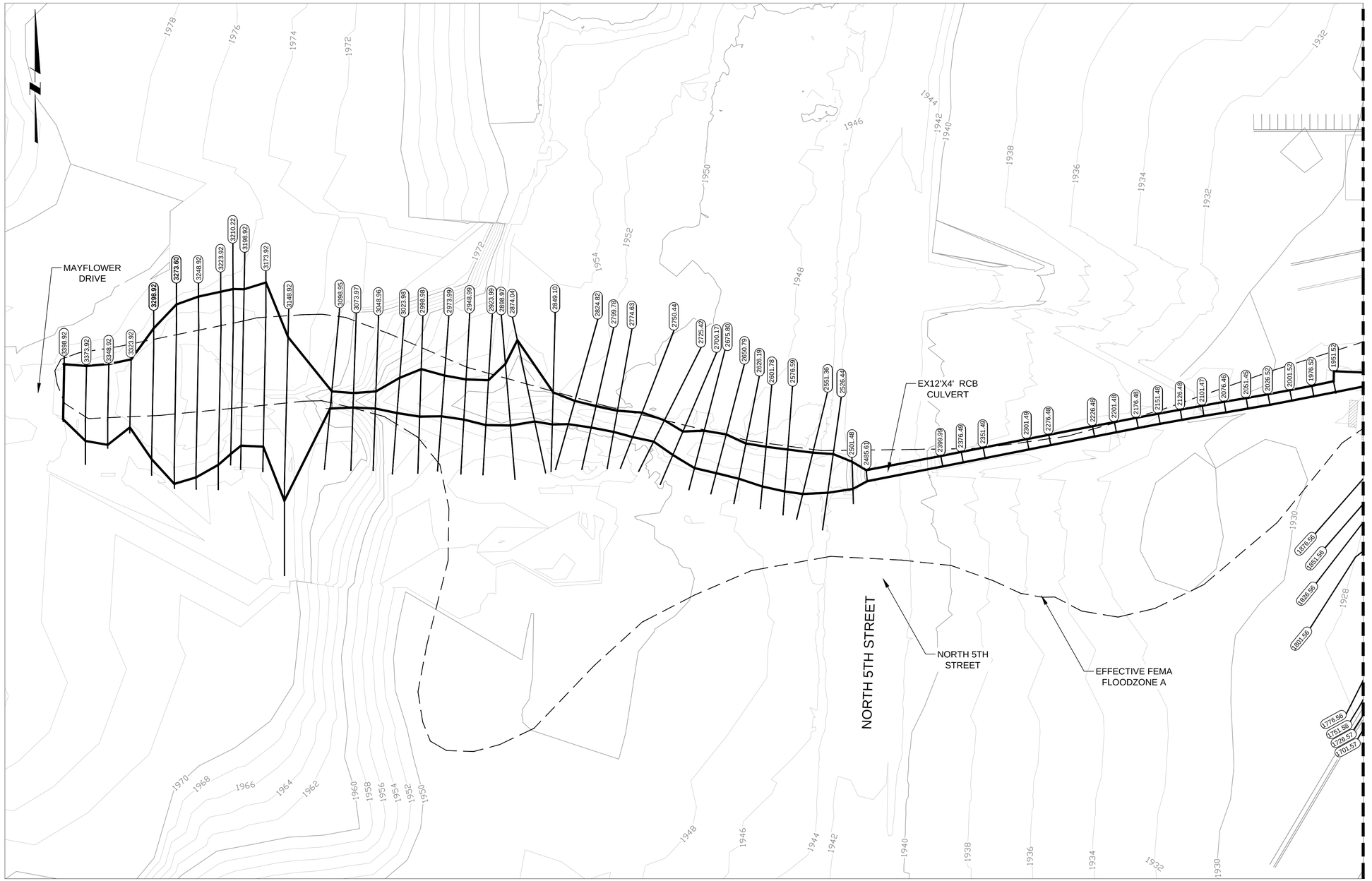
SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: FL-ALIGN

Reach	River Sta.	Contr.	Expan.
FL-ALIGN	3398.92	.1	.3
FL-ALIGN	3373.92	.1	.3
FL-ALIGN	3348.92	.1	.3
FL-ALIGN	3323.92	.1	.3
FL-ALIGN	3298.92	.1	.3
FL-ALIGN	3273.6	.1	.3
FL-ALIGN	3248.92	.1	.3
FL-ALIGN	3223.92	.1	.3
FL-ALIGN	3210.22	.1	.3
FL-ALIGN	3198.92	.1	.3
FL-ALIGN	3173.92	.1	.3
FL-ALIGN	3148.92	.1	.3
FL-ALIGN	3098.95	.1	.3
FL-ALIGN	3073.97	.1	.3
FL-ALIGN	3048.96	.1	.3
FL-ALIGN	3023.98	.1	.3
FL-ALIGN	2998.98	.1	.3
FL-ALIGN	2973.99	.1	.3
FL-ALIGN	2948.99	.1	.3
FL-ALIGN	2923.99	.1	.3
FL-ALIGN	2898.97	.1	.3
FL-ALIGN	2874.04	.1	.3
FL-ALIGN	2849.1	.1	.3
FL-ALIGN	2824.82	.1	.3
FL-ALIGN	2799.78	.1	.3
FL-ALIGN	2774.63	.1	.3
FL-ALIGN	2750.44	.1	.3
FL-ALIGN	2725.42	.1	.3
FL-ALIGN	2700.17	.1	.3
FL-ALIGN	2675.8	.1	.3
FL-ALIGN	2650.79	.1	.3
FL-ALIGN	2626.19	.1	.3
FL-ALIGN	2601.78	.1	.3
FL-ALIGN	2576.59	.1	.3
FL-ALIGN	2551.36	.1	.3
FL-ALIGN	2526.44	.1	.3
FL-ALIGN	2501.48	.1	.3
FL-ALIGN	2485.61	.1	.3
FL-ALIGN	2484.00	Culvert	
FL-ALIGN	2399.9	.1	.3
FL-ALIGN	2376.49	.1	.3
FL-ALIGN	2351.49	.1	.3
FL-ALIGN	2301.49	.1	.3
FL-ALIGN	2276.48	.1	.3
FL-ALIGN	2226.48	.1	.3
FL-ALIGN	2201.48	.1	.3
FL-ALIGN	2176.48	.1	.3
FL-ALIGN	2151.48	.1	.3
FL-ALIGN	2126.48	.1	.3
FL-ALIGN	2101.47	.1	.3
FL-ALIGN	2076.46	.1	.3
FL-ALIGN	2051.45	.1	.3
FL-ALIGN	2026.52	.1	.3
FL-ALIGN	2001.52	.1	.3
FL-ALIGN	1976.52	.1	.3
FL-ALIGN	1951.52	.1	.3
FL-ALIGN	1876.56	.1	.3
FL-ALIGN	1851.56	.1	.3
FL-ALIGN	1826.56	.1	.3
FL-ALIGN	1801.56	.1	.3
FL-ALIGN	1776.56	.1	.3
FL-ALIGN	1751.58	.1	.3
FL-ALIGN	1726.57	.1	.3
FL-ALIGN	1701.57	.1	.3
FL-ALIGN	1667.4	.1	.3
FL-ALIGN	1530.0	.1	.3
FL-ALIGN	1529.8	.1	.3
FL-ALIGN	1515.66*	.1	.3
FL-ALIGN	1501.53	.1	.3
FL-ALIGN	1476.5	.1	.3
FL-ALIGN	1462.50	.1	.3
FL-ALIGN	1451.37	.1	.3
FL-ALIGN	1426.37	.1	.3
FL-ALIGN	1401.35	.1	.3
FL-ALIGN	1376.2	.1	.3
FL-ALIGN	1351.17	.1	.3
FL-ALIGN	1326.16	.1	.3
FL-ALIGN	1301.14	.1	.3
FL-ALIGN	1276.14	.1	.3
FL-ALIGN	1251.15	.1	.3
FL-ALIGN	1226.18	.1	.3
FL-ALIGN	1201.34	.1	.3
FL-ALIGN	1151.6	.1	.3
FL-ALIGN	1101.71	.1	.3
FL-ALIGN	1076.62	.1	.3
FL-ALIGN	1051.67	.1	.3
FL-ALIGN	1034.38	.1	.3

Appendix C

MWH

User: natalen
Plot Date: Tue 22-Mar-2016 - 04:35PM
File: D:\PROJECTS\BROOKS\CLOMAR\RESPONSE Review\BROOKS-FEMA EXHIBITv2.dwg



NOTES:

1. FLOODZONE "A" FROM MAP 32003C2160F.
2. TOPOGRAPHY (5 & 25 FOOT INTERVAL) ADJACENT TO PROJECT AREA IS OBTAINED FROM 2005 CLARK COUNTY GIS DEPARTMENT. TOPOGRAPHY WITHIN THE PROJECT AREA HAS BEEN OBTAINED FROM THE CITY OF NORTH LAS VEGAS SURVEY DEPARTMENT.
3. DRAWING COORDINATES ARE IN THE CITY OF NORTH LAS VEGAS USER DEFINED TRANSVERSE MERCATOR PROJECTION SYSTEM.

CITY OF NORTH LAS VEGAS USER DEFINED MERCATOR PROJECTION PARAMETERS:

CENTRAL MERIDIAN = 115°05'53.002040" WEST
LATITUDE OF ORIGIN = 36°15'00.000603" NORTH
ORIGIN NORTHING = 75000.000 U.S. FEET
ORIGIN EASTING = 75000.0000 U.S. FEET
SCALE ALONG CENTRAL MERIDIAN = 1.000093468437
CONVERGENCE ANGLE = 0°17'13.033030" WEST
REFERENCE ELLIPSOID = GRS-80
SEMI-MAJOR AXIS = 20,925,604.474 U.S. FEET
FLATTENING (1/f) = 298.25722154
X TRANSLATION = 0.0000
Y TRANSLATION = 0.0000
Z TRANSLATION = 0.0000

NAVD88 BENCHMARK:
NLV011SES ELEVATION 1981.306
RIVET AND 2" ROUND ALUMINUM DISK, STAMPED NORTH LAS VEGAS BM NO. NLV0110SES, SET IN THE TOP OF CURB, LOCATED AT THE NORTHWEST CORNER OF THE INSTERSECTION OF CHEYENNE AVE. AND N. 5TH STREET.

LEGEND

EFFECTIVE FEMA FLOODPLAIN AREA
EXISTING FLOODPLAIN AREA
2501.48 — HEC-RAS CROSS SECTION NUMBER
HEC-RAS CROSS SECTION

ENGINEER'S CERTIFICATION
PAUL V. VALDEZ
Exp: 6-30-16
CIVIL
No. 21427
3/20/16

REV	DATE	BY	DESCRIPTION

SCALE: 1"=60'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED R VALDEZ
DRAWN N NATALE
CHECKED J PARKE

MWH®

CITY OF NORTH LAS VEGAS

BROOKS CHANNEL FLOOD CONTROL IMPROVEMENTS
CLOMR

EXISTING CONDITION 100-YEAR FLOOD PLAIN EXHIBIT 1

FIGURE 5

Plot Date: Tue 22-Mar-2016 - 05:22PM
User: natalen

LEGEND

EFFECTIVE FEMA FLOODPLAIN AREA

EXISTING FLOODPLAIN AREA

2501.48 — HEC-RAS CROSS SECTION NUMBER

HEC-RAS CROSS SECTION

CITY OF NORTH LAS VEGAS USER DEFINED MERCATOR PROJECTION PARAMETERS:

CENTRAL MERIDIAN = 115°05'53.002040" WEST
LATITUDE OF ORIGIN = 36°15'00.000603" NORTH
ORIGIN NORTHING = 75000.000 U.S. FEET
ORIGIN EASTING = 75000.0000 U.S. FEET
SCALE ALONG CENTRAL MERIDIAN = 1.000093468437
CONVERGENCE ANGLE = 0°17'13.033030" WEST
REFERENCE ELLIPSOID = GRS-80
SEMI-MAJOR AXIS = 20,925,604,474 U.S. FEET
FLATTENING (1/f) = 298.25722154
X TRANSLATION = 0.0000
Y TRANSLATION = 0.0000
Z TRANSLATION = 0.0000

NAVD88 BENCHMARK:
NLV011SES ELEVATION 1981.306
RIVET AND 2" ROUND ALUMINUM DISK, STAMPED NORTH LAS VEGAS BM NO. NLV0110SES, SET IN THE TOP OF CURB, LOCATED AT THE NORTHWEST CORNER OF THE INSTERSECTION OF CHEYENNE AVE. AND N. 5TH STREET.

NOTES:

1. FLOODZONE "A" FROM MAP 32003C2160F.
2. TOPOGRAPHY (5 & 25 FOOT INTERVAL) ADJACENT TO PROJECT AREA IS OBTAINED FROM 2005 CLARK COUNTY GIS DEPARTMENT. TOPOGRAPHY WITHIN THE PROJECT AREA HAS BEEN OBTAINED FROM THE CITY OF NORTH LAS VEGAS SURVEY DEPARTMENT.
3. DRAWING COORDINATES ARE IN THE CITY OF NORTH LAS VEGAS USER DEFINED TRANSVERSE MERCATOR PROJECTION SYSTEM.

PROFESSIONAL ENGINEER — RAUL V. VALDEZ — Exp: 6-30-16 — CIVIL — No. 21427 — STATE OF NEVADA
3/20/16

REV	DATE	BY	DESCRIPTION

SCALE: 1"=60'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED R VALDEZ
DRAWN N NATALE
CHECKED J PARKE

MWH®

CITY OF NORTH LAS VEGAS

BROOKS CHANNEL FLOOD CONTROL IMPROVEMENTS
CLOMR

EXISTING CONDITION 100-YEAR FLOOD PLAIN EXHIBIT 1-A

FIGURE 5A

File: D:\PROJECTS\BROOKS\CLOMAR\RESPONSE Review\BROOKS-FEMA EXHIBITv2.dwg

Plot Date: Tue 22-Mar-2016 - 05:46PM
User: natalen

MAYFLOWER DRIVE

EX 12'x4' RCB CULVERT

FLOW CONTAINED IN RECTANGULAR CHANNEL

NORTH 5TH STREET

EFFECTIVE FEMA FLOODZONE A

LOSEE ROAD

PROPOSED DUAL 9'x3' RCB CULVERT

FLOW CONTAINED IN RECTANGULAR CHANNEL

PROPOSED 96" STEEL PIPE

EXISTING 8'x4' RCB

NOTES:

1. FLOODZONE "A" FROM MAP 32003C2160F.
2. TOPOGRAPHY (5 & 25 FOOT INTERVAL) ADJACENT TO PROJECT AREA IS OBTAINED FROM 2005 CLARK COUNTY GIS DEPARTMENT. TOPOGRAPHY WITHIN THE PROJECT AREA HAS BEEN OBTAINED FROM THE CITY OF NORTH LAS VEGAS SURVEY DEPARTMENT.
3. DRAWING COORDINATES ARE IN THE CITY OF NORTH LAS VEGAS USER DEFINED TRANSVERSE MERCATOR PROJECTION SYSTEM.

CITY OF NORTH LAS VEGAS USER DEFINED MERCATOR PROJECTION PARAMETERS:

CENTRAL MERIDIAN = 115°05'53.002040" WEST
LATITUDE OF ORIGIN = 36°15'00.000603" NORTH
ORIGIN NORTHING = 75000.000 U.S. FEET
ORIGIN EASTING = 75000.0000 U.S. FEET
SCALE ALONG CENTRAL MERIDIAN = 1.000093468437
CONVERGENCE ANGLE = 0°17'13.033030" WEST
REFERENCE ELLIPSOID = GRS-80
SEMI-MAJOR AXIS = 20,925,604,474 U.S. FEET
FLATTENING (1/f) = 298.25722154
X TRANSLATION = 0.0000
Y TRANSLATION = 0.0000
Z TRANSLATION = 0.0000

NAVD88 BENCHMARK:
NLV011SES ELEVATION 1981.306
RIVET AND 2" ROUND ALUMINUM DISK, STAMPED NORTH LAS VEGAS BM NO. NLV0110SES, SET IN THE TOP OF CURB, LOCATED AT THE NORTHWEST CORNER OF THE INSTERSECTION OF CHEYENNE AVE. AND N. 5TH STREET.

LEGEND

EFFECTIVE FEMA FLOODPLAIN AREA

PROPOSED FLOODPLAIN AREA

HEC-RAS CROSS SECTION REFERENCE NUMBER (SEE TABLE 4-2 IN CLOMR TEXT FOR STATION)

HEC-RAS CROSS SECTION

PROFESSIONAL ENGINEER — RAUL V. VALDEZ — Exp: 6-30-16 — CIVIL — No. 21427 — STATE OF NEVADA — 03/20/16

REV	DATE	BY	DESCRIPTION

SCALE 1"=80'

WARNING 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED R VALDEZ
DRAWN N NATALE
CHECKED J PARKE

MWH®

CITY OF NORTH LAS VEGAS

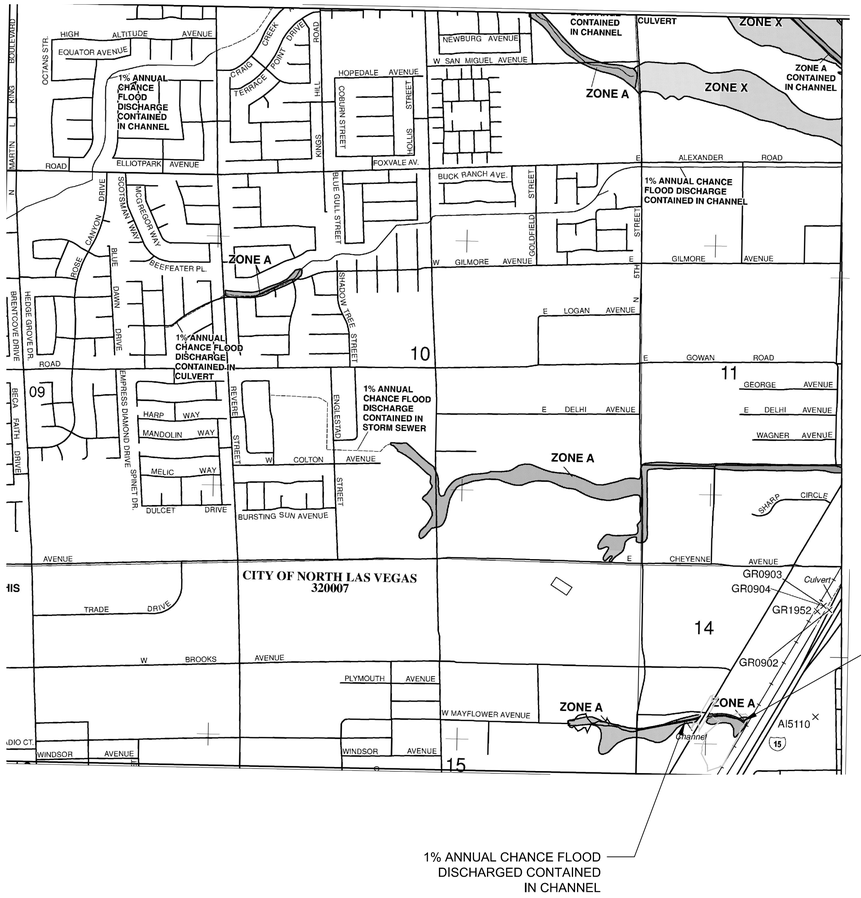
BROOKS CHANNEL FLOOD CONTROL IMPROVEMENTS
CLOMR

PROPOSED CONDITION 100-YEAR FLOOD PLAIN EXHIBIT 2

SHEET 6

JobNumber

File: D:\PROJECTS\BROOKS\CLOMARRESPONSE Review\BROOKS-FEMA EXHIBITv2.dwg



1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL

1% ANNUAL CHANCE FLOOD DISCHARGED CONTAINED IN CHANNEL

FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CLARK COUNTY, NEVADA AND INCORPORATED AREAS

PANEL 2160 OF 4090

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLARK COUNTY	320003	2160	F
LAS VEGAS, CITY OF	325276	2160	F
NORTH LAS VEGAS, CITY OF	320007	2160	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
32003C2160F

MAP REVISED
NOVEMBER 16, 2011

Federal Emergency Management Agency

LEGEND

EFFECTIVE FEMA FLOODPLAIN AREA

EXISTING FLOODPLAIN AREA

PROPOSED FLOODPLAIN AREA

PAUL V. VALDEZ — Exp: 6-30-16 — CIVIL — No.21427 — PROFESSIONAL ENGINEER — STATE OF NEVADA

03/20/16

REV	DATE	BY	DESCRIPTION

SCALE: 1" = 1000'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED R VALDEZ
DRAWN N NATALE
CHECKED J PARKE

MWH®

CITY OF NORTH LAS VEGAS

COLTON AVENUE FLOOD CONTROL IMPROVEMENTS PROJECT

CLOMR

ANNOTATED FIRM MAP

FIGURE 7

12/7/2010 10:20 AM

NATALEN

D:\PROJECTS\BROOKS\CLOMAR\BROOKS-CLOMR-AnnFIRM