SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

Carlie & Karen M. James
151 Kelley James Lane
West Union, WV 26456

9590 9402 2228 6193 5135 45

2. Article Number *(Transfer from service label)*

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X Karen James ☐ Agent ☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery 3-5-18

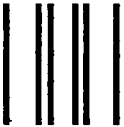
D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

USPS TRACKING#

9590 9402 2228 6193 5135 45



First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

Doddridge County OEM/CFM
George Eidel
105 Court Street, Suite 3
West Union, WV 26456

18-504

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

Lonnie C. James
5813 Long Run Road
Pennsboro, WV 26415

9590 9402 2228 6193 5135 14

2. Article Number *(Transfer from service label)*

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Lonnie James ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

Douglas C. James
5716 Long Run Road
Greenwood, WV 26415

9590 9402 2228 6193 5135 38

2. Article Number *(Transfer from service label)*

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Douglas James ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

Michael Shepherd
4362 Long Run Road
Greenwood, WV 26415

9590 9402 2228 6193 5135 21

2. Article Number *(Transfer from service label)*

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

7017 1450 0001 5869 6282

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

OFFICIAL USE FEMA Flood plain

Certified Mail Fee	$ 3.35
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$ 2.75
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ .49
Total Postage and Fees	$ 6.59

Postmark Here

Sent To: Douglas C. James
Street and Apt. No., or PO Box No.: 5716 Long Run Rd.
City, State, ZIP+4®: Greenwood, WV 26415 18-504

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 1450 0001 5869 6268

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

OFFICIAL USE

Certified Mail Fee	$ 3.35
Extra Services & Fees (check box, add fee as appropriate)	
☒ Return Receipt (hardcopy)	$ 2.75
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ .49
Total Postage and Fees	$ 6.59

Postmark Here — WEST UNION, WV — MAR — USPS 26456-9998

Sent To: Lonnie C. James
Street and Apt. No., or PO Box No.: 5813 Long Run Rd.
City, State, ZIP+4®: Pennsboro, WV 26415 18-504

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 1450 0001 5869 6299

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

OFFICIAL USE

Certified Mail Fee	$ 3.35
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$ 2.75
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ .49
Total Postage and Fees	$ 6.59

Postmark Here

Sent To: Michael Shepherd
Street and Apt. No., or PO Box No.: 4362 Long Run Rd.
City, State, ZIP+4®: Greenwood, WV 26415 18-504

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 1450 0001 5869 6275

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

OFFICIAL USE

Certified Mail Fee	$ 3.35
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$ 2.75
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ .49
Total Postage and Fees	$ 6.59

Postmark Here — WEST UNION, WV — MAR — USPS 26456-9998

Sent To: Carlie & Karen M. James
Street and Apt. No., or PO Box No.: 151 Kelly James Ln.
City, State, ZIP+4®: West Union, WV 26456 18-504

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

Floodplain Development Permit

Doddridge County, WV Floodplain Management

This permit gives approval for the development/ project listed that impacts the FEMA-designated floodplain and/or floodway of Doddridge County, WV, pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance. This permit must be posted at the site of work as to be clearly visible and must remain posted during entirety of development.

Permit #: 18-504

Date Approved: April 2, 2018 **Expires: April 2, 2019**

Issued to: Antero Resources Corporation **POC: Rachel McKinney**

Company Address: 535 White Oaks Blvd. Bridgeport, WV 26330

Project Address: Ramsey's Ridge

Firm: 54017C0105C **Lat/Long: 39.324403N,-80.833417W**

Purpose of development: Road Upgrade and Temporary Bridge

Issued by: George C. Eidel, Doddridge County FPM (*or designee*)

George C Eidel

Date: April 2, 2018

For additional information regarding this permit, please contact Doddridge County Floodplain Manager at 304.873.1343, or via email at doddridgecountyfpm@gmail.com
105Court Street Suite3; West Union, WV 26456

ANTERO RESOURCES
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Vendor Name	Vendor No.	Date	Check Number	Check Total
DODDRIDGE COUNTY COMMISSION	43312	Mar-21-2018	177753	$850.00

INV #	INV DATE	DESCRIPTION	AMOUNT	DISCOUNTS	NET AMOUNT
SR03212018	03/21/18	FLOODPLAIN PERMIT RAMSEY'S RIDGE PH	850.00	0.00	850.00

FP# 18-504

APR 2 18 1:55PM

TOTAL INVOICES PAID ====> 850.00 0.00 850.00

DETACH AND RETAIN FOR TAX PURPOSES

THIS CHECK HAS A COLORED FACE ON WHITE STOCK AND AN ARTIFICIAL WATERMARK ON THE BACK.

ANTERO RESOURCES
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Wells Fargo
Denver, CO

AP - 400

Check No. **177753** 11-24 / 412

Void After 90 Days

CHECK NUMBER	DATE	PAY EXACTLY
177753	Mar-21-2018	$850.00

PAY EXACTLY $850dols00cts
Eight Hundred Fifty Dollars and Zero Cents

TO THE ORDER OF
DODDRIDGE COUNTY COMMISSION
118 E COURT ST STE 1~
WEST UNION, WV 26456

⑈177753⑈ ⑆041203824⑆ 9647481952⑈

ANTERO RESOURCES
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Vendor Name	Vendor No.	Date	Check Number	Check Total
DODDRIDGE COUNTY COMMISSION	43312	Mar-21-2018	177753	$850.00

INV #	INV DATE	DESCRIPTION	AMOUNT	DISCOUNTS	NET AMOUNT
SR03212018	03/21/18	FLOODPLAIN PERMIT RAMSEY'S RIDGE PH	850.00	0.00	850.00

FP# 18-504

APR 2 18 1:55PM

Doddridge County, West Virginia

RECEIPT NO: 617 DATE: 2018/04/02

FROM: ANTERO RESOURCES **AMOUNT:** $ 850.00

EIGHT HUNDRED FIFTY DOLLARS AND 00 CENTS

FOR: #18-504 FLOODPLAIN PERMIT RAMSEY'S RIDGE

00000177753 FP-BUILDING PERMITS 020-318 **TOTAL:** $850.00

MICHAEL HEADLEY
SHERIFF &TREASURER

MEC
CLERK

Customer Copy

DETACH AND RETAIN FOR TAX PURPOSES

FLOODPLAIN PERMIT #18-504

Antero Resources/Ramsey's Ridge Road Phase II Road upgrade

TASK	COMPLETE (DATE)	NOTES
CHECK RECEIVED	4/2/18	
US ARMY CORP. ENGINEERS (USACE)	4/2/18	
US FISH & WILDLIFE SERVICES (USFWS)		
WV DEPT. NATURAL RESOURCES (WVDNR)		
WV DEPT. ENVIROMENTAL PROTECTION (WVDEP)	4/2/18	
STATE HISTORIC & PRESERVATION OFFICE (SHPO)		
OFFICE of LAND & STREAM (OLS)		
DATE OF COMMISSION READING	3/6/18	
DATE AVAILABLE TO BE GRANTED	3/26/18	
PERMIT GRANTED	4/2/18	
COMPLETE	4/2/18	

7017 1450 0001 5869 6268

7017 1450 0001 5869 6275

7017 1450 0001 5869 6282

7017 1450 0001 5869 6299

WV DOT Permit 4/2/18

Doddridge County Floodplain Permits

(Week of February 26, 2018)

Please take notice that on the **21st** day of **February, 2018, Antero Resources** filed an application for a Floodplain Permit **(#18-504)** to develop land located at or about **Ramsey's Ridge Road, Coordinates 39.324403 N, -80.833417 W**. The Application is on file with the Clerk of the County Court and may be inspected or copied during regular business hours. Any interested persons who desire to comment shall present the same in writing by **March 26, 2018** (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Clerk of the County Court at 108 Court Street Ste. 1, West Union, WV 26456. **This project is Road upgrade and temporary bridge.**

Permit# 18-504
Project Name: Ramseys Ridge Phase II Road Upgrade
Permittees Name: Antero Resources

Doddridge County, WV

FEB21 18 3:04PM

Floodplain Development Permit Application

This document is to be used for projects that impact/potentially impact the FEMA---designated floodplain and/or floodway of Doddridge County, WV pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance.

SECTION 1: GENERAL PROVISIONS (APPLICANT TO READ AND SIGN)

1. No work may start until a permit is issued.
2. The permit may be revoked if any false statements are made herein.
3. If revoked, all work must cease until permit is re-issued.
4. Development shall not be used or occupied until a Certificate of Compliance is issued.
5. The permit will expire if no work is commenced within six months of issuance.
6. Applicant is hereby informed that other permits may be required to fulfill local, state, and federal requirements.
7. Applicant hereby gives consent to the Floodplain Administrator/Manager or his/her representative to make inspections to verify compliance.
8. I THE APPLICANT CERTIFY THAT ALL STATEMENTS HEREIN AND IN ATTACHMENTS TO THIS APPLICATION ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND ACCURATE.

APPLICANT'S SIGNATURE _____

DATE 2/15/18

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Applicant Information:

Please provide all pertinent data.

Applicant Information		
Responsible Company Name: Antero Resources Corporation		
Corporate Mailing Address: 1615 Wynkoop Street		
City: Denver	**State: CO**	**Zip: 80202**
Corporate Point of Contact (POC):		
Corporate POC Title:		
Corporate POC Primary Phone:		
Corporate POC Primary Email:		
Corporate FEIN:	**Corporate DUNS:**	
Corporate Website: www.anteroresources.com		
Local Mailing Address: 535 White Oaks Blvd		
City: Bridgeport	**State: WV**	**Zip: 26330**
Local Project Manager (PM):		
Local PM Primary Phone:		
Local PM Secondary Phone:		
Local PM Primary Email:		
Person Filing Application: Rachel McKinney		
Applicant Title: Environmental Specialist II		
Applicant Primary Phone: (304) 842-4008		
Applicant Secondary Phone: (304) 641-2396		
Applicant Primary Email: rmckinney@anteroresources.com		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Project Narrative:

Describe in detail the proposed development including project name/title, type of development, estimated start and completion timeline, and its potential impact on the floodplain. Use additional copies of this page as needed.

Project Narrative:
The Ramsey's Ridge Road Phase II Upgrade Project is a proposed road improvement of the
northern end of County Route 11/1 (Ramsey's Ridge Road) to access the Mudlick Pad.
The proposed work also involves the construction of a temporary bridge and access road over
Long Run. This portion of the proposed project is located within the Long Run Zone A Flood
Hazard area, according to the Flood Insurance Rate Map (FIRM) for Doddridge County, Map Panel
54017C0105C with a map revised date of October 4, 2011. A hydraulic study was completed
for this project. Please see the included "Long Run Hydraulic and Hydrologic Study".

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Proposed Development:

Please check all elements of the proposed project that apply.

DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)

A. STRUCTURAL DEVELOPMENT

	ACTIVITY		STRUCTURAL TYPE
[]	New Structure	[]	Residential (1 – 4 Family)
[]	Addition	[]	Residential (more than 4 Family)
[]	Alteration	[]	Non-residential (floodproofing)
[]	Relocation	[]	Combined Use (res. & com.)
[]	Demolition	[]	Replacement
[]	Manufactured/Mobil Home		

B. OTHER DEVELOPLMENT ACTIVITIES:

[] Fill [] Mining [] Drilling [] Pipelining
[] Grading
[] Excavation (except for STRUCTURAL DEVELOPMENT checked above)
[] Watercourse Alteration (including dredging and channel modification)
[] Drainage Improvements (including culvert work)
[x] Road, Street, or Bridge Construction
[] Subdivision (including new expansion)
[] Individual Water or Sewer System
[] Other (please specify)

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 1 of 3

Site/Property Information:		
Legal Description: ARNOLDS CREEK 69.09 AC (SURF) ¼ O&G 80 AC		
Physical Address/911 Address: ROUTE 26		
Decimal Latitude/Longitude: 39.324403, -80.833417		
DMS Latitude/Longitude: 39°19'27.85"N, 80°50'0.30"W		
District: 01	**Map: 04**	**Parcel: 7**
Land Book Description:		
Deed Book Reference: Deed Book 197, Page 358		
Tax Map Reference: 09 01 0004 0007 0000		
Existing Buildings/Use of Property: WOODED, HOUSE		

Floodplain Location Data: ***(to be completed by Floodplain Manager or designee)***			
Community:	**Number:**	**Panel:**	**Suffix:**
Location (Lat/Long):		**Approximate Elevation:** **Estimated BFE:**	
Is the development in the floodway? ☐ **Yes** ☐ **No**		**Is the development in the floodplain?** ☐ **Yes** ☐ **No** **Zone:** _____	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: __2__ of __3__

Site/Property Information:		
Legal Description: 4.59 AC LONG RUN		
Physical Address/911 Address: RT 11 OVER 1		
Decimal Latitude/Longitude: 39.323386, -80.833853		
DMS Latitude/Longitude: 39°19'24.19"N, 80°50'1.87"W		
District: 01	**Map: 04**	**Parcel: 7.1**
Land Book Description:		
Deed Book Reference: Deed Book 188, Page 90		
Tax Map Reference: 09 01 0004 0007 0001 0000		
Existing Buildings/Use of Property: EMPTY LOT		

Floodplain Location Data: ***(to be completed by Floodplain Manager or designee)***			
Community:	**Number:**	**Panel:**	**Suffix:**
Location (Lat/Long):		**Approximate Elevation:** **Estimated BFE:**	
Is the development in the floodway? ☐ **Yes** ☐ **No**		**Is the development in the floodplain?** ☐ **Yes** ☐ **No** **Zone: _____**	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 3 of 3

Site/Property Information:		
Legal Description: ARNOLDS CREEK 119.96 AC		
Physical Address/911 Address: ROUTE 11 OVER 1		
Decimal Latitude/Longitude: 39.318222, -80.837178		
DMS Latitude/Longitude: 39°19'05.60"N, 80°50'13.84"W		
District: 01	**Map: 04**	**Parcel: 11.1**
Land Book Description:		
Deed Book Reference: Deed Book 232, Page 152		
Tax Map Reference: 09 01 0004 0011 0001		
Existing Buildings/Use of Property: WOODED, HOUSE		

Floodplain Location Data: ***(to be completed by Floodplain Manager or designee)***			
Community:	**Number:**	**Panel:**	**Suffix:**
Location (Lat/Long):		**Approximate Elevation:** **Estimated BFE:**	
Is the development in the floodway? ☐ **Yes** ☐ **No**		**Is the development in the floodplain?** ☐ **Yes** ☐ **No** **Zone: _____**	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: __1__ of _3__

Property Owner Data:		
Name of Primary Owner (PO): CARLIE AND KAREN M. JAMES		
PO Address: 151 KELLEY JAMES LANE		
City: WEST UNION	**State: WV**	**Zip: 26456**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: ***(As Applicable)***		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: 2 of 3

Property Owner Data:		
Name of Primary Owner (PO): CARLIE JAMES		
PO Address: 151 KELLEY JAMES LANE		
City: WEST UNION	**State: WV**	**Zip: 26456**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: ***(As Applicable)***		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: 3 of 3

Property Owner Data:		
Name of Primary Owner (PO): MICHAEL SHEPHERD		
PO Address: 4362 LONG RUN ROAD		
City: GREENWOOD	**State: WV**	**Zip: 26415**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: ***(As Applicable)***		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Contractor Data:

Please provide all pertinent data for contractors and sub---contractors that may be participating in this project. Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: ____ of ____

Contractor/Sub-Contractor (C/SC) Information:		
C/SC Company Name:		
C/SC WV License Number:		
C/SC FEIN:	**C/SC DUNS:**	
Local C/SC Point of Contact (POC):		
Local C/SC POC Title:		
C/SC Mailing Address:		
City:	**State:**	**Zip-Code:**
Local C/SC Office Phone:		
Local C/SC POC Phone:		
Local C/SC POC E-Mail:		

Engineer Firm Information:		
Engineer Firm Name:		
Engineer WV License Number:		
Engineer Firm FEIN:	**Engineer Firm DUNS:**	
Engineer Firm Primary Point of Contact (POC):		
Engineer Firm Primary POC Title:		
Engineer Firm Mailing Address:		
City:	**State:**	**Zip-Code:**
Engineer Firm Office Phone:		
Engineer Firm Primary POC Phone:		
Engineer Firm Primary POC E-Mail:		

Adjacent and/or Affected Landowners Data

Please provide data for all adjacent and/or affected surface owners (both up and down stream) whose property may be impacted by proposed development as demonstrated by a floodplain study or survey. Use additional copies of this page as needed.

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO): LONNIE C. JAMES		
Physical Address: 5813 LONG RUN ROAD		
City: PENNSBORO	**State: WV**	**Zip: 26415**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO):		
Physical Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): DOUGLAS C. JAMES		
Physical Address: 5716 LONG RUN ROAD		
City: GREENWOOD	**State: WV**	**Zip: 26415**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO):		
Physical Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Site Plan

A Site Plan is an accurate and detailed map of the proposed development for this project. It shows the size, shape, location and special features of the project property, and the size and location of any development planned to the property, especially as that development will impact the floodplain and/or floodway. Site plans show what currently exists on the project property, and any changes or improvements you are proposing to make. **A certified and licensed engineering firm should complete site plans.**

A SITE PLAN MUST CONTAIN THE FOLLOWING INFORMATION:

1. Legal description of the parcel, north arrow and scale
2. All property lines and their dimensions
3. Names of adjacent roads, location of driveways
4. Location of sloughs, tributaries, streams, rivers, wetlands, ponds, and lakes, with setbacks indicated, and including FEMA floodplain data based on most updated FIRM.
5. Location, size, shape of all buildings, existing and proposed, with elevation of lowest floor indicated.
6. Location and dimensions of existing or proposed on-site sewage systems.
7. Location of all propane tanks, fuel tanks or other liquid storage tanks whether above ground or below ground level.
8. Location and dimensions of any proposed pipeline placement(s) into floodplain/floodway.
9. Location and dimensions of any roadway development into floodplain/floodway. *(Includes initial development access roads)*
10. Location and dimensions of any bridge and/or culvert development into floodplain/floodway.
11. Location and dimensions of any storage yard or facility into the floodplain/floodway.
12. Location of any existing utilities and/or proposed utility placement and/or displacement.
13. Location, dimensions and depth of any existing or proposed fill on site.
14. A survey showing the **existing ground elevations** of at least location on the building site. **ELEVATION NOTE**: All vertical datum will reference either NGVD 29 or NAVD 88. Assumed datum will not be acceptable unless the property is located in an area where vertical datum has not been published. For those areas where vertical datum has not been established, a site plan with contours, elevations using assumed datum, high water marks and existing water levels of sloughs, rivers, lakes or streams and proposed lowest floor elevation.

Applicant

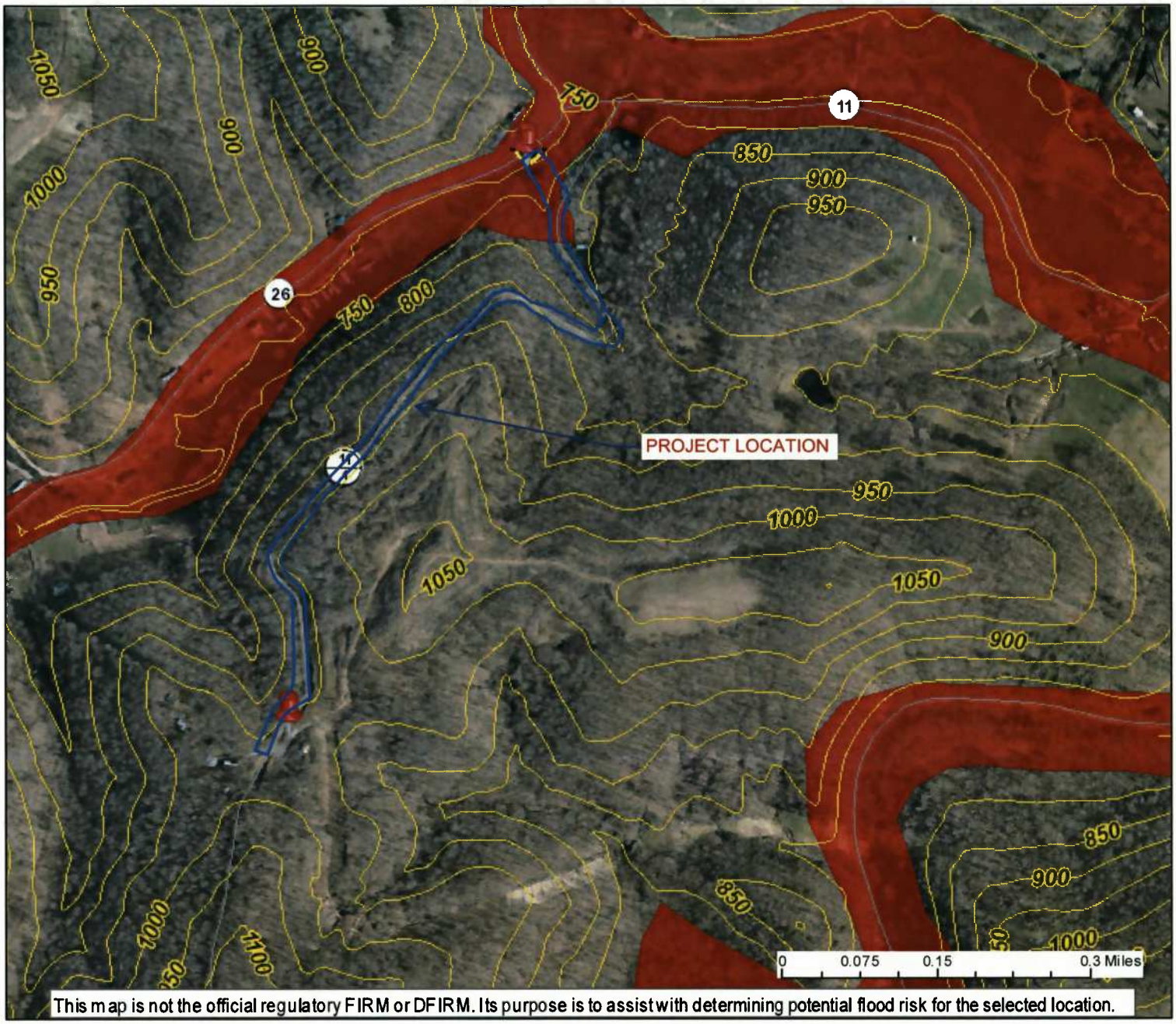
Please read print name, sign and date below:

- I certify that I am authorized to submit this application for the primary project developer.
- I certify that the information included in this application is to the best of my knowledge true and complete.
- I certify that all required Federal, State, and local permits required by law and/or ordinance for the above described development of this project have been properly attained, are current and valid, and must be presented with this application before a Doddridge County Floodplain Permit may be issued.
- I understand that if in the course of the development project additional permits become required that were not needed during the initial proposal, the primary developer must notify the Doddridge County Floodplain Manager within 48 hours of such need, and that a "Stop Work" order may be issued for all project work directly impacting the floodplain or floodway, until such time the required additional permits are acquired.
- I understand that once the floodplain permit is submitted, the application will be entered into official public record at the next regularly scheduled Doddridge County Commission meeting after the date of submittal.
- I understand that from the date of submittal of the fully completed permit application, the Doddridge County Floodplain Manager has ninety (90) days to make a determination to either grant or deny said permit application. During this approval period, the Doddridge County Floodplain Manager may, at his or her discretion, conduct a review and/or additional study of provided documentation by means of an independent engineering firm. All costs associated with said review and/or study must be reimbursed to the County before issuance of approved permit.
- I understand that during the approval period, the Doddridge County Floodplain Manager of designee may at his or her discretion conduct site visits and document conditions of proposed development pursuant to the permit application.
- I understand that once the Floodplain Permit is granted, the permit will be entered into official public record at the next scheduled Doddridge County Commission meeting after the date of issuance. Appeals to the permit may be made no later than twenty (20) days after said issuance. If a valid appeal is submitted, as determined by the Doddridge County Floodplain Manager, a "Stop Work" order will be issued for all project development directly involving the floodplain or floodway. A public hearing by the Doddridge County Appeals Board will be scheduled no less than ten (10) days after the next regularly scheduled Doddridge County Commission meeting.
- I understand that all decisions of the Doddridge County Appeals Board shall be final.
- **I understand issuance of a Floodplain Permit authorizes me to proceed with construction as proposed. A Certificate of Compliance is required upon substantial completion of the project.**
- In signing this application, the primary developer hereby grants the Doddridge County Floodplain Manager or designee the right to enter onto the above---described location to inspect the development work proposed, in progress, and/or completed.
- I understand that if I do not follow exactly the site---plan submitted and approved by this permit that a "Stop Work" order may be issued by the ~~Wirt~~ Doddridge County Floodplain Manager and that I must stop all construction immediately until discrepancies of actual work vs. proposed work is resolved.

Applicant Signature: L. Shelton Barger, Jr. Date: 2/15/18

Applicant Printed Name: L. Shelton Barger, Jr.

WV Flood Map



User Notes:
Antero Resources Corporation
Ramsey's Ridge Road Phase II Upgrade
AFE# A04736

Flood Hazard Zone

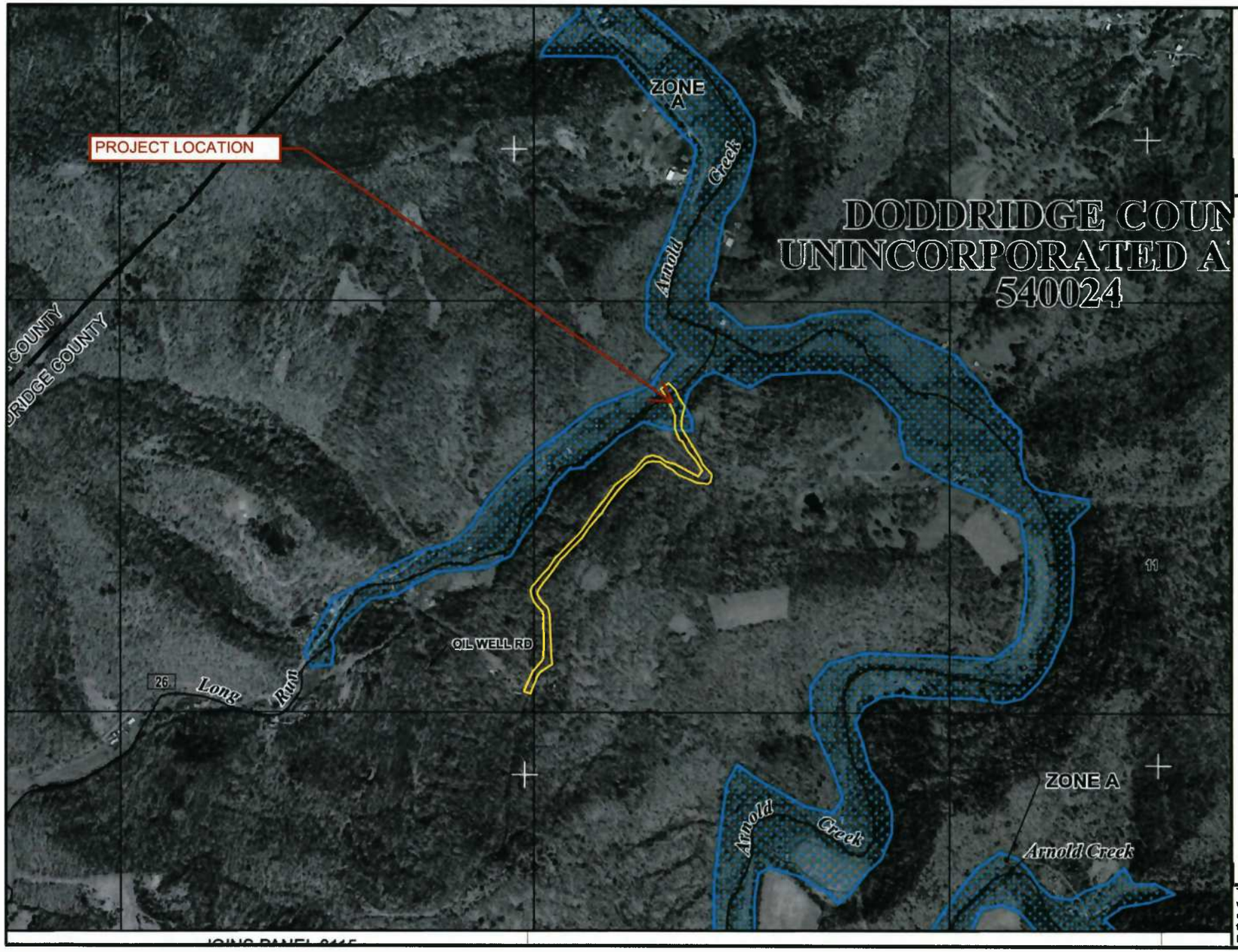
Flood Point of Interest

Disclaimer:
The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. To obtain more detailed information in areas where Base Flood Elevations have been determined, users are encouraged to consult the latest Flood Profile data contained in the official flood insurance study. These studies are available online at www.msc.fema.gov.
WV Flood Tool (http://www.MapWV.gov/flood) is supported by FEMA, WV NFIP Office, and WV GIS Technical Center.

Map created on February 8, 2018

Flood Hazard Area:
Flood Hazard Area: Location is WITHIN the FEMA 100-year floodplain.

FEMA Issued Flood Map:	54017C0105C
Watershed (HUC8):	Little Musringum-Middle Island (5
Elevation:	About 753 ft
Location (long, lat):	(80.833805 W,39.324512 N)
Location (UTM 17N):	(514325, 4352801)
Contacts:	Doddridge
CRS Information:	N/A
Parcel Number:	No Parcel



MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0105C

FIRM

FLOOD INSURANCE RATE MAP

DODDRIDGE COUNTY, WEST VIRGINIA AND INCORPORATED AREAS

PANEL 105 OF 325

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DODDRIDGE COUNTY	540024	0105	C

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
54017C0105C

MAP REVISED
OCTOBER 4, 2011

Federal Emergency Management Agency

west virginia department of environmental protection

Division of Water and Waste Management
601 57th Street SE
Charleston, West Virginia 25304-2345
Phone: 304-926-0495
Fax: 304-926-0496

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

March 29, 2018

TYLER THIGPEN
ANTERO RESOURCES APPALACHIAN CORPORATION
1615 WYNKOOP ST
DENVER, CO 80202

APR 2 18 11:17AM

Re: General Permit Registration No. WVR310973
Ramsey's Ridge Road Phase II, Doddridge County,
Disturbed Acres (5.15)

Dear Permittee:

Attached is a copy of your completed registration form for your activity with the above assigned registration number. You are now authorized to operate under General Permit No. WV0116815. This registration form should be kept with your copy of the General Permit. You should carefully read the contents of the permit and become familiar with all requirements needed to remain in compliance.

Although you should be aware of all the terms and conditions of this permit, we wish to advise you of the following important requirements:

1. In accordance with Section G.4 of the General Permit, you have developed a complete storm water pollution prevention plan. This plan is to be retained on site and be available for review by the Director or the Director's authorized representative as of the date of your coverage by the General Permit, which is the date of this letter.

2. The erosion control measures approved by this agency for this project shall be maintained in proper condition to individually and collectively perform the functions for which they were designed. In order to ensure the efficiency and proper maintenance of these measures, the permittee shall make sufficiently frequent, periodic inspections to detect any impairment of the designed stability, capacity or environmental requirements of the approved measures. The permittee shall take immediate steps to correct any such impairment found to exist.

3. If this Stormwater Pollution Prevention Plan (SWPPP) proves to be ineffective in controlling erosion and the sediment in storm water discharges associated with industrial/construction activities, or site conditions change, the Permittee shall amend the SWPPP and install appropriate sediment and/or control devices in accordance with Section G.4.c) of this permit and the application instructions

4. The current General Permit expires on May 13, 2018. If you wish to continue an activity regulated by this permit after the expiration date of the permit, provisions for coverage will be made during the public notice process for any new General Permit to be issued at that time.

5. Final stabilization means disturbed areas shall be covered by the appropriate permanent protection. Final stabilization includes: pavement; buildings; stable waterways (riprap, concrete, grass or pipe); a healthy, vigorous stand of perennial grass that uniformly covers at least 70 percent of the ground; stable outlet channels with velocity dissipation which directs site runoff to a natural watercourse; and any other approved structure or material.

Your annual permit fee has been assessed as $250.00. You will be invoiced by this agency one month prior to the anniversary date of your original approval date. Failure to submit the annual fee within 90 days of the due date will render your permit void upon the date you are mailed a certified written notice to that effect. Please be advised that a pro-rated annual permit fee may be assessed upon the completion date and proper stabilization.

Issuance of this approval of the General Permit registration does not authorize any injury to persons or property or invasion of other private rights, or any infringement of federal, state or local law or rules.

The validity of this General Permit Registration is contingent upon payment of the applicable annual permit fee, as required by Chapter 22, Article 11, Section 10 of the Code of West Virginia.

Your efforts toward preventing the degradation of our natural resources are greatly appreciated. If you have any questions, please contact Sharon Mullins of this Division at (304) 926-0499 extension 1132 or at sharon.a.mullins@wv.gov.

Scott G. Mandirola
Director
WV DEP-Division of Water & Waste Mgt.
601 57th St SE
Charleston, WV 25304-2345
Phone: (304) 926-0495
Fax: (304) 926-0463

04-2017-1020

WEST VIRGINIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
AGREEMENT
ANTERO RESOURCES
DODDRIDGE COUNTY ROUTE 11/1

APR 2 18 11:18AM

THIS AGREEMENT, executed in duplicate, made and entered into this 15 day of November 20 17, by and between the West Virginia Department of Transportation, Division of Highways, hereinafter called "Department," and Antero Resources, 1615 Wynkoop St., Denver, CO 80202, hereinafter called "Company,"

WHEREAS, to improve access to oil and gas operations in the vicinity of Ramsey's Ridge in Doddridge County, West Virginia, Company desires to improve a portion of County Route 11/1 by performing certain construction activities within and adjacent to Department's right-of-way; and

WHEREAS, Department considers it to be in the public interest to cooperate with Company to facilitate Company's implementation of the highway improvement, as it pertains to the State Highway System;

NOW, THEREFORE, in consideration of the faithful performance of each party of the mutual covenants hereinafter set forth, Department and Company agree as follows:

I. Company shall first obtain Department's approval regarding the proposed activities Company desires to implement within or which directly or indirectly affect the State Highway System, and Company shall comply with the provisions described throughout this Agreement. Company acknowledges that execution of this Agreement does not constitute Department's approval of any part of Company's proposed work nor does execution of this Agreement represent Department's Notice to Proceed. Further, Company acknowledges that any work performed by Company, including work solely within Company's property that will directly or indirectly affect Department's right-of-way, prior to receipt of Department's approval and notice to proceed with work pertaining to the State Highway System, is performed by Company with the understanding that subsequent review by Department of Company's plans and studies may result in necessary additional modifications to be performed at no cost to Department.

II. Unless otherwise directed by Department, Company is to submit for Department's review and approval appropriate construction plans and related documents, including appropriate right-of-way, utility, and maintenance of traffic plans, which collectively are referred to as the "Plans," prepared in accordance with Department's Directives, criteria, guidelines and publications, for the performance of work that will occur within or that will directly affect Department's right-of-way of affected County Route(s). Department's approvals shall be in writing. Unless otherwise directed by Department, Company shall provide Department with five (5) copies of the approved Plans and as-built Plans, as appropriate.

III. The scope of Company's work, hereinafter called "Project," as it pertains to the State Highway System, is to consist primarily of, but may not be limited to the following:

- CR 11/1 – MP 2.54 to MP 1.88 – Full Depth Reclamation (12in soil cement) with 2in asphalt resurfacing in accordance with plans submitted by Triple H Enterprises received 10/16/2017.

IV. After receipt of Department's written approval of the Plans pertaining to the State Highway System and Department's authorization to proceed with construction and related work, Company then shall be authorized to construct Project as shown on the approved Plans, in accordance with Department's Standard Specifications Roads and Bridges, adopted 2017, at no cost to Department. Company shall complete Project within one year of the date of this agreement. For duration of Project, Company shall be responsible for providing full-time construction inspection, materials

acceptance, and traffic control. Department's authorization to proceed is contingent upon receipt of any Federal Highway Administration approval and authorization that may be required and upon Company's compliance with the other stipulations and requirements set forth herein.

V. Prior to construction of Project, Department and Company shall review and document, as appropriate, the existing condition of the State Highway System to be affected by Project, and Department shall be notified of Company's anticipated construction schedule and Department shall have the right at all times to inspect the work pertaining to Project. If the results of Department's inspection indicate that the work is not being performed in accordance with the approved Plans and/or specifications, Department then will report such fact to Company for appropriate remedial action. Department shall perform an inspection of the work within thirty (30) days after receipt by Department of notice from Company that the work is complete. Upon completion of said inspection, Department shall, in writing, accept the completed work associated with Project or reject the work. If rejected, any deficiencies in the construction performed by Company, which are disclosed by Department's inspection, shall be promptly corrected by and at the expense of Company. Without limiting any other legal remedies of Department, if within a reasonable time after notice to Company of any deficiencies in the work, Company fails or refuses to correct any deficiencies and complete the work as provided in the approved Plans, Department may, but is not required to, correct the deficiencies and complete the work in accordance with the approved Plans. Department may invoice Company for all costs associated therewith, and Company agrees in that event to reimburse Department for all such costs within thirty (30) days of receipt of such invoice. Neither Department's review of Company's Plans nor its inspection of Company's construction relieves Company of the duty imposed by West Virginia Code Section 17-16-1 et seq. to refrain from casting water upon the public road.

VI. Company shall secure the approvals and/or permits, if any, required by other governmental agencies, and shall comply with all applicable Federal, State, and local environmental regulations including, but not limited to, the National Environmental Policy Act, Section 404 of the Clean Water Act, Section 106 of the National Historic Preservation Act, Rare, Threatened and Endangered Species Act, State 401 Water Quality Certification, and hazardous waste requirements. Company shall furnish Department with acceptable documentation of such approvals, permits, and compliance.

VII. Company's implementation of Project may necessitate the conveyance to Department of additional right-of-way and/or easements. Any additional right-of-way and any easements necessary for Project shall be clearly indicated on the approved Plans, which Plans may include separate Right-of-Way plans that are to be prepared by Company in accordance with Department's Design Directives. Prior to Department's acceptance of construction of Project, Company shall convey to Department, or shall cause to be conveyed to Department, any additional right-of-way and any easements associated with Project, free and clear of all encumbrances with covenants of general warranty. Company shall provide for Department's review and approval appropriate deed descriptions and plats necessary to allow said conveyance of right-of-way. After the deed descriptions and plats have been approved by Department, Department then shall prepare and subsequently record the Deed(s) regarding conveyance.

VIII. Company shall be responsible, at no cost to Department, for all necessary installation, relocation or adjustment of utilities associated with Project. All utility work within Department's existing and proposed right-of-way shall be performed in accordance with the West Virginia Division of Highways manual entitled, "Accommodation of Utilities on Highway Right of Way and Adjustment and Relocation of Utility Facilities on Highway Projects, June 2007," or later version. Prior to any conveyance to Department of any right-of-way or easements associated with Project, Company shall not install or allow to be installed any utilities within the area that is to be conveyed to Department. If Company installs or allows to be installed any such utility prior to conveyance to Department of the right-of-way or easements associated with Project, Company shall provide to Department a written commitment that Company and any successors or assigns of Company shall be fully responsible for all financial obligations regarding any relocation of such utility that may be necessary in the future as part of any project implemented by Department.

IX. In the performance of Company's work, no construction equipment shall be permitted on the travel lanes or shoulders of any County Routes, except as shown on Plans approved by Department. Company shall submit for Department's approval as part of Plans Company's maintenance of traffic

plans regarding all affected highways. Company shall provide Department with documentation that Company has appropriately coordinated Project implementation and traffic control with any affected County Board of Education concerning school bus traffic and with all public transit agencies and 911 Centers affected by Project. After approval of Plans by Department and for duration of Project, Company shall:

A. Implement such maintenance of traffic plan;
B. Ensure that public travel is adequately maintained within the Project limits;
C. Ensure that access to all other properties within Project construction limits is maintained at all times;
D. Coordinate traffic control, as necessary and appropriate, with any events, festivals, sporting events or other similar activities, public or private, that may be affected by Company's construction of Project; and
E. Promptly repair, at Company's total expense, any and all damage to the State Highway System that is directly attributable to Company's implementation of Project.

Company shall identify as part of the Plans and submit for Department's approval any anticipated temporary closure of any lane(s) of any State highway associated with the implementation of Project. In the event that Company's implementation of Project results in the closure of any lane(s) of any State highway, which closure is not identified on the Plans as approved by Department, Company then shall:

A. Pay one hundred percent (100%) of the cost associated with the manufacture and/or installation of all signing and other traffic control devices Department installs to address the closure;
B. Provide the name and phone number of Company's contact person regarding Project, which shall be provided to the public so that Company may timely address questions and concerns of the public regarding such closure; and
C. Pay one hundred percent (100%) of the cost associated with notice to local media and any other public notice Company must provide to notify the public of the closure, the purpose of the closure, the anticipated duration of the closure, and the alternate routing that may be used during closure.

X. To the fullest extent permitted by law, Company at all times do, and shall, assume all risks of damage to its property, and property of others, and injury or death to all persons (including, but not limited to, any employee or agent of Company, any Contractor or any Subcontractor) resulting directly, indirectly or otherwise by (a) the actions or omissions of Company, any Contractor or any Subcontractor, or their respective agents and employees, (b) by any condition of the property, (c) by any failure of Company, any Contractor or any Subcontractor, or their respective agents and employees, to comply with any applicable law, rule, regulations or order of any governmental authority, or to comply with any provision of this Agreement, or (d) by any other cause related to Company's, any Contractor's or any Subcontractor's performance of work hereunder, including maintenance of the roadway or failure to maintain the roadway as required by this Agreement. Company at all times hereby fully assumes the risk of and shall defend, indemnify and hold harmless the Department, its officers, employees and agents (the Department and such persons collectively "Department's Indemnified Persons"), and shall reimburse Department's Indemnified Persons for, from and against each and every demand, claim, suit, loss (which shall include any diminution in value), liability, damage, cost and expense (including, without limitation, interest, fines, penalties, and investigation, and any and all reasonable fees, disbursements and expenses of attorneys, accountants and other professional advisors) (collectively, "Losses") imposed on, incurred by or asserted against the Department's Indemnified Persons, (individually or jointly) directly or indirectly, relating to, resulting from, or arising out of Company's work, services, or other activities performed under this Agreement, including failure to maintain the roadway pursuant to the terms of this Agreement. These covenants of indemnity shall survive cancellation, termination, or expiration of this Agreement, Company hereby acknowledges that the allocation of risk set forth in this provision of the Agreement is a part of the consideration to be provided to Department by Commission for performance of this Agreement.

Upon written request by any Department Indemnified Persons, Company shall defend the same (if requested by any Department Indemnified Person, in the name of the Department Indemnified Person) by attorneys and other professionals approved by the Department Indemnified Persons. Notwithstanding the foregoing, any Department Indemnified Persons may, in their sole and absolute discretion, engage their own attorneys and other professionals to defend or assist them,

and, at the option of Department Indemnified Persons, their attorneys shall control the resolution of any claim or proceeding, provided that no compromise or settlement shall be entered without Company's consent, which consent shall not be unreasonably withheld. Upon written demand, Company shall pay or, in the sole and absolute discretion of the Department Indemnified Persons, reimburse, the Department Indemnified Persons for the payment of reasonable fees and disbursements of attorneys, accountants and other professional advisors in connection therewith.

XI. Company and its contractors and subcontractors, shall furnish evidence of having at least the minimum amounts of insurance required of the Contractor in Section 103.6 through and including Section 103.6.5 of the "West Virginia Division of Highways, Standard Specifications, Roads and Bridges, Adopted 2017," and supplements thereto for any work arising from, relating to or pertaining to, in any way, to the Project. Company shall also require that any contractor(s) and subcontractor(s) have a current license and be licensed to conduct business in West Virginia. The Company shall name the Department as an additional insured on all policies of insurance required by the aforementioned Specifications, except for worker's compensation. The Company shall also require that its contractor(s) and subcontractor(s) include the Department as an additional insured on all policies of insurance, except worker's compensation.

XII. This Agreement shall be binding upon the successors and assigns of each party thereto. After obtaining prior written consent of Department and after the bond requirements described in this Agreement have been fulfilled, this Agreement may be assigned by Company to any Affiliate or entity providing financing for the Project.

XIII. Division may terminate this Agreement upon thirty (30) days' written notice to Company. Upon termination, Company shall be liable only for payment in accordance with the terms of this Agreement for work performed prior to the effective date of termination and for any cost Division incurs to adequately restore the State Highway System to its previous condition.

XIV. Any and all matters in dispute between the parties to this Agreement, whether arising from or relating to the Agreement itself, or arising from alleged extra-contractual facts prior to, during, or subsequent to the Agreement, including, without limitation, fraud, misrepresentation, negligence or any other alleged tort or violation of the contract, shall be governed by, construed and enforced in accordance with the laws of the State of West Virginia, regardless of the legal theory upon which such matter is asserted.

IN WITNESS WHEREOF, the parties hereto have caused their respective names to be signed by their duly authorized officers.

ATTEST:

Title: OAII

WEST VIRGINIA
DEPARTMENT OF TRANSPORTATION,
DIVISION OF HIGHWAYS

By: Aaron C. Gillispie, P.E.
State Highway Engineer

ATTEST:

Title: Permitting Supervisor

ANTERO RESOURCES

By: Kevin Kilstrom
Senior VP of Production

(To be executed in duplicate)

Distribution: Master File
Company

APPROVED AS TO FORM THIS
6th DAY November 2017
ATTORNEY LEGAL DIVISION
WEST VIRGINIA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
1711029

DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO

November 13, 2017

Regulatory Division
Energy Resource Branch
LRH-2017-00920-OHR-Long Run

NATIONWIDE PERMIT NO. 14 VERIFICATION

Tyler Thigpen
Antero Resources Corporation
1615 Wynkoop Street
Denver, Colorado 80202

Dear Mr. Thigpen:

I refer to the Pre-Construction Notification (PCN) received in this office on October 30, 2017 concerning a proposal to discharge dredged and/or fill material into approximately 854 linear feet of eleven (11) streams, one (1) watershed, and two (2) ditches, at nine (9) single and complete location, in association with the Ramsey's Ridge Road Phase II project. The proposed project is located in Doddridge County, West Virginia approximately 3.6 miles northwest of West Union. Proposed stream impacts include Long Run and unnamed tributaries of Long Run. The site is located in the Long Run watershed. Long Run is a tributary of Arnold Creek, which is a tributary of Middle Island Creek (HUC# 05030201) of the Ohio River, a traditional navigable water. Your PCN has been assigned the following file number: LRH-2017-00920-OHR-Long Run. Please reference this number on all future correspondence related to this project.

The United States Army Corps of Engineers' (Corps) authority to regulate waters of the United States is based on the definitions and limits of jurisdiction contained in 33 CFR 328 and 33 CFR 329. Section 404 of the Clean Water Act (Section 404) requires a Department of the Army (DA) permit be obtained prior to discharging dredged or fill material into waters of the United States, including wetlands. Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires a DA permit be obtained for any work in, on, over or under a navigable water.

The proposed project, as described in the submitted information, has been reviewed in accordance with Section 404 and Section 10. Based on your description of the proposed work, and other information available to us, it has been determined that this project will not involve activities subject to the requirements of Section 10. However, this project will include the discharge of dredged or fill material into waters of the United States subject to the requirements of Section 404.

In the submitted PCN materials received in this office on October 30, 2017, you have requested a DA authorization for the discharge dredged and/or fill material into approximately 854 linear feet (0.374 acre) of 11 (11) streams, one (1) watershed, and two (2) ditches, at nine (9) single and complete project locations, in association with the Ramsey's Ridge Road Phase II project. We have determined these proposed discharge of dredged and/or fill material into waters of the United States associated with the nine (9) single and complete projects meet the criteria for Nationwide Permit Number (NWP) No. 14 under the January 6, 2017, Federal Register, Issuance of NWPs (82 FR 1860)

provided you comply with all terms and conditions of the enclosed material, the enclosed special conditions, and the 401 Water Quality Certification (401 WQC) issued by the West Virginia Department of Environmental Protection. Please be aware this NWP verification does not obviate the requirement to obtain any local, state or federal assent required by law for the activities.

This verification is valid until the expiration date of the NWPs, unless the NWP authorization is modified, suspended, or revoked. The verification will remain valid if the NWP authorization is reissued without modification or the activity complies with any subsequent modification of the NWP authorization. All of the existing NWPs are scheduled to be modified, reissued, or revoked on March 18, 2022. Prior to this date, it is not necessary to contact this office for re-verification of your project unless the plans for the proposed activity are modified. Furthermore, if you commence or under contract to commence this activity before March 18, 2022, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

Enclosed is a copy of the NWPs and the 401 WQC to be kept at the project site during construction. You shall supply a copy of these documents to your project engineer responsible for construction activities.

Upon completion of the work, the enclosed certification must be signed and returned to this office. If you have any questions concerning the above, please contact Erika Thorsell of the Energy Resource Branch at 304-399-6902, by mail at the above address, or by email at: Erika.L.Thorsell@usace.army.mil.

Sincerely,

FANNIN.ADAM.E.1386572271

Digitally signed by FANNIN.ADAM.E.1386572271
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=FANNIN.ADAM.E.1386572271
Date: 2017.11.13 15:01:13 -05'00'

Adam E. Fannin
Project Manager
Energy Resource Branch

Enclosures

cc (via e-mail):
Ernie Smith
AllStar Ecology, LLC
1582 Meadowdale Road
Fairmont, West Virginia 26554

SPECIAL CONDITIONS FOR THE NATIONWIDE PERMIT NO. 14 VERIFICATION FOR Ramsey's Ridge Road Phase II Project LRH-2017-00920-LKR

1 of 2

1. Enclosed is a copy of Nationwide Permit 14, which will be kept at the site during construction. A copy of the nationwide permit verification, special conditions, and the enclosed construction plans must be kept at the site during construction. The permittee will supply a copy of these documents to their project engineer responsible for construction activities.

2. Upon completion of the activity authorized by this nationwide permit verification, the enclosed certification must be signed and returned to this office along with as-built drawings showing the location and configuration, as well as all pertinent dimensions and elevations of the activity authorized under this nationwide permit verification.

3. Construction activities will be performed during low flow conditions to the greatest extent practicable. Additionally, appropriate site specific best management practices for sediment and erosion control will be fully implemented during construction activities at the site.

4. No area for which grading has been completed will be unseeded or unmulched for longer than 14 days. All disturbed areas will be seeded and/or revegetated with native species and approved seed mixes (where practicable) after completion of construction activities for stabilization and to help preclude the establishment of non-native invasive species

5. Should new information regarding the scope and/or impacts of the project become available that was not submitted to this office during our review of the proposal, the permittee must submit written information concerning proposed modification(s) to this office for review and evaluation, as soon as practicable.

6. In the event any previously unknown historic or archaeological sites or human remains are uncovered while accomplishing the activity authorized by this nationwide permit authorization, the permittee must cease all work in waters of the United States immediately and contact local, state and county law enforcement offices (only contact law enforcement on findings of human remains), the Corps at 304-399-5210 and West Virginia State Historic Preservation Office at 304-558-0220. The Corps will initiate the Federal, state and tribal coordination required to comply with the National Historic Preservation Act and applicable state and local laws and regulations. Federally recognized tribes are afforded a government-to-government status as sovereign nations and consultation is required under Executive Order 13175 and 36 CFR Part 800.

SPECIAL CONDITIONS FOR THE
NATIONWIDE PERMIT NO. 14 VERIFICATION FOR
Ramsey's Ridge Road Phase II Project
LRH-2017-00920-LKR

2 of 2

7. Section 7 obligations under Endangered Species Act must be reconsidered if new information reveals impacts of the project that may affect federally listed species or critical habitat in a manner not previously considered, the proposed project is subsequently modified to include activities which were not considered during Section 7 consultation with the United States Fish and Wildlife Service, or new species are listed or critical habitat designated that might be affected by the subject project.

RD-E-ELT

Permit Number: LRH -2017-00920-OHR-UNT to Long Run

Name of Permittee: Tyler Thigpen
Antero Resources Corporation
1615 Wynkoop Street
Denver, Colorado 80202

Date of Issuance: 11/13/2017

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

Huntington District
U.S. Army Corps of Engineers
502 8th Street
Huntington, West Virginia 25701-2070
Attn: RD-E-ELT

Please note that your permitted activity is subject to a compliance inspection by an United States Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

Antero Resources
535 White Oaks Blvd.
Bridgeport, WV 26330
Office 304.842.4100
Fax 304.842.4102

February 19, 2018

Doddridge County Commission
Attn: George Eidel, Doddridge County Floodplain Manager
108 Court Street, Suite 1
West Union, WV 26456

Mr. Eidel:

Antero Resources Corporation would like to submit a Doddridge County Floodplain permit application for our ***Ramseys Ridge Phase II Road Upgrade*** project. Our project is located in Doddridge County beginning at coordinates 39.3245N, 80.8338W and continuing to coordinates 39.3182N, 80.8372W. Per the FIRM Map #54017C105C, this location is **within** the floodplain.

Attached you will find the following:

FEB21 18 3:04PM

- Doddridge County Floodplain Permit Application
- WV Flood Tool Map
- FIRM Map
- Floodplain Analysis
- Design Plans

If you have any questions please feel free to contact me at (304) 842-4008.

Thank you in advance for your consideration.

Sincerely,

Rachel McKinney
Environmental Specialist II
Antero Resources Corporation

Enclosures

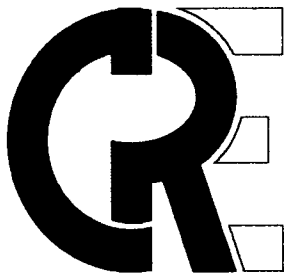
LONG RUN HYDRAULIC AND HYDROLOGIC STUDY

Prepared for:

Triple H Enterprises
9 James Street
West Union, WV
26456

Prepared by:

Cheat Road Engineering, Inc.
100 Hart Field Road, Suite 191
Morgantown, West Virginia 26505
Phone: (304) 212-5480 Fax: (304) 291-6975



Project No. 17-111

January 29, 2018

Contents

List of Figures

List of Tables

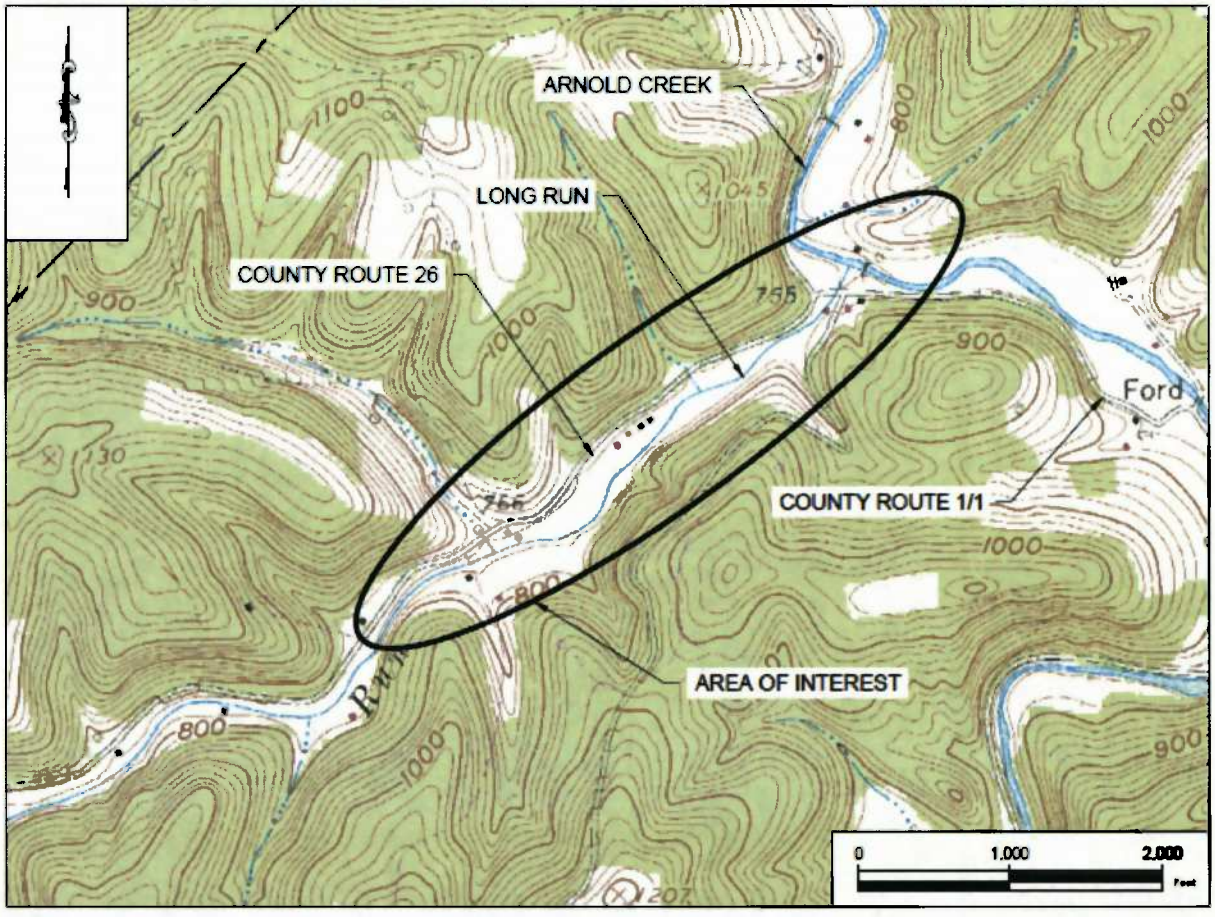
Appendices

I. Introduction

At the request of Triple H Enterprises (Triple H), Cheat Road Engineering Inc. (CRE) has prepared the following Hydrologic and Hydraulic Analysis of Long Run

Long Run is located in Doddridge County WV and flows generally in a North East direction along County Route 26. Long Run flows into Arnold Creek just downstream of where County Route 1/1 crosses over the stream. Arnold Creek flows in a generally North West direction into Middle Island Creek which then flows into the Ohio River. The area of interest for this analysis begins at the confluence of Long Run and Arnold Creek and ends approximately 3,200 feet upstream. The purpose of this study is to determine the effects a new bridge would have on the Long Run Flood Plain and Base Flood Elevation.

A. Project Location



II. Methodology

CRE was provided existing conditions mapping by Triple H. This Mapping included topographical information of the existing ground surface, existing bridge locations and the locations of tributaries within the area of interest. In addition to the information provided by Triple H, USGS maps and aerial photography were used in analyzing the existing conditions of the Long Run floodplain. Rainfall data was gathered from The National Oceanic and Atmospheric Administration (NOAA) database. The storm event used to determine the Base Flood Elevation is the 1% annual storm also known as the 100-YR rain event.

A. Hydrologic Study

Flow rates and boundary conditions were calculated using HydoCad, a hydrology program that utilizes the Technical Release 20 (TR-20), which was developed by the NRCS, to calculate runoff rates based on rainfall data for the region, area of runoff, surface cover and the time of concentration. When compared to the USGS regression equation rates, these flow rates were found to be within the acceptable range of error. The flow rates calculated using HydroCad were greater than the regression equation, thus the HydroCad flow rates were utilized in CRE's hydraulic analyses in an attempt to be conservative in our study. See **Table 1** below for a breakdown of the flow values used at different sections of the stream.

Table 1: River Station Flow Rates

River Station	100-YR Storm Flow Rate (CFS)
3+200.18	2,216.44
30+77.66	2,315.70
31+31.29	2,320.26
11+31.46	2,333.46

B. Hydraulic Study

The United States Corps of Engineers (USACE) Hydrologic Engineering Centers River Analysis System (HEC-RAS) was used to analyze the hydraulic conditions of the stream during the 100-YR flood. The HEC-RAS stream modeling program uses the flow rates calculated during the hydrologic study, in conjunction with, geometric files to create a model showing the water surface extents and Base Flood Elevations.

The base geometric files are created by importing topographic information from the AutoCAD Civil 3D program. Other important geometric information such as the manning's roughness coefficient and stream crossings are then added to create a more complete model of the true field conditions within HEC-RAS.

1. Manning's Roughness Coefficients

From Table 3.1 of the HEC-RAS Hydraulic Reference Manual:

Main Channel:
Clean, straight, full, no rifts or deep pools: 'n' value 0.030
Same as above, but more stones and weeds: 'n' value 0.035
Clean, winding, some pools and shoals: 'n' value 0.040
Same as above, but some weeds and stones: 'n' value 0.045

Floodplain:
Pasture, no brush, high grass: 'n' value 0.035
Scattered brush, heavy weeds: 'n' value 0.050
Light brush and trees, in winter: 'n' value 0.050
Medium to dense brush, in winter: 'n' value 0.070
Heavy stand of timber, few down trees, little undergrowth, and flow below branches: 'n' value 0.100
The Manning's "n" values assigned to the left overbank (LOB), channel, and right overbank (ROB) for each cross-section are as follows:

Left Overbank Channel:	0.040
Main Channel:	0.035
Right Overbank Channel:	0.040

2. Features Relevant to Hydraulic Analysis

There are existing bridges that cross Long Run at approximately section 91.71' and section 28+20.87'.

3. High Water Marks

There are no established landmarks in the project vicinity to determine a historic high water mark for Long Run

III. Summary of Results

A. Analyses Performed

Two HEC-RAS geometry files were created, one for the existing conditions of the study area along Long Run and one adding the proposed Bridge at station 4+44.86. The 100-YR storm event (one percent annual chance occurrence) was analyzed for both conditions and then compared to determine the impact of the proposed bridge.

B. Pre-Construction Analysis

1. WV GIS Tool

The WV Flood Tool GIS program was used to compare and confirm the results of CRE's analysis. The WV Flood Tool uses Flood Insurance Rate Map data to display FEMA's Special Flood Hazard Area and other relevant information, including estimated water surface extents.

Figure 1 shows the approximate Special Flood Hazard Area (SFHA) per the WV Flood Tool GIS application. The red hatching is the special flood hazard area and the blue hatching indicates the approximate water extents per the FEMA flood Mapping.

Figure 2 shows the SFHA as CRE has calculated it.

What both figures show is that just upstream of where Long Run flows into Arnold Creek, Long run is almost completely channelized during the 100-YR storm event. Further upstream, the channel is not as substantial and the area adjacent to the stream is much flatter allowing water to flood the surrounding area. This flat topography continues for most of the length of the area of interest, causing much of the area to be submerged during the 100-yr storm event. There are a few points where the two figures do not completely align but that could be caused by minor differences in flow values or minor topographic variances. It is CREs belief that the similarities between the two figures validate the pre-construction model completed by CRE.

See **Appendix B** for full HEC-RAS profile summary profiles and tables.

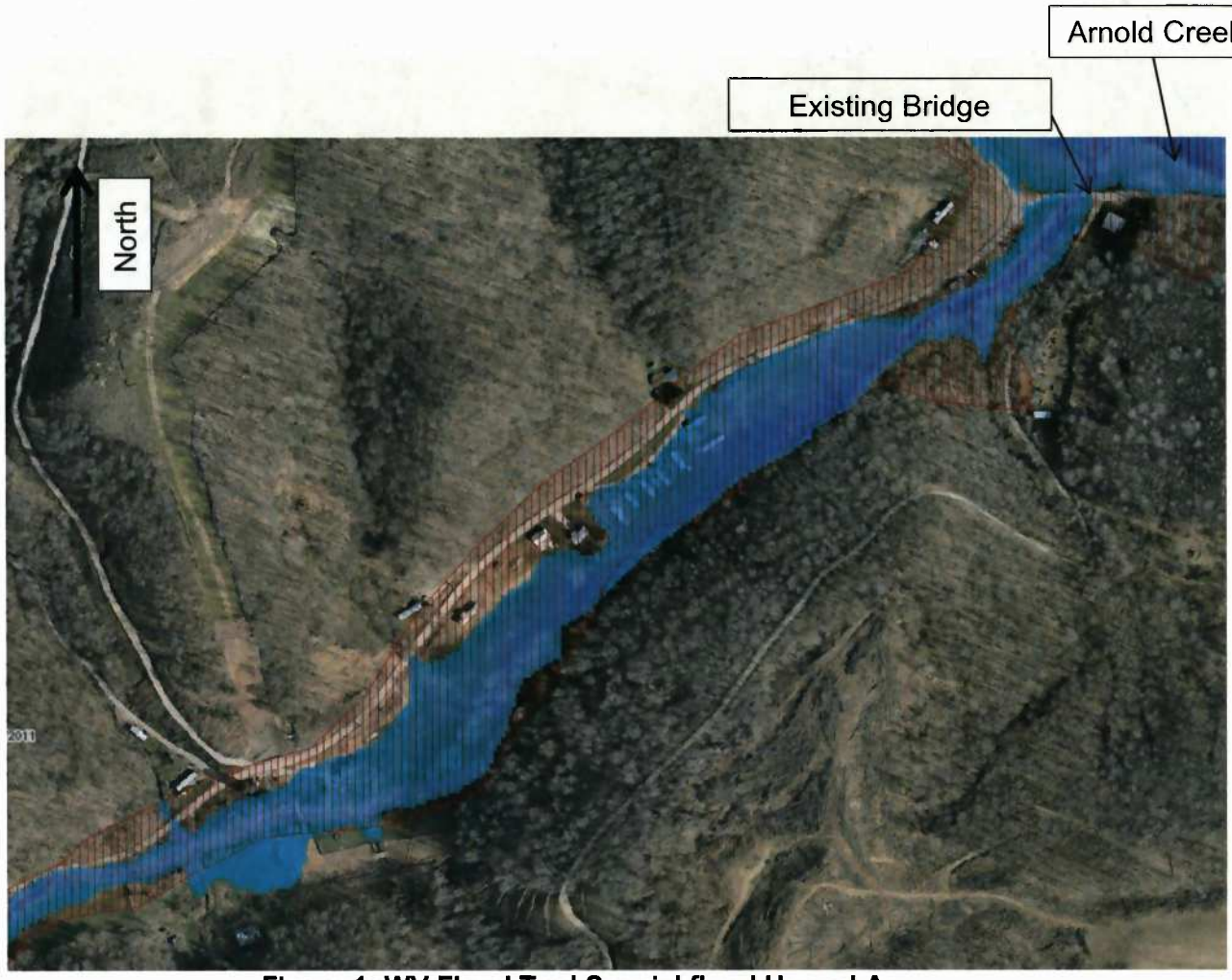


Figure 1: WV Flood Tool Special flood Hazard Area

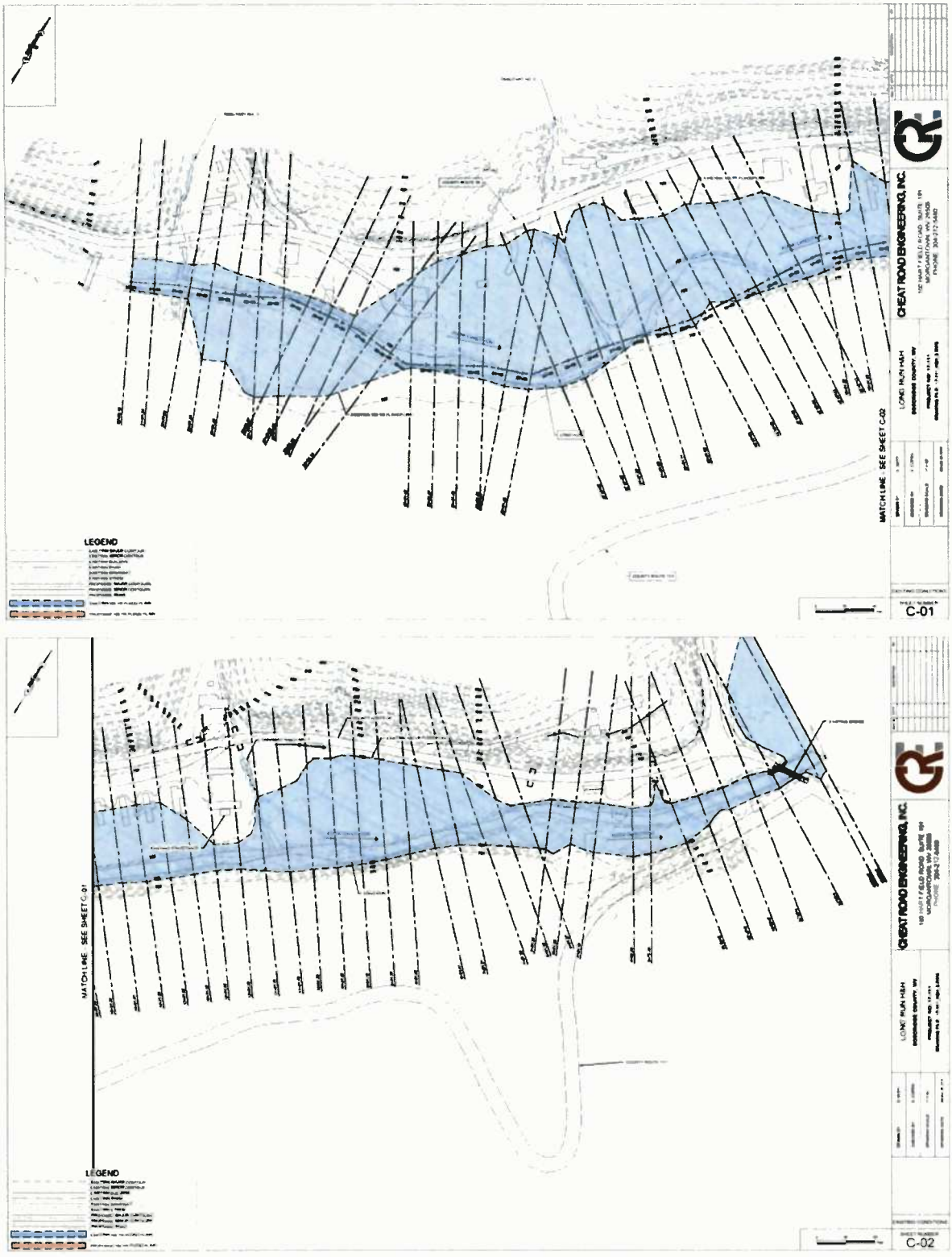


Figure 2: Calculated Pre-Construction Special Flood Hazard Area

C. Post-Construction Analysis

The post-construction analysis was comprised of adding a bridge crossing to the existing conditions geometry file while keeping other variables unchanged. The bridge was added at stream station 4+44.86 based on design drawings provided by Triple H.

See **Appendix B** for full HEC-RAS summary Profiles and Tables.

1. Flood Plain Area

   Figure 3 shows the pre-construction and post-construction Flood Hazard Area as calculated as CRE. The Blue hatch shows the existing Special Flood Hazard Area and the Red Hatch indicates the proposed Special Flood Hazard Area extents.

   The largest increase in the SFHA takes place from stations 9+81.19' to station 11+81.33' where the average increase in the width of the SFHA is increased by, at most, 12 feet with an average increase of around 7 feet. By section 12+31.36 the differences in flood area between the pre and post construction models is negligible and further upstream the model shows that there is no other increase of the SFHA.

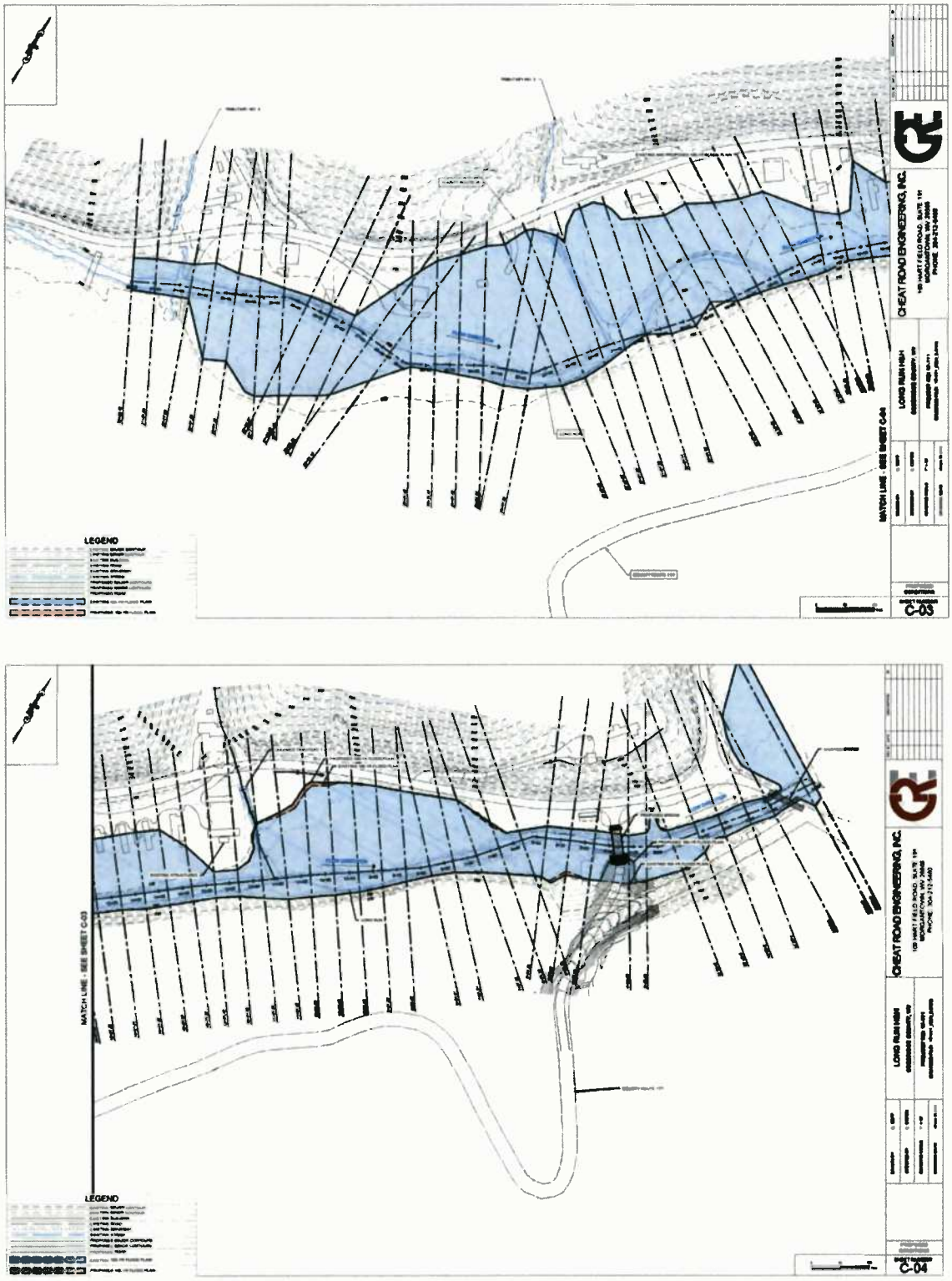


Figure 3: Post-Construction Special Flood Hazard Area

2. Flood Plain Elevation

As shown in **Table 2** below, and in the full H&H data tables in **Appendix B**, the base flood elevation of Long Run has been increased as a result of the installation of the bridge. The largest increase in the B.F.E. is from about 100 feet upstream from the proposed bridge at station 5+31.36', to station 7+31.36' where the B.F.E increases by, approximately 7 inches. Even though this section of the stream has the largest increase in elevation, it does not significantly increase the SFHA due to the stream geometry. During the 100-YR flood event, even with the increase in B.F.E. the water is still contained within the existing channel. The difference in elevations between the two models slowly decreases further upstream, becoming negligible at station 12+31.36'

Table 1 below shows the different flood elevations before and after construction at critical points of Long Run. **Figure 4** on the following page is a graphical representation of the difference in flood elevations during pre and post construction conditions.

Table 2: Flood Elevation Comparison

Stream Station	Existing Base Flood Elevation (EX)	Proposed Base Flood Elevation (PR)	Difference In Water Elevation
4+44.86 (Proposed Bridge)	749.03'	749.03'	+ 0 inches
5+31.36	748.86'	749.45'	+7.1 inches
7+31.36	749.66'	750.07'	+4.9 inches
9+31.36	749.84'	750.22'	+4.6 inches
11+31.46	749.98	750.32	+4.1 inches
12+31.36 (Hydraulic Jump)	748.85	748.85	+0.0 inches
13+31.36	751.19	751.19	+0.0 inches

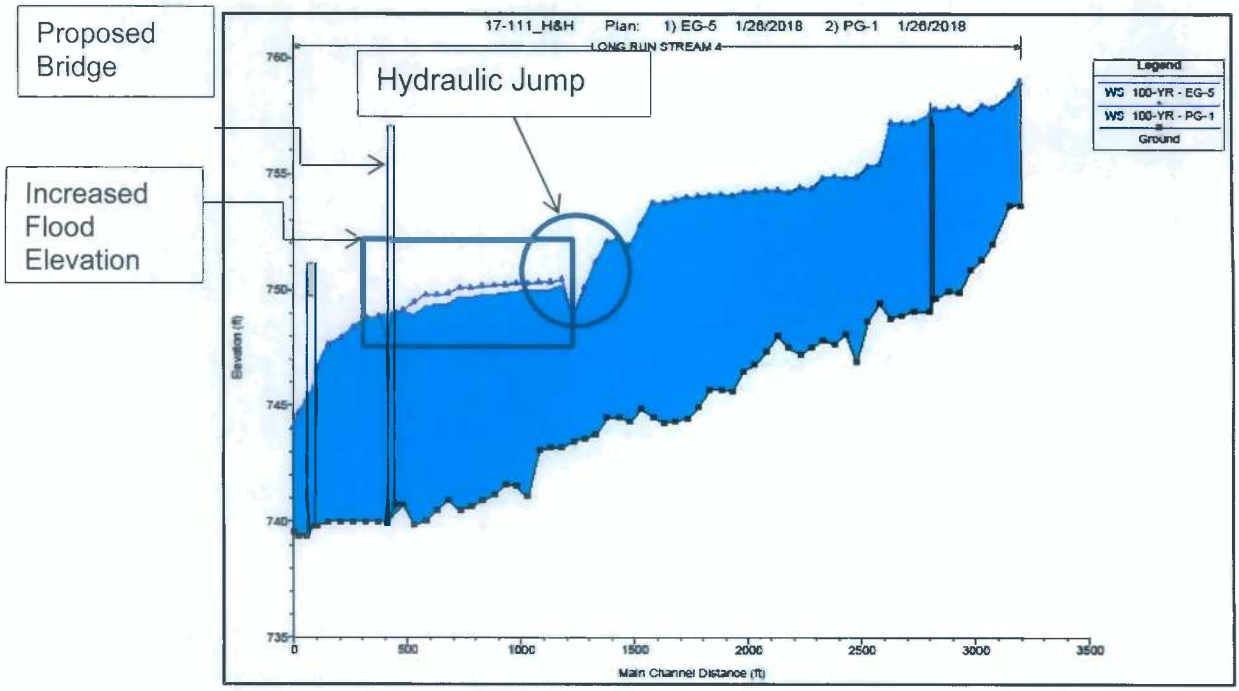


Figure 4: Flood Water Elevation Comparison

IV. Conclusion

The Doddridge County Floodplain Ordinance **Article IV Section 4.4** states the requirements and regulations for any construction within a "Zone A" floodplain. The Ordinance in **Article IV Section 4.4.D** states: "Within any apportioned Floodplain Zone (Zone A) without a Floodway Area, no new construction or development shall be allowed unless it is demonstrated that the cumulative impact of the proposed development, when combined with all other existing and anticipated development, will not increase the elevation of the 100-year flood more than one (1) foot at any point. **CRE's study shows an increase below that threshold.**

Additionally, in the area of increased base flood elevation, it appears, from the information provided and aerial imaging, that there are no houses or other critical structures that will assume increased risk of flooding as a result of the installation of the proposed bridge.

All calculations and data related to this report are available upon request by contacting CRE.

APPENDIX A

DRAWINGS

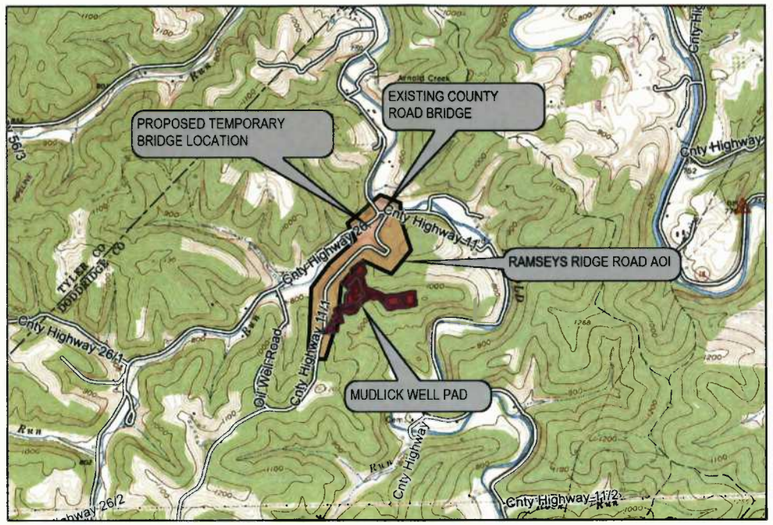
RAMSEY'S RIDGE ROAD PHASE II
COUNTY ROAD 11/1 ROAD IMPROVEMENT
ACCESSING THE MUDLICK PAD

ROAD RECONSTRUCTION PLANS,
EROSION & SEDIMENT CONTROL PLANS

CENTRAL DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA

ANTERO RESOURCE CORPORATION

USGS WEST UNION, WV QUAD MAP



WEST VIRGINIA STATE PLANE COORDINATE SYSTEM
NORTH ZONE, NAD83
ELEVATIONS BASED ON NAVD88
ESTABLISHED BY SURVEY GRADE GPS & OPUS POST-PROCESSING

● SITE LOCATION

WEST VIRGINIA COUNTY MAP
CENTRAL DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA
SCALE: N.T.S.

PROJECT CONTACTS

ANTERO RESOURCES
Bryan Radabaugh - Senior Design Manager
740-760-1062

Eric Stewart - Construction Coordinator
304-842-4716

Jeff McCauley PE-Engineering
304-859-4209

ENGINEER & SURVEYOR

Anthony Baumgard, PE
Triple H Enterprises
304-873-3260

Darrell Boice, PS
Triple H Enterprises
304-873-3260

WETLAND DELINEATOR
Ryan Environmental, LLC.
5793 W. Veterans Memorial Highway
Bridgeport, West Virginia
Toll Free- 1-800-649-5578
Phone 304-842-5578

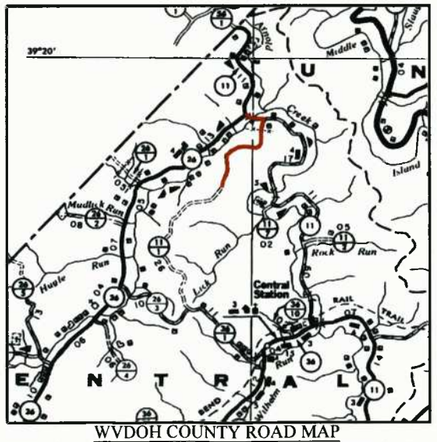
FINAL

ANTHONY BAUMGARD, P.E. NO. WV 14049

PROJECT

DATE

DRAWING INDEX



WVDOH COUNTY ROAD MAP
CENTRAL DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA
PROJECT LOCATION
SCALE: N.T.S.

MISS Utility of West Virginia
1-800-245-4848
West Virginia State Law
(Section XXV: Chapter 24-C)
Requires that you call two business days before you dig in the state of West Virginia
IT'S THE LAW!!!

811 Know what's below. Call before you dig.

STREAMS
(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH WITHIN LIMITS OF DISTURBANCE (LOD)	FILL IMPACT
STREAM 1	STA 1+04	PER	85	0
STREAM 2	STA 1+53	INT	0	0
STREAM 3	STA 7+95 TO 8+20	INT	110	110
STREAM 4	STA 8+42	INT	0	0
STREAM 5	STA 8+82	INT	0	0
STREAM 6	STA 17+13	EPH	0	0
STREAM 7	STA 21+12	EPH	19	9
STREAM 8	STA 23+24	EPH	18	10
STREAM 9	STA 23+67	INT	105	81
STREAM 10	STA 25+82	EPH	14	10
STREAM 11	STA 0+83	INT	13	5
STREAM 12	STA 0+70	EPH	0	0
STREAM 14	STA 8+61	EPH	0	0
STREAM 15	STA 29+18	INT	51	30
STREAM 16	STA 30+15	INT	0	0
STREAM 17	STA 30+29	INT/EPH	81	60
STREAM 18	STA 31+31	INT	0	0
STREAM 19	STA 33+14	INT	54	32
STREAM 20	STA 33+98	EPH	0	0
STREAM 21	STA 35+70	INT/EPH	7	0

EPH = EPHEREMAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

WETLANDS
(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)
WETLAND #1	STA 0+89 TO 1+46		925	0.02	0
WETLAND #2A	STA 4+40 TO 5+15		1229	0.03	0
WETLAND #2B	STA 4+16 TO 4+41		64	0.00	0
WETLAND #2C	STA 3+53 TO 3+73		73	0.00	0
WETLAND #2D	STA 2+46 TO 2+59		19	0.00	0
WETLAND #3	STA 8+61 TO 8+74		124	0.00	0
WETLAND #4	STA 23+42 TO 23+74		471	0.01	0

NEW ROAD TOTAL AREA (INCLUDES PROP. BRDGE AND WIDENING)	0.532 Ac
EXISTING ROAD AREA (INCLUDES ALL EXISTING ROW CR 11/1)	2.709 Ac
ROAD DISTURBANCE	2.886 Ac
STAGING AREA DISTURBANCE	0 Ac
TOTAL DISTURBANCE	0.177 Ac

FLOODPLAIN CONDITIONS

DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	YES
PERMIT NEEDED FOR FLOODPLAIN COORDINATOR	YES
HEC-RAS STUDY COMPLETED	N/A
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	YES
FIRM MAP NUMBER(S) FOR SITE	54017C105C
ACREAGE OF CONSTRUCTION IN FLOODPLAIN	0.41 AC.

SITE LOCATIONS (NAD83)

BEGIN ROAD IMPROVEMENT	N 303115.16	E 1591205.98
END ROAD IMPROVEMENT	N 300606.28	E 1590062.98
BEGIN ACCESS ROAD	N 300842.11	E 1590211.09
	LATITUDE	LONGITUDE
BEGIN ROAD	39.3245°	-80.8338°
BEGIN ACCESS ROAD	39.3182°	-80.8372°

Triple H enterprises

REVISION | DATE

ANTERO RESOURCES
THIS PLAN PREPARED FOR: ANTERO RESOURCES APPALACHIAN GROUP

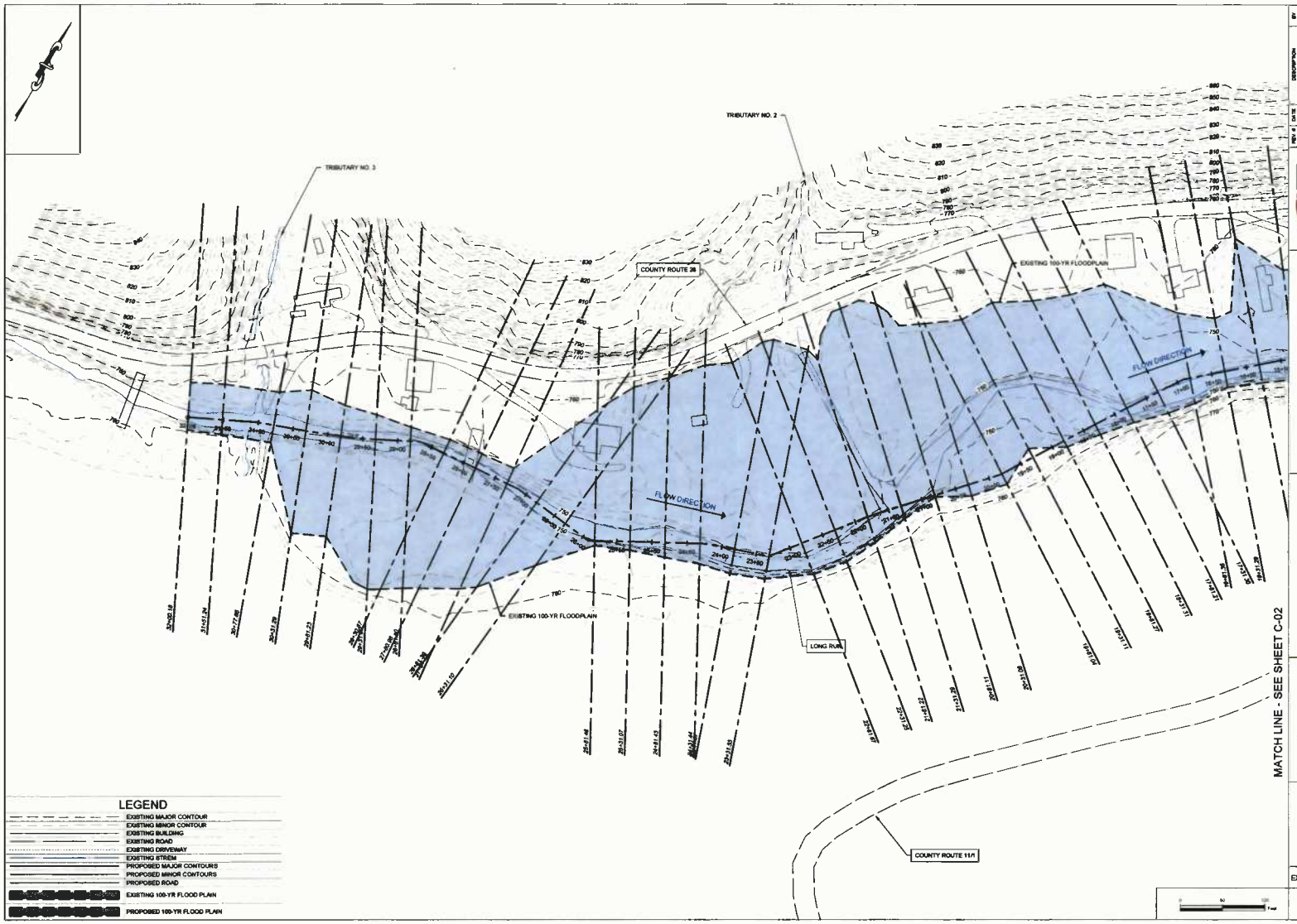
COVER SHEET
COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 1 OF 26

DWG

APPENDIX A

DRAWINGS



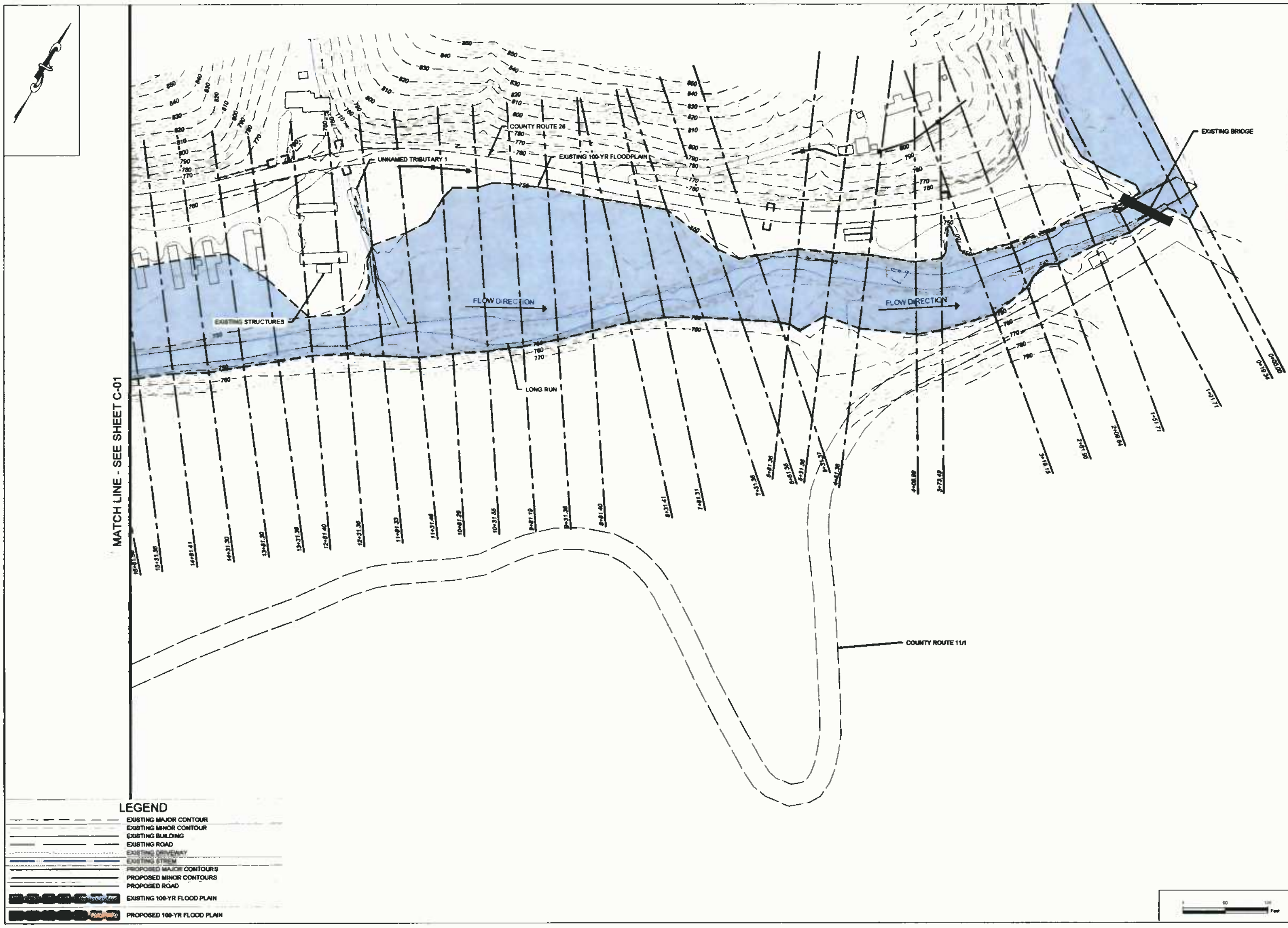
CHEAT ROAD ENGINEERING, INC.
100 HART FIELD ROAD, SUITE 191
MORGANTOWN, WV 26505
PHONE 304-212-5480

LONG RUN H&H
DODDRIDGE COUNTY, WV

DRAWN BY G. SEPP
CHECKED BY B. COPEN
DRAWING SCALE 1" = 80'
DRAWING DATE 4/24/2019
PROJECT NO.: 17-111
DRAWING FILE 17-111_H&H_3.DWG

EXISTING CONDITIONS

SHEET NUMBER
C-01



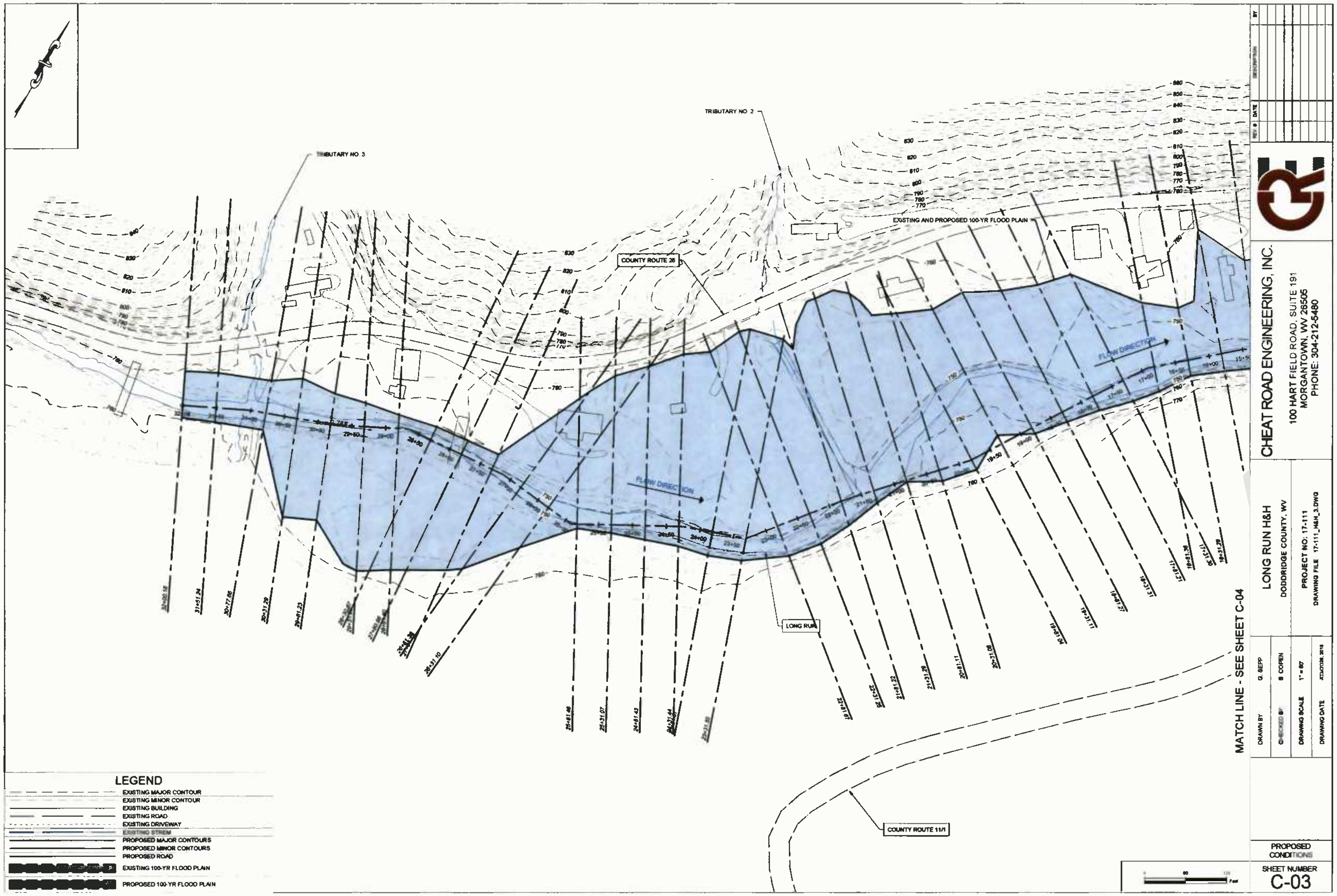
CHEAT ROAD ENGINEERING, INC.
100 HART FIELD ROAD, SUITE 181
MORGANTOWN, WV 26505
PHONE 304-212-5480

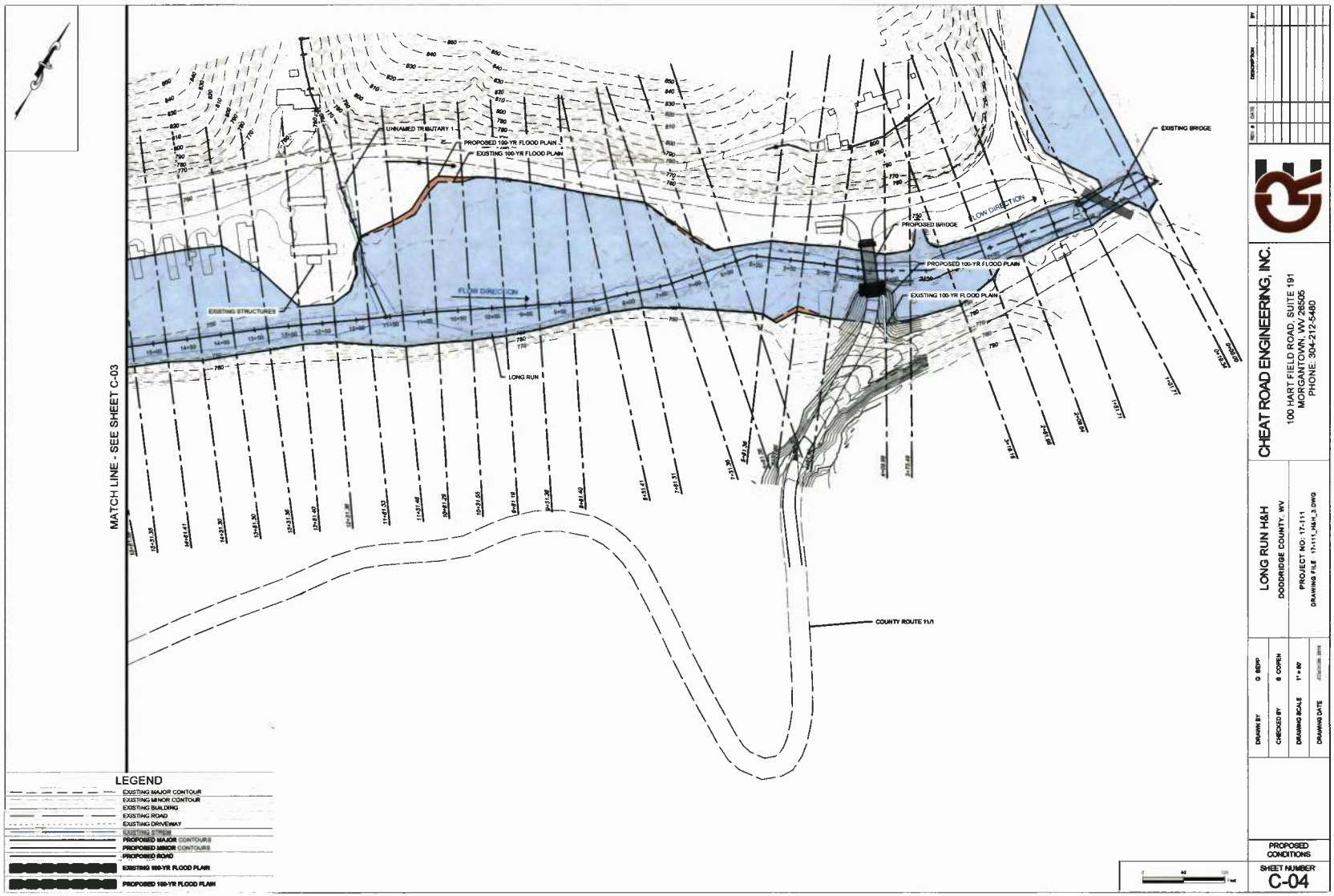
LONG RUN H&H
DODDRIDGE COUNTY, WV
PROJECT NO: 17-111
DRAWING FILE 17-111_H&H_3.DWG

DRAWN BY G SEPP
CHECKED BY S. COPEN
DRAWING SCALE 1" = 50'
DRAWING DATE

EXISTING CONDITIONS

SHEET NUMBER
C-02


TRIBUTARY NO 3
TRIBUTARY NO 2
COUNTY ROUTE 26
EXISTING AND PROPOSED 100-YR FLOOD PLAIN
FLOW DIRECTION
FLOW DIRECTION
LONG RUN
COUNTY ROUTE 11/1
MATCH LINE - SEE SHEET C-04
LEGEND
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
EXISTING BUILDING
EXISTING ROAD
EXISTING DRIVEWAY
EXISTING STREAM
PROPOSED MAJOR CONTOURS
PROPOSED MINOR CONTOURS
PROPOSED ROAD
EXISTING 100-YR FLOOD PLAIN
PROPOSED 100-YR FLOOD PLAIN
CHEAT ROAD ENGINEERING, INC.
100 HART FIELD ROAD, SUITE 191
MORGANTOWN, WV 26505
PHONE: 304-212-5480
LONG RUN H&H
DODDRIDGE COUNTY, WV
PROJECT NO: 17-111
DRAWING FILE 17-111_H&H_3.DWG
DRAWN BY G. SEPP
CHECKED BY B COPEN
PROPOSED CONDITIONS
SHEET NUMBER
C-03



CHEAT ROAD ENGINEERING, INC.
100 HART FIELD ROAD, SUITE 191
MORGANTOWN, WV 26505
PHONE: 304-212-5480

LONG RUN H&H
DODDRIDGE COUNTY, WV

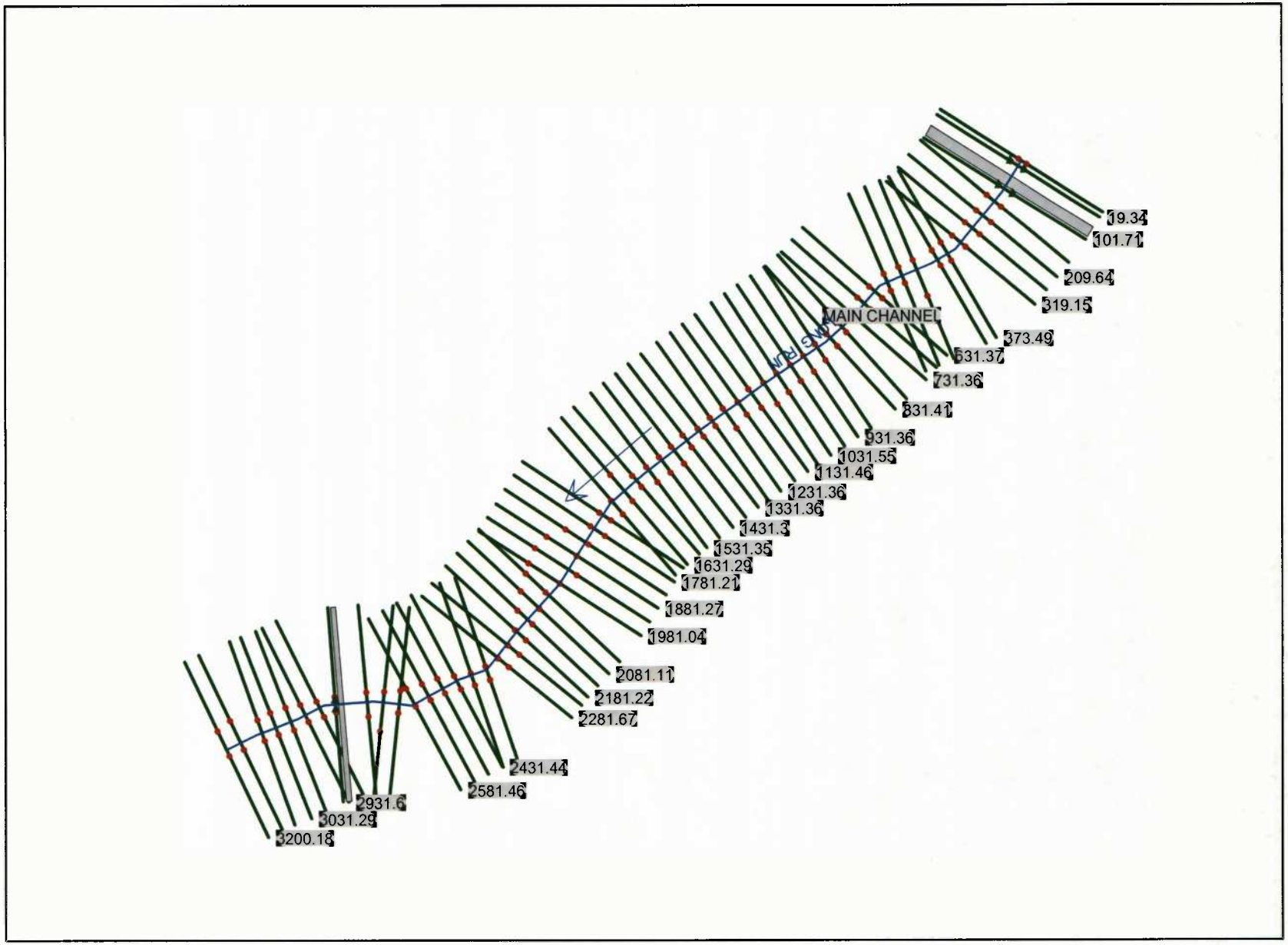
DRAWN BY G SEPP
CHECKED BY B COPEN
DRAWING SCALE 1" = 60'
DRAWING DATE
PROJECT NO: 17-111
DRAWING FILE 17-111_H&H_3.DWG

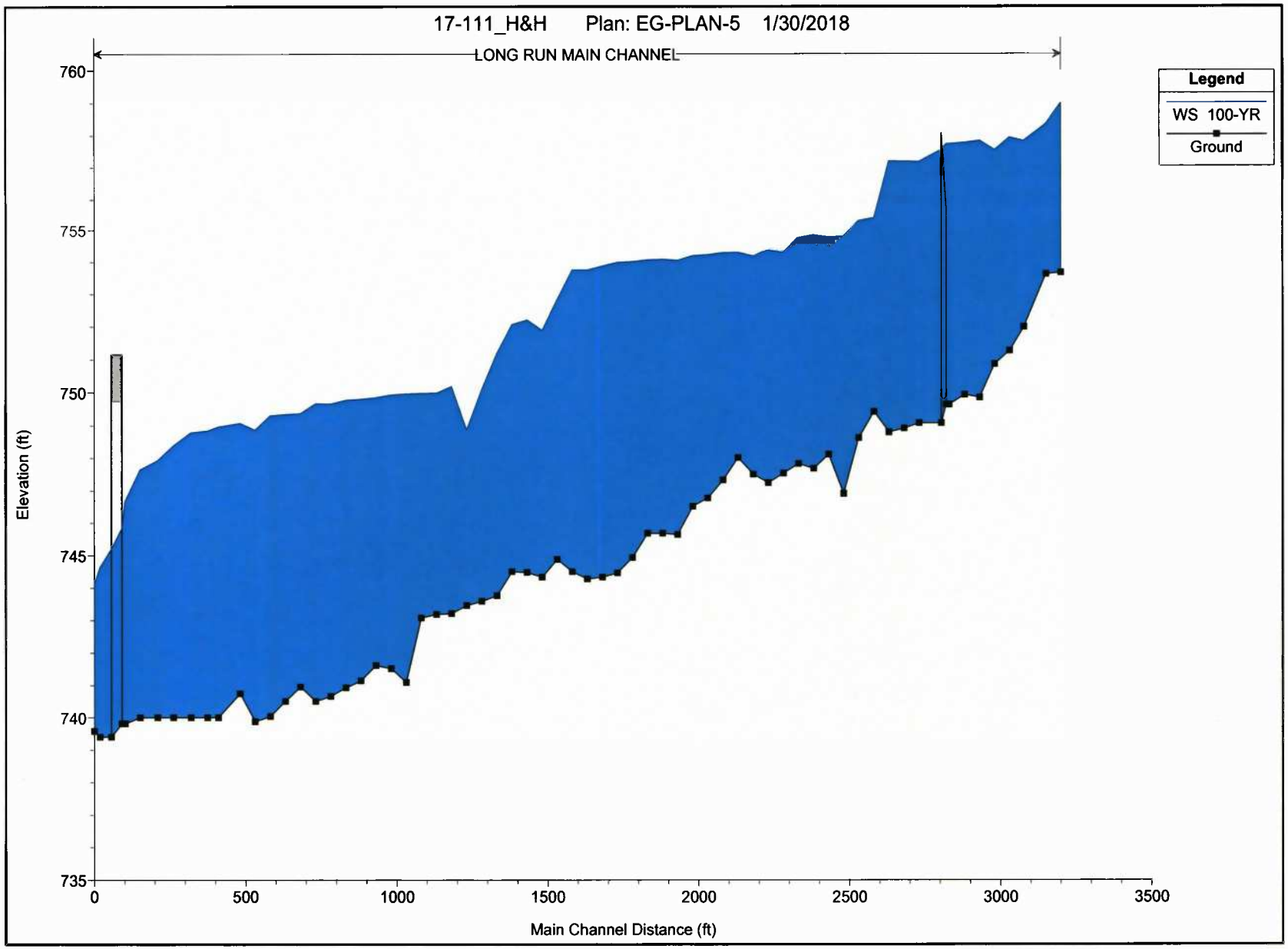
PROPOSED CONDITIONS

SHEET NUMBER
C-04

APPENDIX B

HEC-RAS DATA


MAIN CHANNEL
RMS RUN
19.34
101.71
209.64
319.15
373.49
531.37
731.36
831.41
931.36
1031.55
1131.46
1231.36
1331.36
1431.3
1531.35
1631.29
1781.21
1881.27
1981.04
2081.11
2181.22
2281.67
2431.44
2581.46
2931.6
3031.29
3200.18


17-111_H&H Plan: EG-PLAN-5 1/30/2018
LONG RUN MAIN CHANNEL
Legend
WS 100-YR
Ground
760
755
750
745
740
735
Elevation (ft)
0
500
1000
1500
2000
2500
3000
3500
Main Channel Distance (ft)

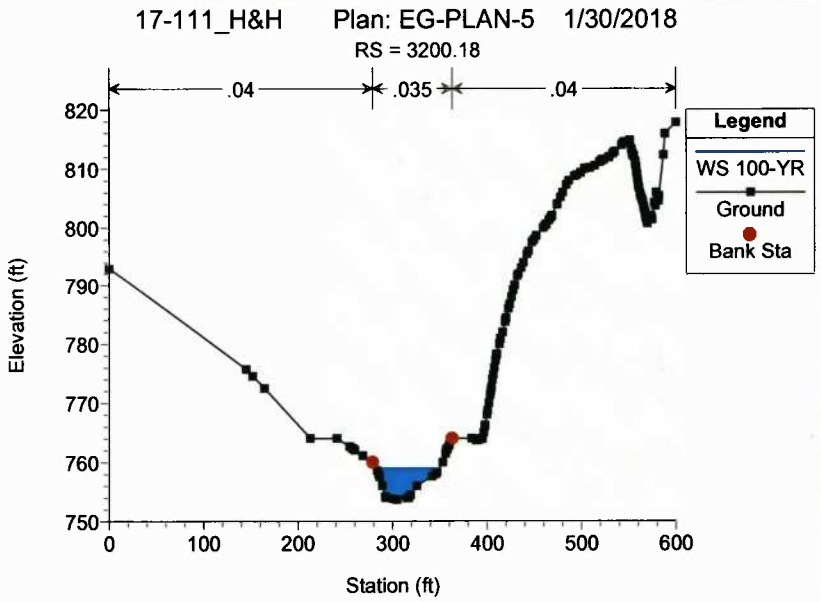
HEC-RAS Plan: EG-5 River: LONG RUN Reach: MAIN CHANNEL Profile: 100-YR

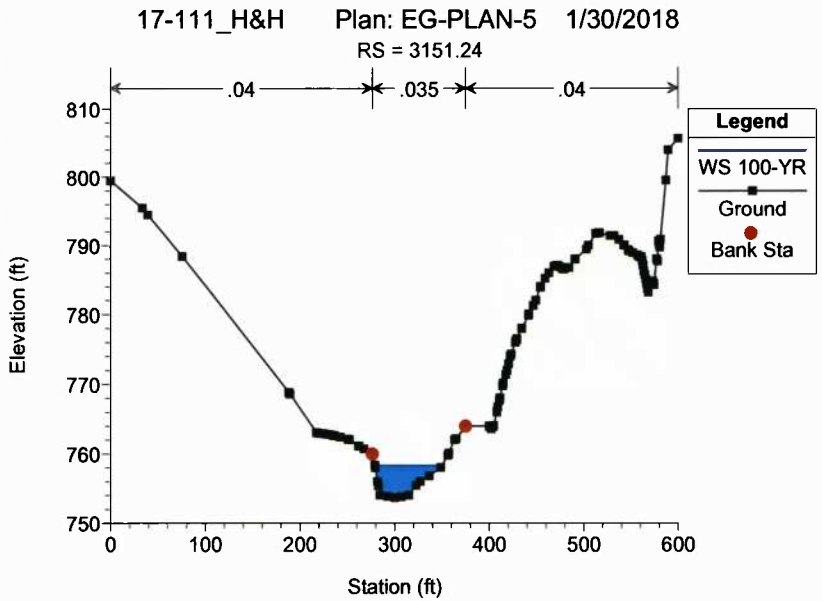
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
MAIN CHANNEL	3200.18	100-YR	2216.44	753.67	758.99	758.83	760.49	0.010951	9.81	225.97	67.21	0.94
MAIN CHANNEL	3151.24	100-YR	2216.44	753.62	758.36	758.36	759.91	0.012670	10.00	221.64	71.36	1.00
MAIN CHANNEL	3077.66	100-YR	2315.70	752.00	757.83	757.29	759.08	0.007709	8.96	259.66	72.30	0.81
MAIN CHANNEL	3031.29	100-YR	2315.70	751.28	757.94	756.77	758.67	0.004143	7.02	387.79	202.89	0.60
MAIN CHANNEL	2981.23	100-YR	2315.70	750.87	757.54	756.59	758.42	0.005259	7.68	343.07	165.37	0.67
MAIN CHANNEL	2931.6	100-YR	2315.70	749.85	757.84		758.09	0.001590	4.84	673.22	244.04	0.38
MAIN CHANNEL	2881.86	100-YR	2315.70	749.94	757.78		758.01	0.001367	4.72	689.46	225.26	0.35
MAIN CHANNEL	2830.87	100-YR	2315.70	749.63	757.74	756.38	757.93	0.001336	4.50	724.72	231.09	0.35
MAIN CHANNEL	2820		Bridge									
MAIN CHANNEL	2731.19	100-YR	2315.70	749.07	757.18		757.60	0.002180	5.64	515.73	184.80	0.45
MAIN CHANNEL	2681.3	100-YR	2315.70	748.91	757.18		757.47	0.001451	4.36	566.74	188.72	0.36
MAIN CHANNEL	2631.1	100-YR	2315.70	748.79	757.19		757.38	0.001031	4.14	785.22	281.10	0.31
MAIN CHANNEL	2581.46	100-YR	2315.70	749.42	755.39	755.13	757.11	0.010015	10.52	220.18	53.99	0.92
MAIN CHANNEL	2531.07	100-YR	2315.70	748.62	755.30	755.30	756.54	0.007307	9.18	297.51	152.96	0.78
MAIN CHANNEL	2481.43	100-YR	2315.70	746.90	754.85	753.99	755.59	0.003509	7.40	404.79	177.05	0.56
MAIN CHANNEL	2431.44	100-YR	2315.70	748.11	754.81		755.35	0.003572	6.97	517.41	278.76	0.56
MAIN CHANNEL	2381.67	100-YR	2315.70	747.68	754.88		755.16	0.001697	5.45	724.51	333.83	0.40
MAIN CHANNEL	2331.55	100-YR	2315.70	747.82	754.79		755.06	0.001863	5.30	706.11	324.68	0.41
MAIN CHANNEL	2281.67	100-YR	2315.70	747.53	754.33		754.90	0.003935	7.36	525.90	317.76	0.58
MAIN CHANNEL	2231.25	100-YR	2315.70	747.24	754.41		754.68	0.001890	5.33	712.95	330.06	0.41
MAIN CHANNEL	2181.22	100-YR	2315.70	747.50	754.19		754.56	0.002272	5.94	604.43	268.67	0.45
MAIN CHANNEL	2131.29	100-YR	2320.26	748.01	754.30		754.42	0.000761	3.51	949.37	308.58	0.27
MAIN CHANNEL	2081.11	100-YR	2320.26	747.32	754.29		754.39	0.000481	2.89	1060.66	284.47	0.21
MAIN CHANNEL	2031.08	100-YR	2320.26	746.77	754.23		754.35	0.000681	3.23	902.21	252.88	0.25
MAIN CHANNEL	1981.04	100-YR	2320.26	746.51	754.20		754.32	0.000776	3.05	882.86	254.52	0.26
MAIN CHANNEL	1931.11	100-YR	2320.26	745.64	754.05		754.26	0.001264	3.92	681.13	204.61	0.33
MAIN CHANNEL	1881.27	100-YR	2320.26	745.68	754.09		754.20	0.000423	2.84	963.33	229.53	0.21
MAIN CHANNEL	1831.31	100-YR	2320.26	745.68	754.07		754.18	0.000340	2.87	997.73	211.34	0.19
MAIN CHANNEL	1781.21	100-YR	2320.26	744.93	754.02		754.15	0.000650	3.67	866.49	201.23	0.25
MAIN CHANNEL	1731.3	100-YR	2320.26	744.46	754.00		754.12	0.000504	3.46	920.04	202.91	0.22
MAIN CHANNEL	1681.36	100-YR	2320.26	744.33	753.88		754.08	0.000752	4.19	689.84	129.68	0.27
MAIN CHANNEL	1631.29	100-YR	2320.26	744.28	753.75		754.03	0.000968	4.26	553.75	98.69	0.31
MAIN CHANNEL	1581.58	100-YR	2320.26	744.50	753.75		753.96	0.000936	4.45	742.78	206.36	0.30
MAIN CHANNEL	1531.35	100-YR	2320.26	744.88	752.84	750.91	753.80	0.003684	8.16	351.21	154.46	0.57
MAIN CHANNEL	1481.41	100-YR	2320.26	744.33	751.89	750.97	753.49	0.006956	10.23	244.68	103.26	0.77
MAIN CHANNEL	1431.3	100-YR	2320.26	744.48	752.21		753.03	0.003122	7.48	373.69	162.71	0.54
MAIN CHANNEL	1381.3	100-YR	2320.26	744.50	752.07		752.87	0.003152	7.55	392.15	159.62	0.55
MAIN CHANNEL	1331.36	100-YR	2320.26	743.76	751.19	750.22	752.61	0.004778	10.02	293.68	116.43	0.68
MAIN CHANNEL	1281.4	100-YR	2320.26	743.59	750.08	750.08	752.23	0.008672	12.21	214.51	54.83	0.90
MAIN CHANNEL	1231.36	100-YR	2320.26	743.46	748.85	749.53	751.59	0.016748	13.36	180.17	55.70	1.18
MAIN CHANNEL	1181.33	100-YR	2320.26	743.21	750.18	748.66	750.49	0.002261	5.32	541.44	156.00	0.44

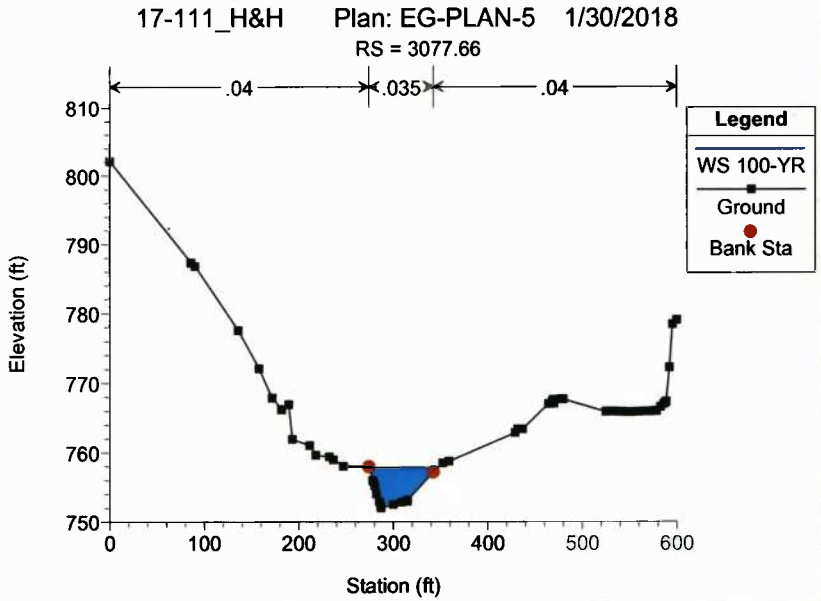
HEC-RAS Plan: EG-5 River: LONG RUN Reach: MAIN CHANNEL Profile: 100-YR (Continued)

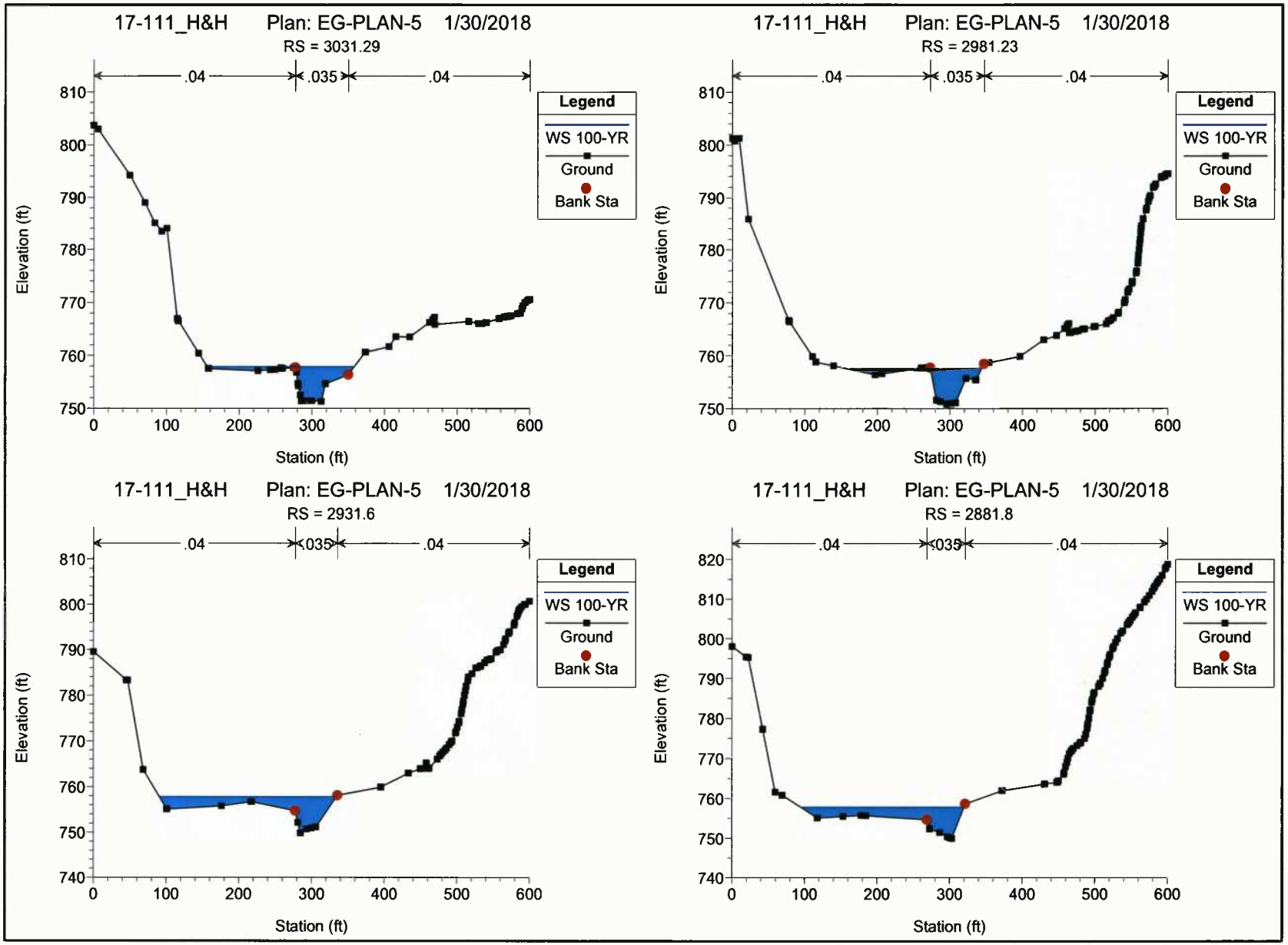
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
MAIN CHANNEL	1131.46	100-YR	2333.46	743.19	749.98		750.37	0.002274	5.63	530.67	176.01	0.45
MAIN CHANNEL	1081.29	100-YR	2333.46	743.08	749.97		750.24	0.001524	5.03	658.86	219.03	0.38
MAIN CHANNEL	1031.55	100-YR	2333.46	741.09	749.96		750.16	0.000991	4.38	759.37	229.28	0.31
MAIN CHANNEL	981.19	100-YR	2333.46	741.52	749.93		750.11	0.000917	4.20	794.97	227.99	0.29
MAIN CHANNEL	931.36	100-YR	2333.46	741.62	749.84		750.05	0.001035	4.58	742.80	212.35	0.31
MAIN CHANNEL	881.4	100-YR	2333.46	741.15	749.80		750.00	0.000940	4.42	738.31	190.14	0.30
MAIN CHANNEL	831.41	100-YR	2333.46	740.93	749.77		749.95	0.000834	4.27	751.65	177.01	0.28
MAIN CHANNEL	781.31	100-YR	2333.46	740.66	749.65		749.91	0.000872	4.74	681.94	161.08	0.30
MAIN CHANNEL	731.36	100-YR	2333.46	740.51	749.66		749.85	0.000640	4.18	768.91	160.09	0.26
MAIN CHANNEL	681.36	100-YR	2333.46	740.95	749.36		749.78	0.001325	5.45	482.10	104.43	0.36
MAIN CHANNEL	631.37	100-YR	2333.46	740.51	749.34		749.69	0.001323	5.18	516.36	99.18	0.35
MAIN CHANNEL	581.36	100-YR	2333.46	740.04	749.30		749.62	0.001152	4.97	547.18	106.19	0.33
MAIN CHANNEL	531.36	100-YR	2333.46	739.88	748.86		749.51	0.002171	6.67	389.95	89.31	0.45
MAIN CHANNEL	481.36	100-YR	2333.46	740.74	749.06		749.32	0.001020	4.11	567.53	103.93	0.31
MAIN CHANNEL	409.99	100-YR	2333.46	740.00	748.96		749.25	0.001034	4.79	573.48	101.99	0.31
MAIN CHANNEL	373.49	100-YR	2333.46	740.00	748.84		749.20	0.001267	5.19	518.48	100.48	0.35
MAIN CHANNEL	319.15	100-YR	2333.46	740.00	748.78		749.13	0.001182	5.13	520.84	89.59	0.34
MAIN CHANNEL	261.95	100-YR	2333.46	740.00	748.37		749.01	0.002036	6.46	375.63	65.80	0.44
MAIN CHANNEL	209.64	100-YR	2333.46	740.00	747.92		748.85	0.003354	7.70	302.90	48.11	0.54
MAIN CHANNEL	151.71	100-YR	2333.46	740.00	747.64		748.63	0.003728	8.00	291.79	47.90	0.57
MAIN CHANNEL	101.71	100-YR	2333.46	739.82	746.66	745.69	748.31	0.007302	10.30	226.57	175.57	0.78
MAIN CHANNEL	91.71		Bridge									
MAIN CHANNEL	19.34	100-YR	2333.46	739.41	744.64	744.88	746.95	0.013661	12.21	192.44	313.18	1.07
MAIN CHANNEL	0	100-YR	2333.46	739.59	744.10	744.88	746.59	0.024168	14.94	267.69	267.45	1.38

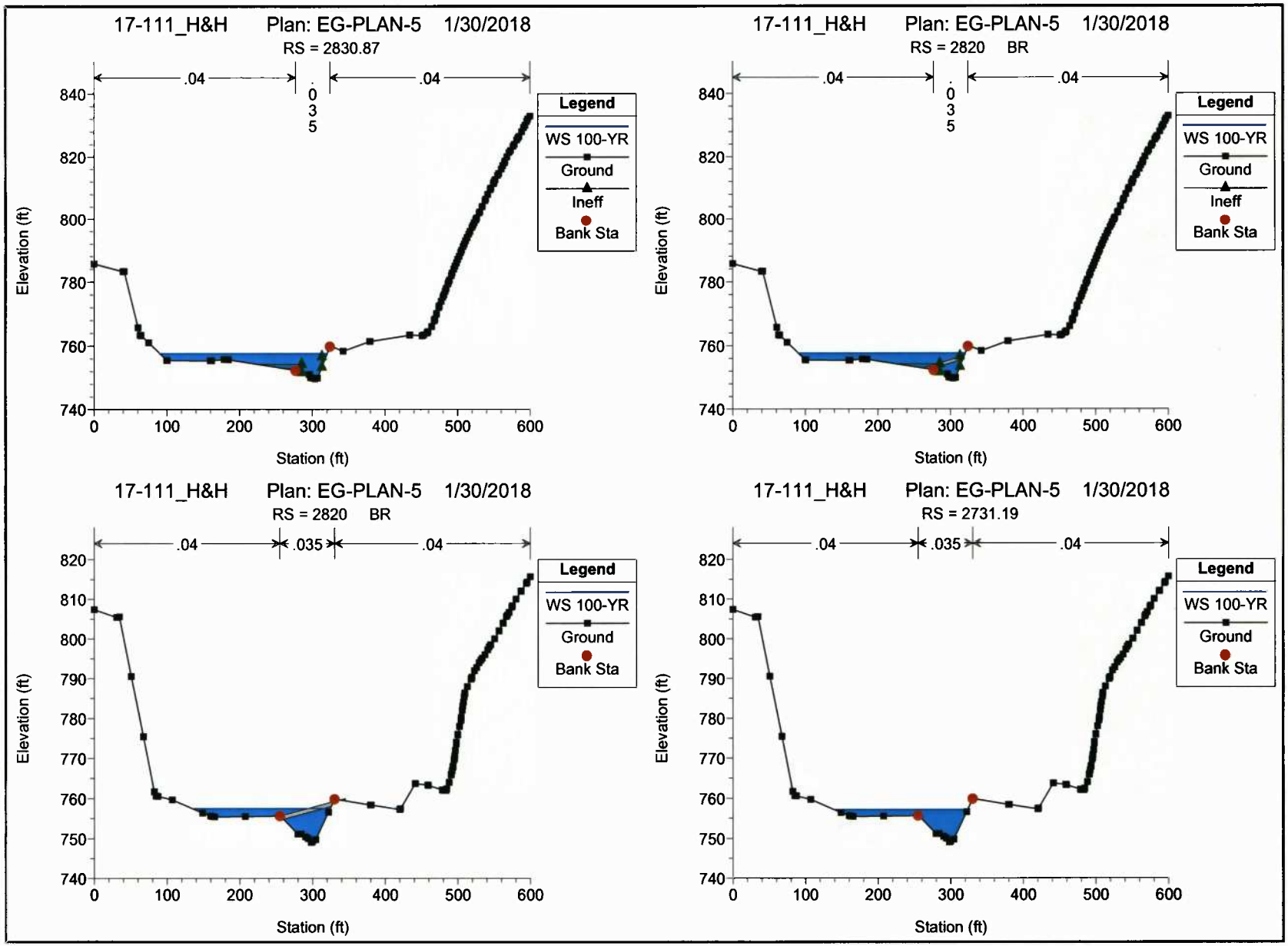
No Data for Plot

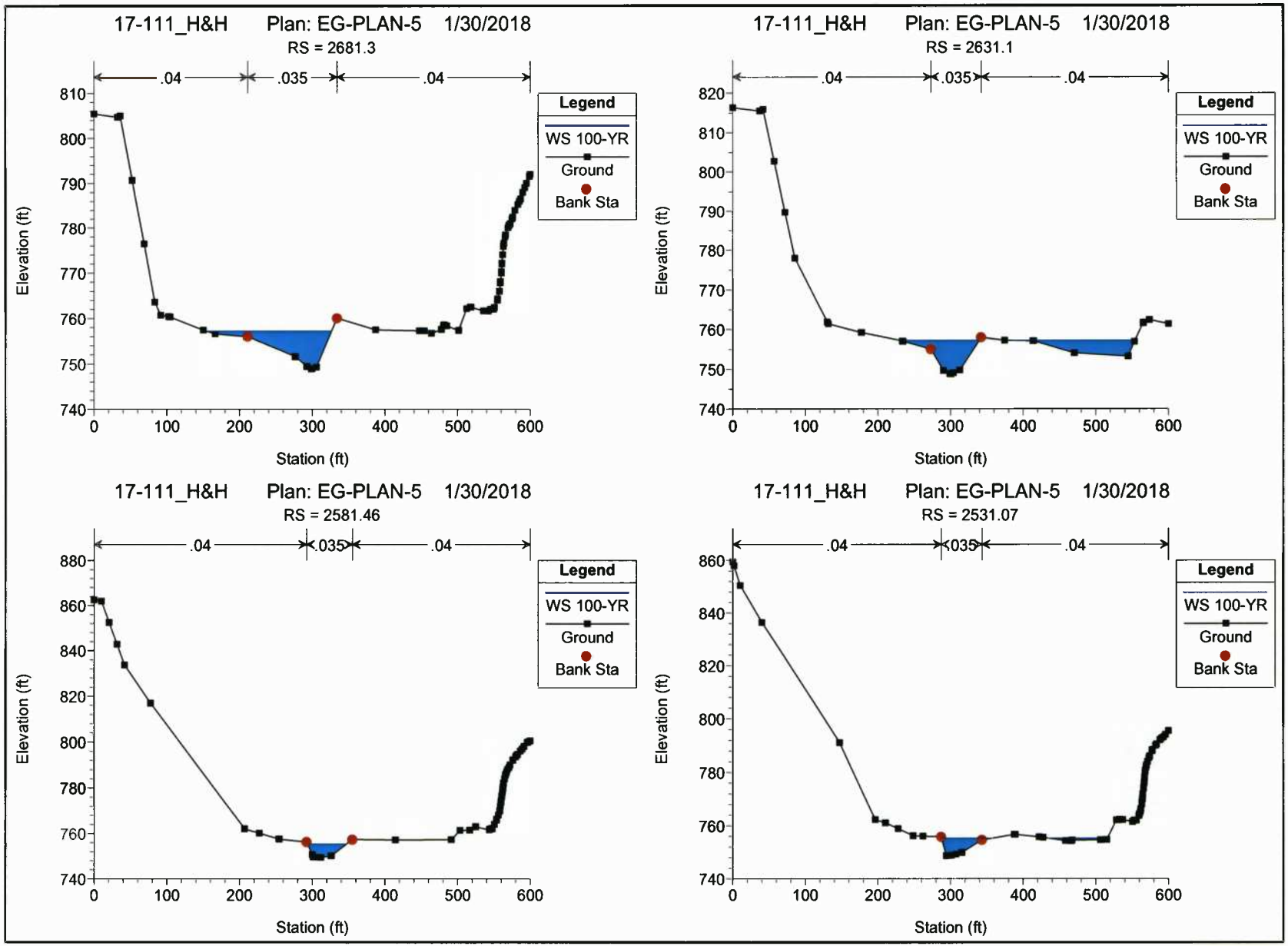


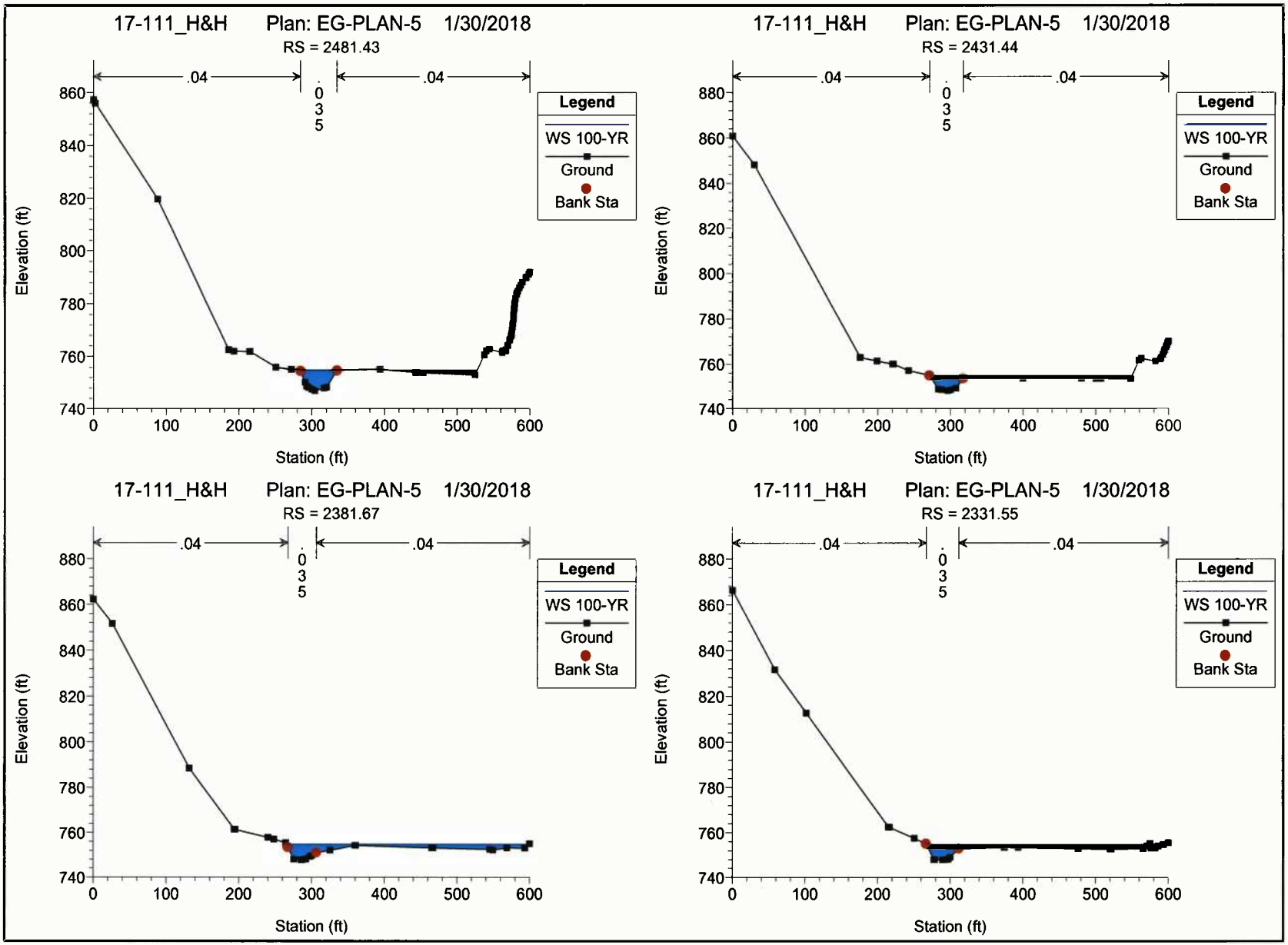


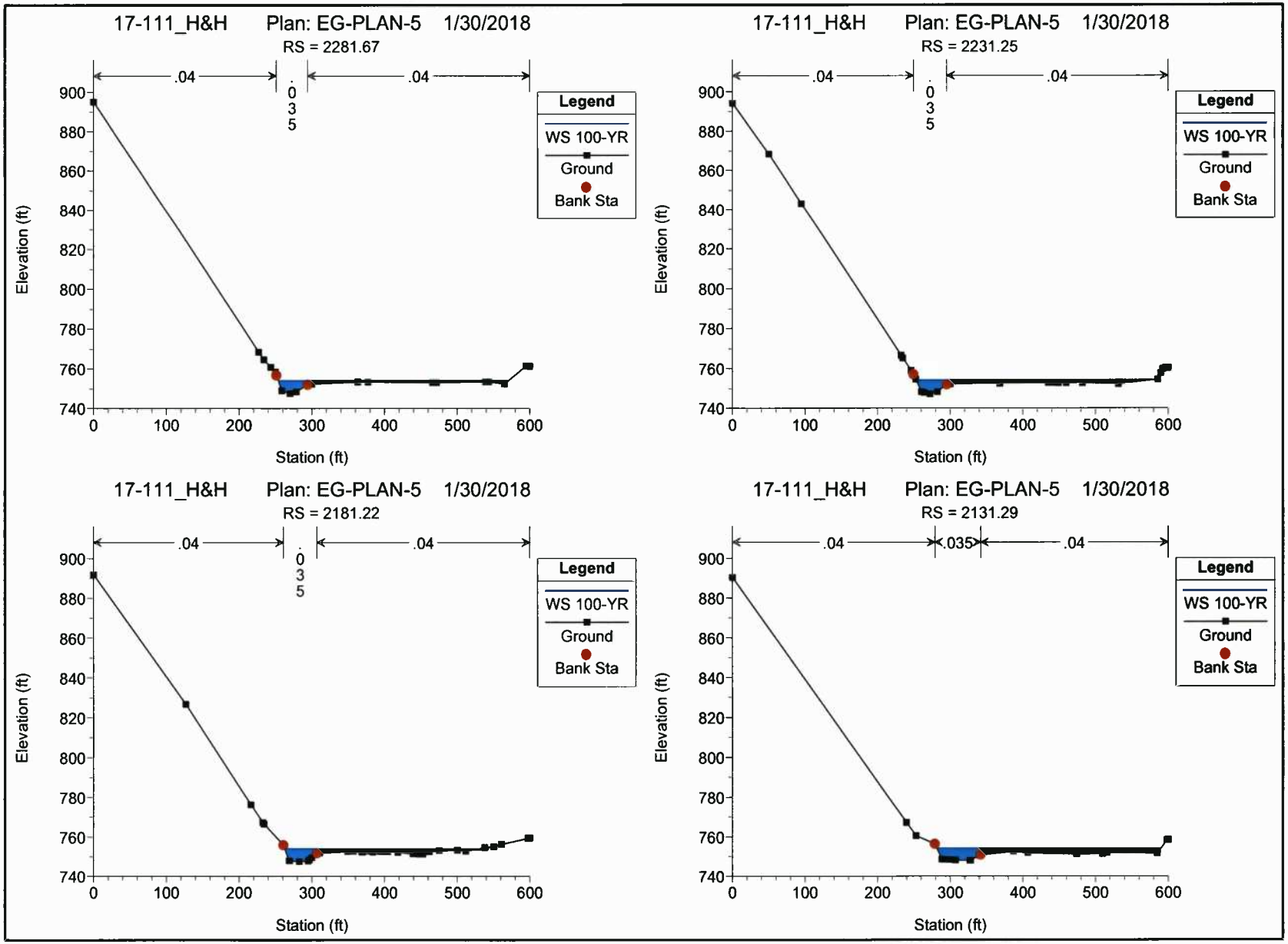


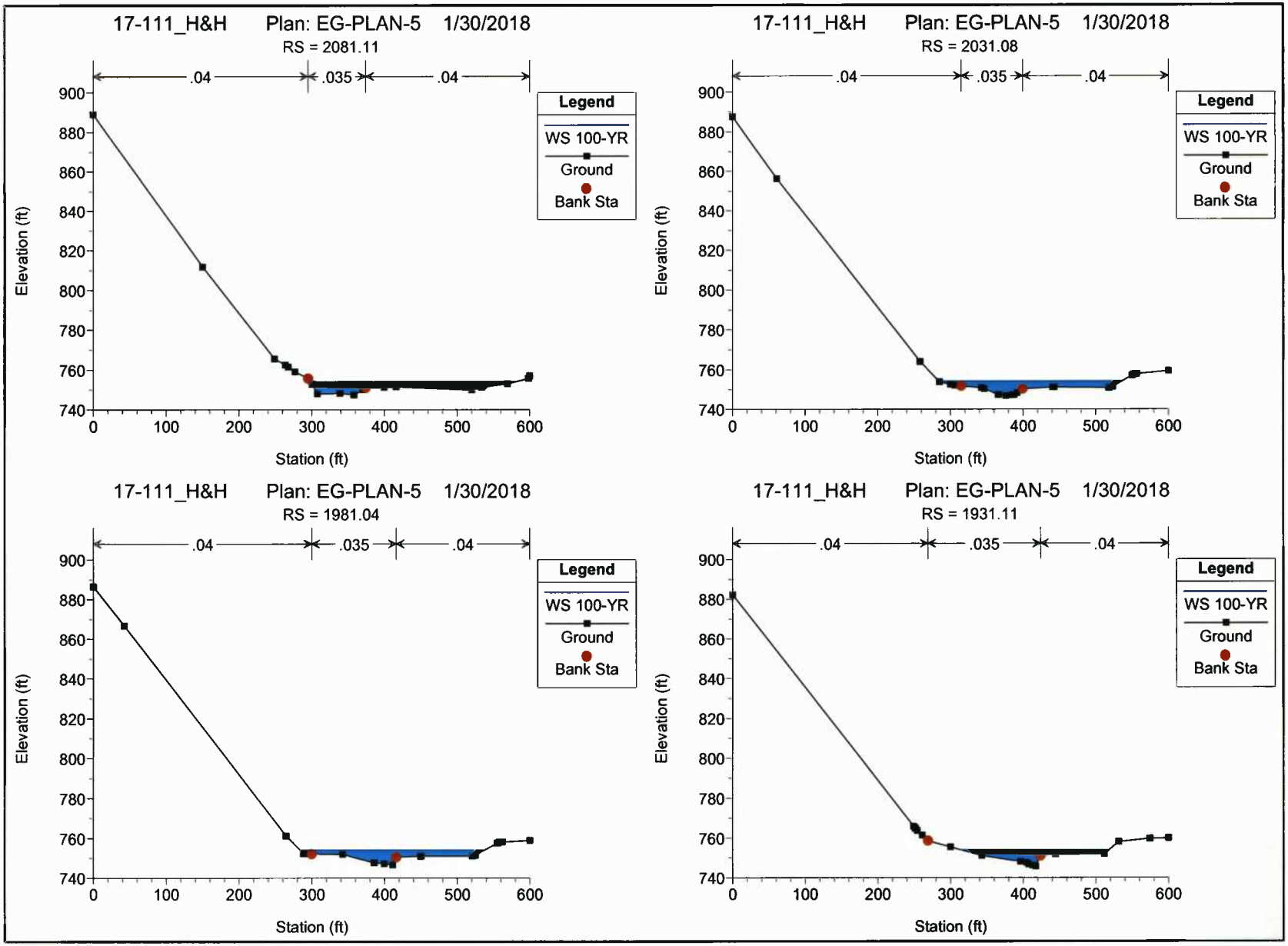

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 3031.29
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2981.23
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2931.6
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2881.8
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

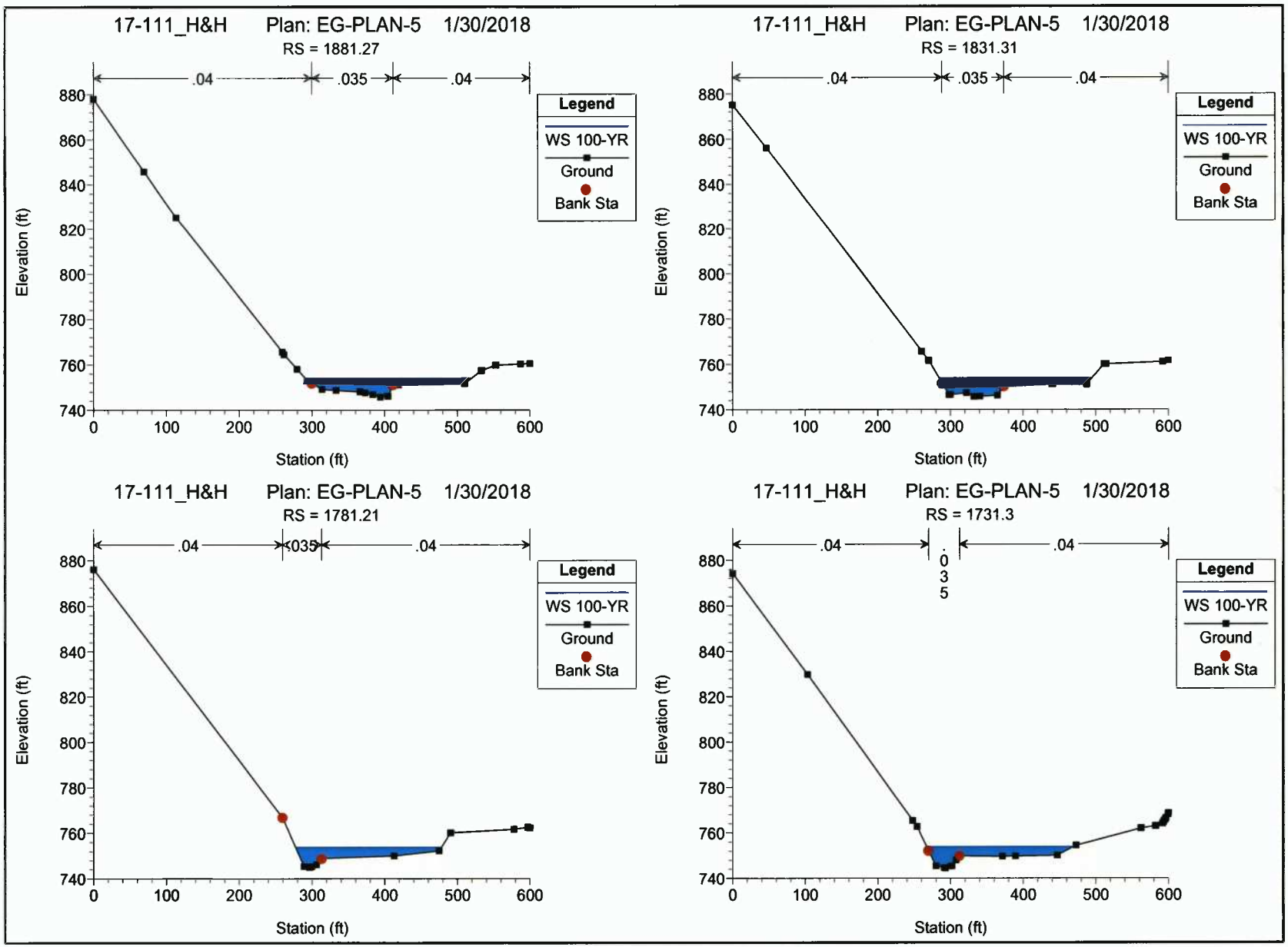

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2830.87
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2820 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2820 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2731.19
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

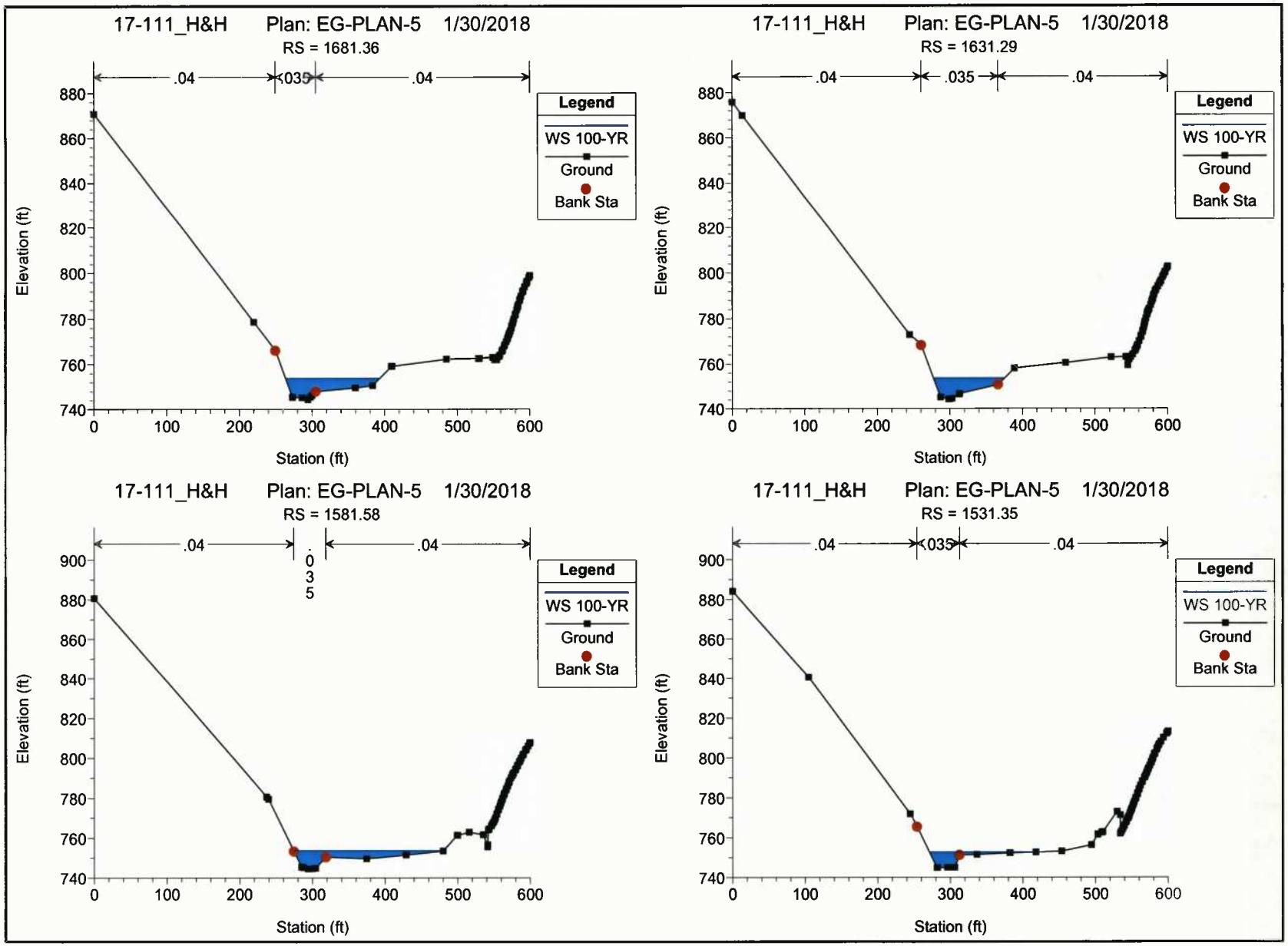

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2681.3
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2631.1
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2581.46
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2531.07
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

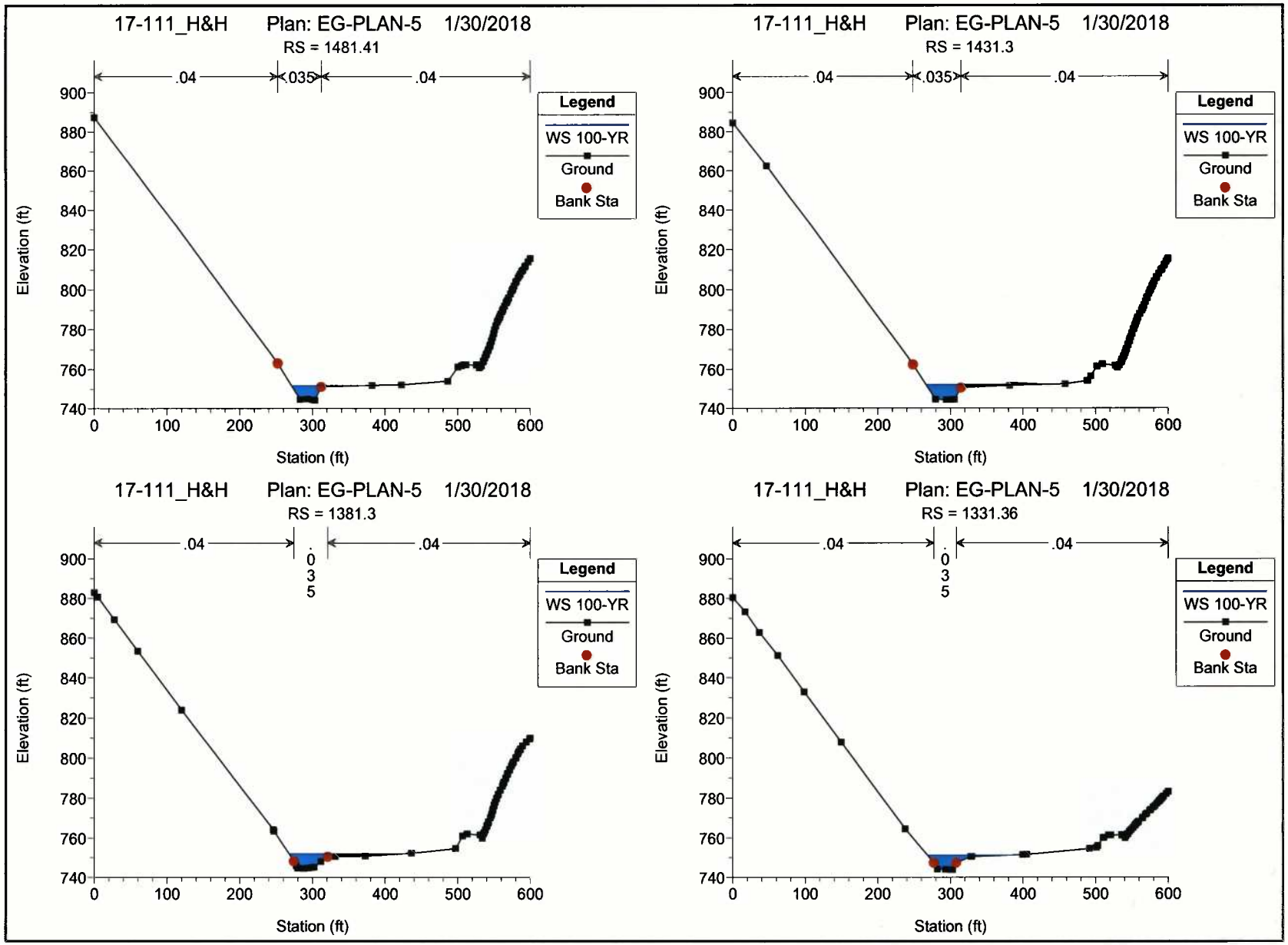

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2481.43
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2431.44
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2381.67
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2331.55
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

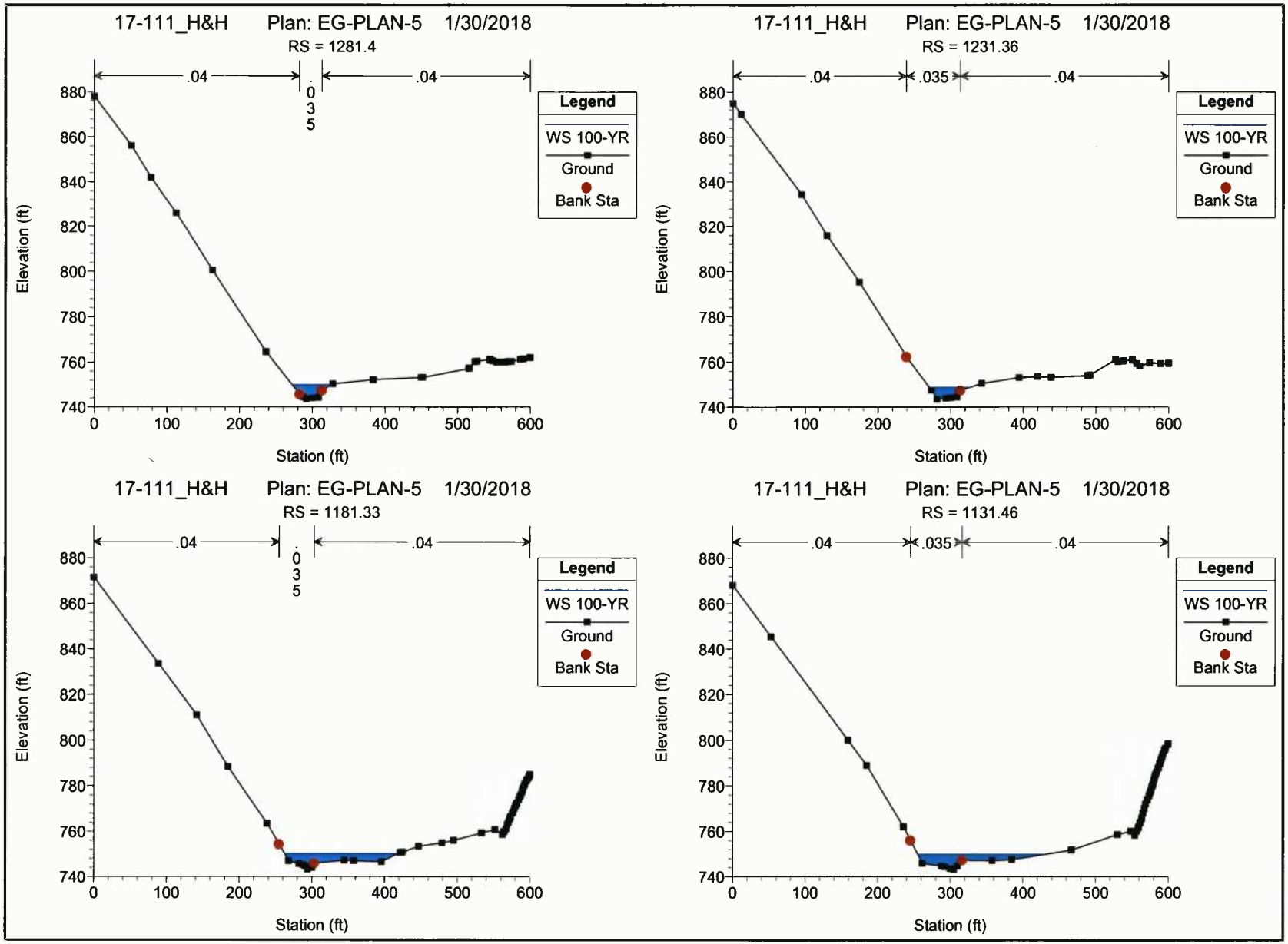

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2281.67
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2231.25
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2181.22
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2131.29
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

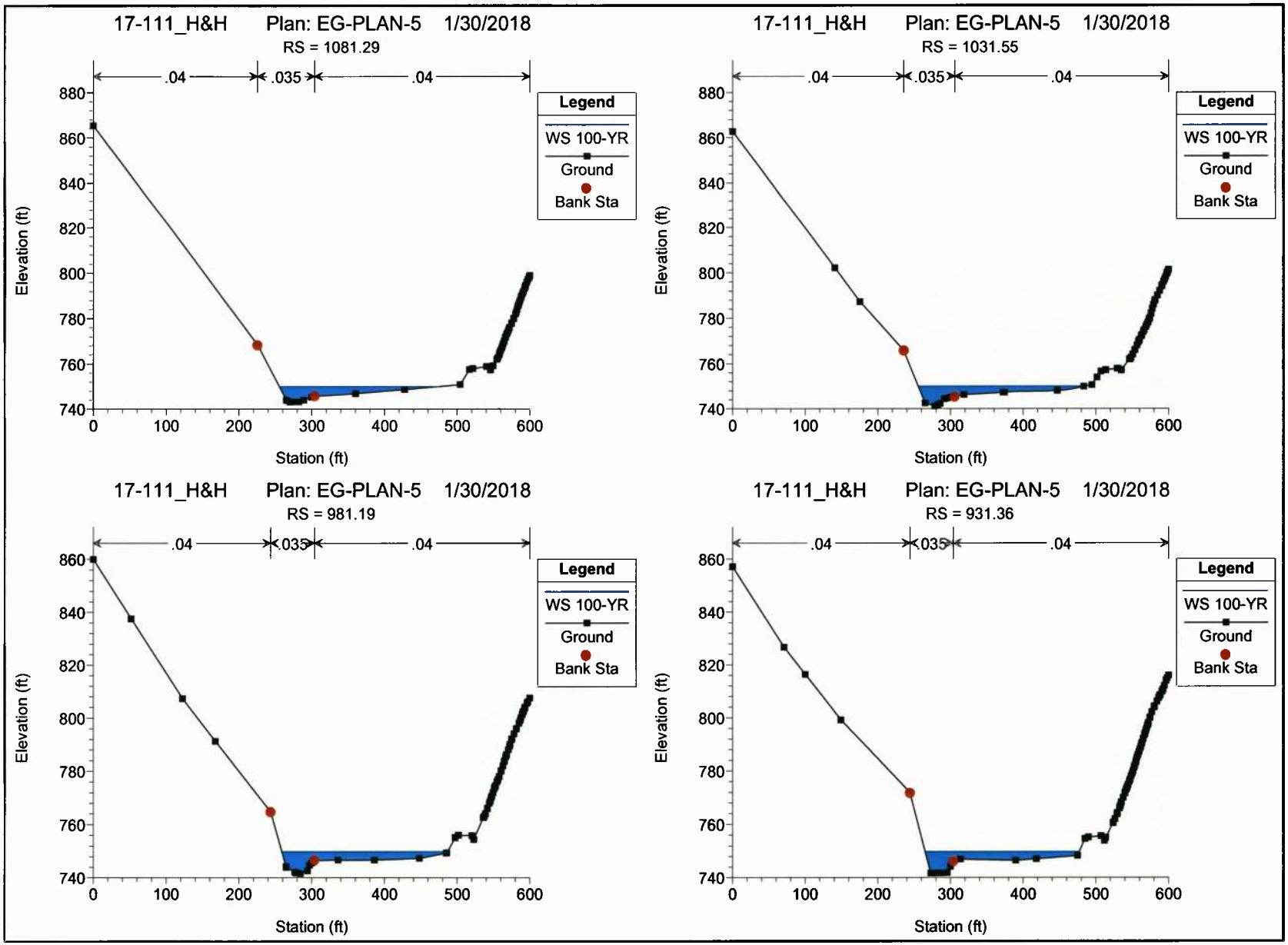

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2081.11
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2031.08
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1981.04
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1931.11

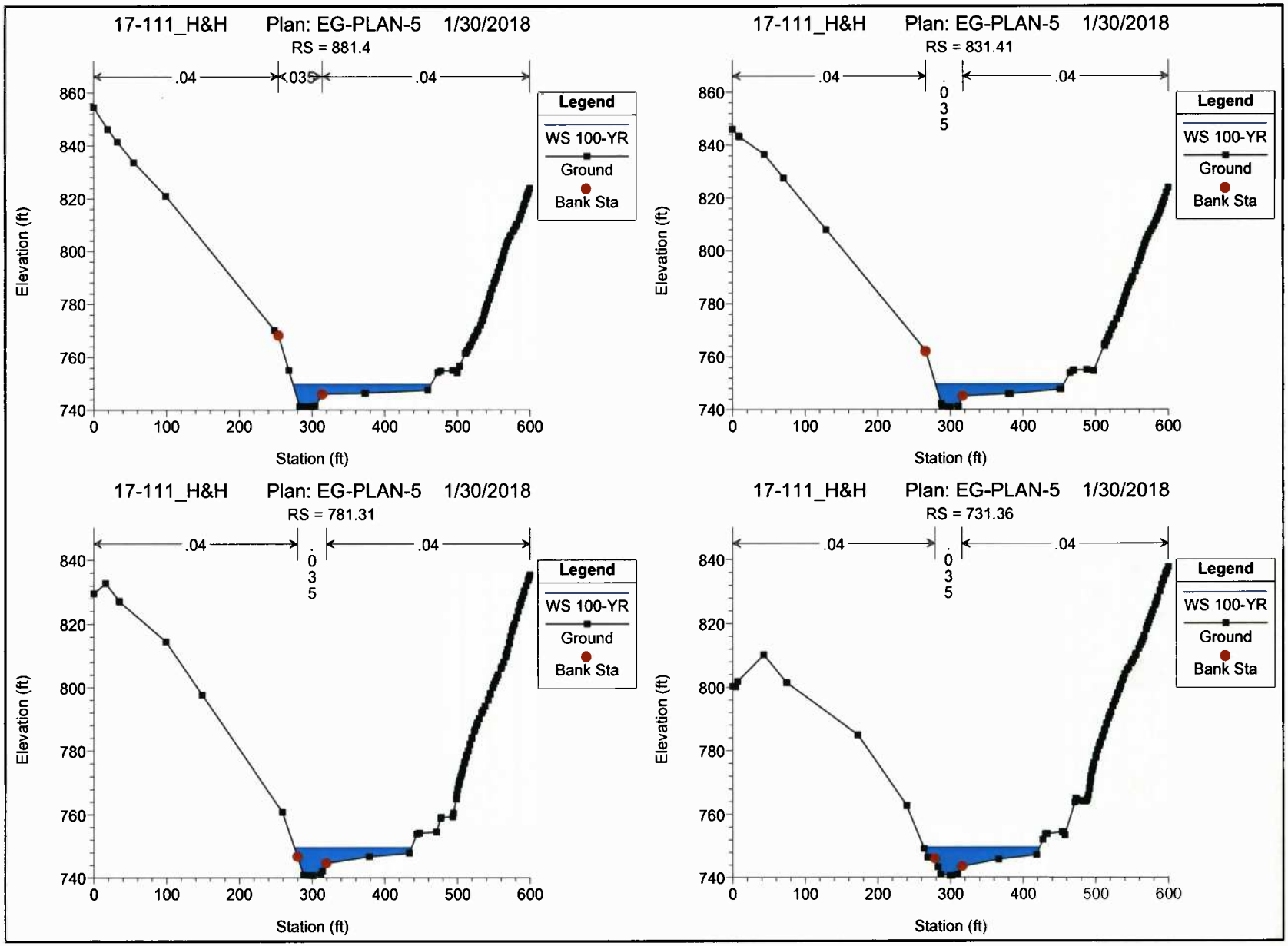

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1881.27
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1831.31
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1781.21
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1731.3
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

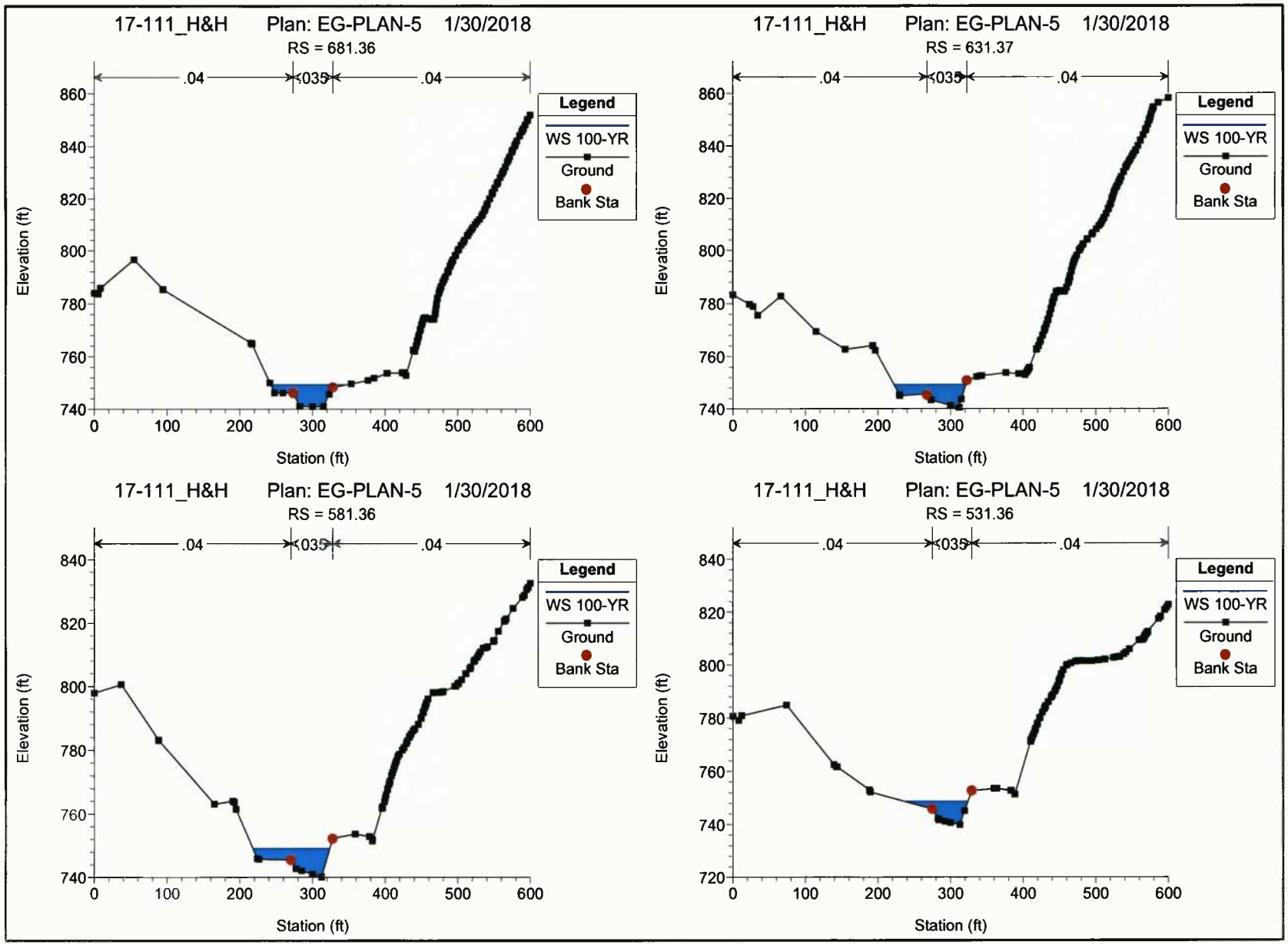

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1681.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1631.29
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1581.58
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1531.35
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

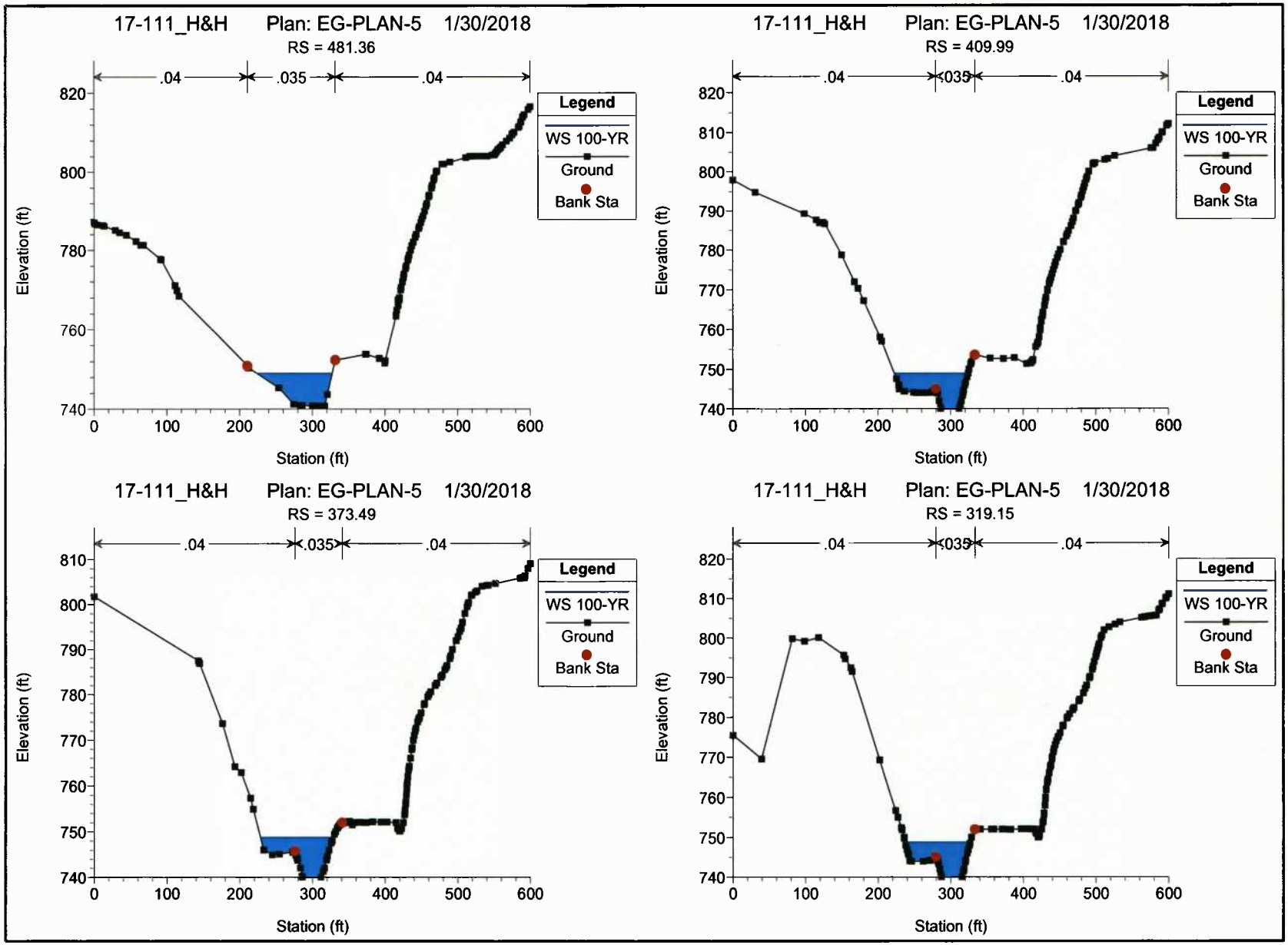

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1481.41
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1431.3
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1381.3
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1331.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

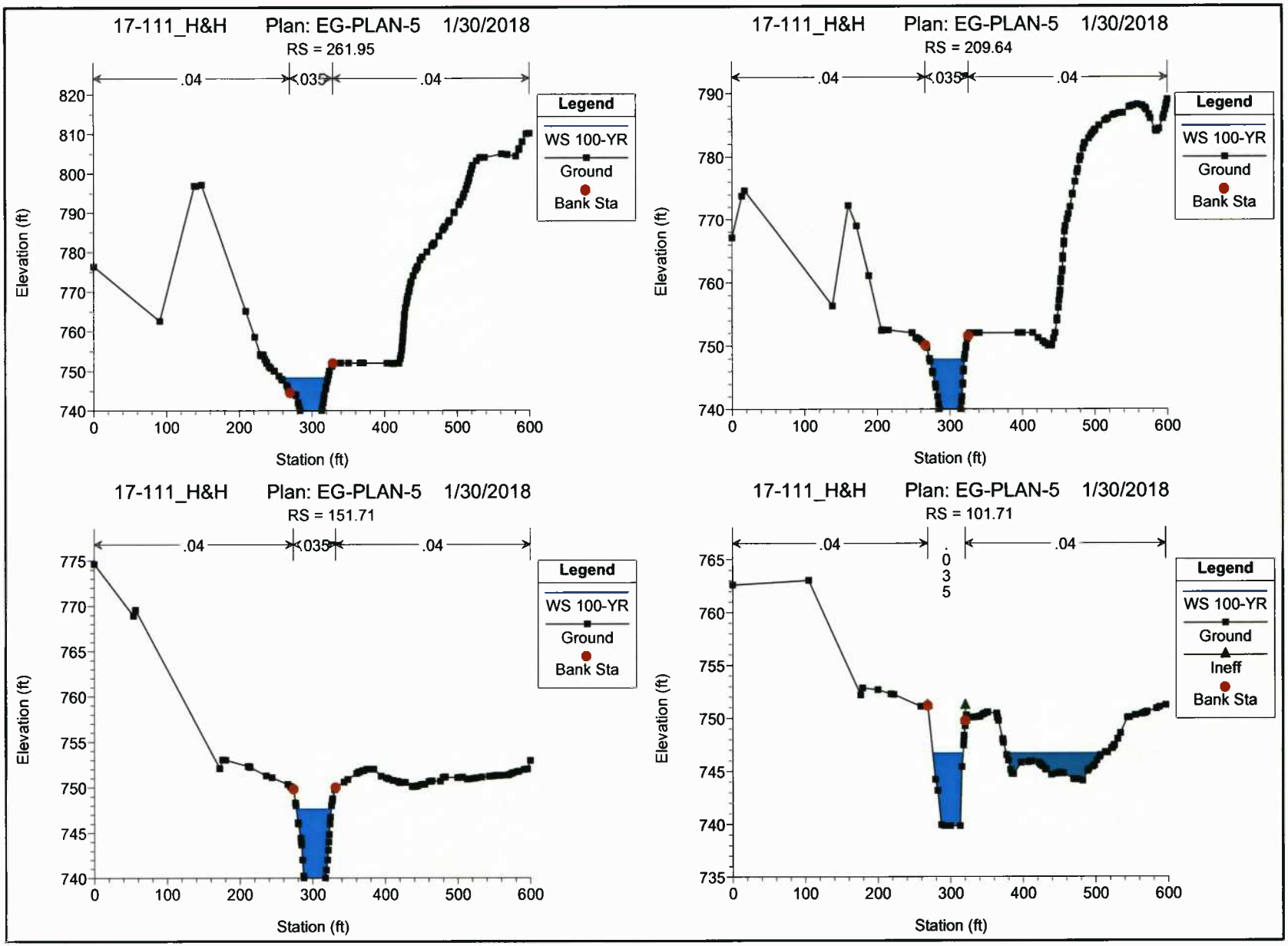

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1281.4
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1231.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1181.33
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1131.46
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

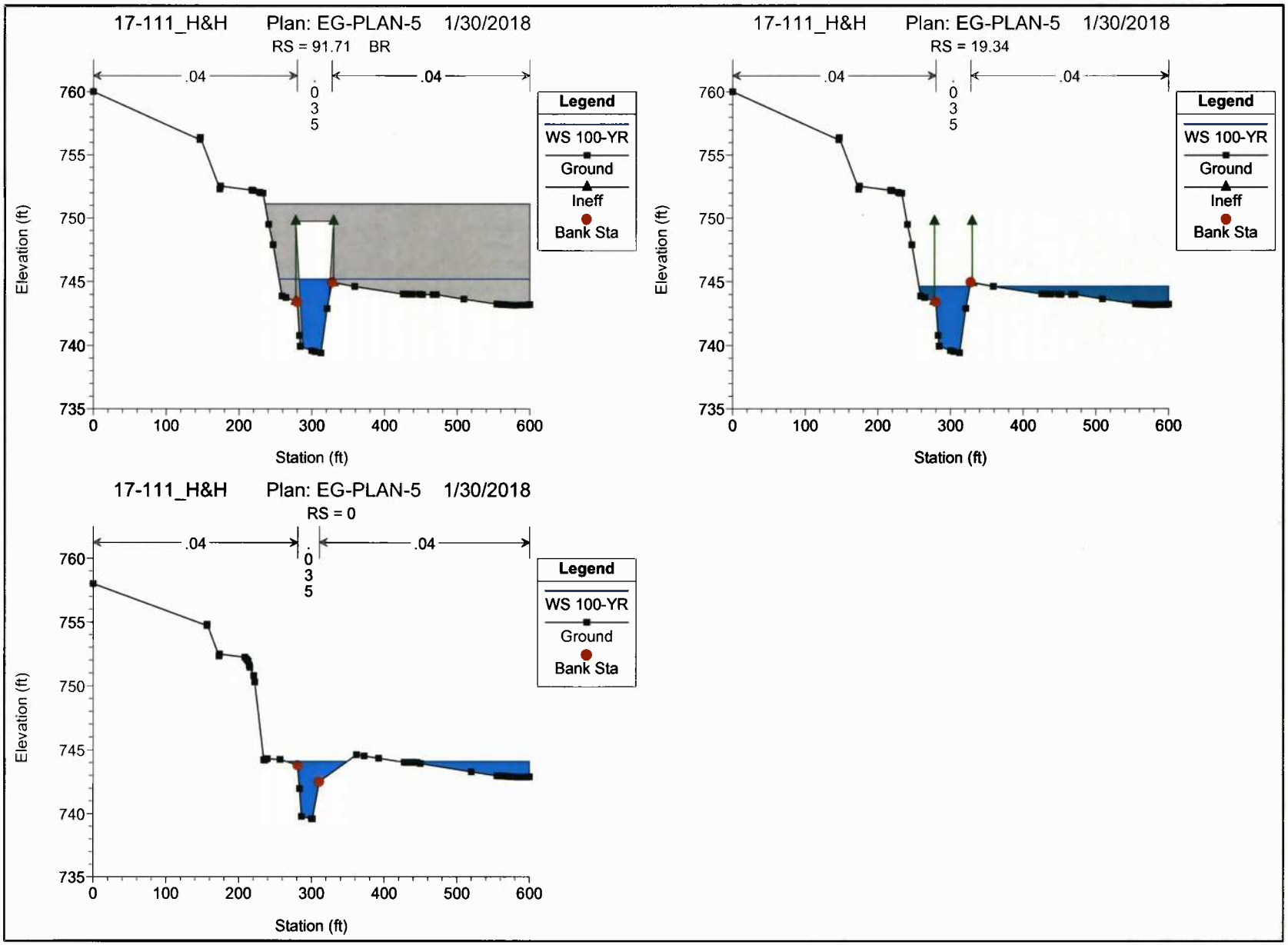

17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1081.29
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1031.55
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 981.19
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 931.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 881.4
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 831.41
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 781.31
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 731.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 681.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 631.37
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 581.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 531.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 481.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 409.99
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 373.49
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 319.15
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 261.95
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 209.64
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 151.71
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 101.71
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 91.71 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 19.34
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 0
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2820 Profile: 100-YR

E.G. US. (ft)	757.93	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	757.74	E.G. Elev (ft)	757.91	757.84
Q Total (cfs)	2315.70	W.S. Elev (ft)	757.73	757.55
Q Bridge (cfs)	237.58	Crit W.S. (ft)	756.18	755.17
Q Weir (cfs)		Max Chl Dpth (ft)	8.10	8.48
Weir Sta Lft (ft)		Vel Total (ft/s)	3.33	4.29
Weir Sta Rgt (ft)		Flow Area (sq ft)	695.89	539.66
Weir Submerg		Froude # Chl	0.21	0.26
Weir Max Depth (ft)		Specif Force (cu ft)	1586.74	1590.88
Min El Weir Flow (ft)	755.37	Hydr Depth (ft)	3.01	2.95
Min El Prs (ft)	755.72	W.P. Total (ft)	324.74	296.93
Delta EG (ft)	0.34	Conv. Total (cfs)	46001.4	33178.3
Delta WS (ft)	0.56	Top Width (ft)	231.07	182.71
BR Open Area (sq ft)	100.38	Frctn Loss (ft)	0.05	0.23
BR Open Vel (ft/s)	2.37	C & E Loss (ft)	0.01	0.01
BR Sluice Coef		Shear Total (lb/sq ft)	0.34	0.55
BR Sel Method	Energy only	Power Total (lb/ft s)	1.13	2.37

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 91.71 Profile: 100-YR

E.G. US. (ft)	748.31	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	746.66	E.G. Elev (ft)	748.24	747.46
Q Total (cfs)	2333.46	W.S. Elev (ft)	745.84	745.20
Q Bridge (cfs)	2333.46	Crit W.S. (ft)	745.84	745.20
Q Weir (cfs)		Max Chl Dpth (ft)	6.02	5.79
Weir Sta Lft (ft)		Vel Total (ft/s)	12.41	12.05
Weir Sta Rgt (ft)		Flow Area (sq ft)	188.02	193.64
Weir Submerg		Froude # Chl	1.00	1.00
Weir Max Depth (ft)		Specif Force (cu ft)	1414.63	1366.89
Min El Weir Flow (ft)	751.16	Hydr Depth (ft)	4.78	4.52
Min El Prs (ft)	749.74	W.P. Total (ft)	43.67	46.48
Delta EG (ft)	1.36	Conv. Total (cfs)	21125.7	21285.1
Delta WS (ft)	2.02	Top Width (ft)	39.36	42.84
BR Open Area (sq ft)	361.29	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.41	C & E Loss (ft)		
BR Sluice Coef		Shear Total (lb/sq ft)	3.28	3.13
BR Sel Method	Momentum	Power Total (lb/ft s)	40.70	37.67

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 3200.18 Profile: 100-YR

E.G. Elev (ft)	760.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.50	Wt. n-Val.		0.035	
W.S. Elev (ft)	758.99	Reach Len. (ft)	48.94	48.94	48.94
Crit W.S. (ft)	758.83	Flow Area (sq ft)		225.97	
E.G. Slope (ft/ft)	0.010951	Area (sq ft)		225.97	
Q Total (cfs)	2216.44	Flow (cfs)		2216.44	
Top Width (ft)	67.21	Top Width (ft)		67.21	
Vel Total (ft/s)	9.81	Avg. Vel. (ft/s)		9.81	
Max Chl Dpth (ft)	5.32	Hydr. Depth (ft)		3.36	
Conv. Total (cfs)	21180.5	Conv. (cfs)		21180.5	
Length Wtd. (ft)	48.94	Wetted Per. (ft)		68.88	
Min Ch El (ft)	753.67	Shear (lb/sq ft)		2.24	
Alpha	1.00	Stream Power (lb/ft s)		22.00	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	3.73	22.90	14.69
C & E Loss (ft)	0.01	Cum SA (acres)	1.79	4.12	6.74

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 3151.24 Profile: 100-YR

E.G. Elev (ft)	759.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.55	Wt. n-Val.		0.035	
W.S. Elev (ft)	758.36	Reach Len. (ft)	73.58	73.58	73.58
Crit W.S. (ft)	758.36	Flow Area (sq ft)		221.64	
E.G. Slope (ft/ft)	0.012670	Area (sq ft)		221.64	
Q Total (cfs)	2216.44	Flow (cfs)		2216.44	
Top Width (ft)	71.36	Top Width (ft)		71.36	
Vel Total (ft/s)	10.00	Avg. Vel. (ft/s)		10.00	
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)		3.11	
Conv. Total (cfs)	19691.2	Conv. (cfs)		19691.2	
Length Wtd. (ft)	73.58	Wetted Per. (ft)		73.22	
Min Ch El (ft)	753.62	Shear (lb/sq ft)		2.39	
Alpha	1.00	Stream Power (lb/ft s)		23.94	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	3.73	22.65	14.69
C & E Loss (ft)	0.09	Cum SA (acres)	1.79	4.04	6.74

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 3077.66 Profile: 100-YR

E.G. Elev (ft)	759.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.25	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	757.83	Reach Len. (ft)	46.37	46.37	46.37
Crit W.S. (ft)	757.29	Flow Area (sq ft)		258.23	1.44
E.G. Slope (ft/ft)	0.007709	Area (sq ft)		258.23	1.44
Q Total (cfs)	2315.70	Flow (cfs)		2313.60	2.11
Top Width (ft)	72.30	Top Width (ft)		67.54	4.75
Vel Total (ft/s)	8.92	Avg. Vel. (ft/s)		8.96	1.46
Max Chl Dpth (ft)	5.83	Hydr. Depth (ft)		3.82	0.30
Conv. Total (cfs)	26375.0	Conv. (cfs)		26351.0	24.0
Length Wtd. (ft)	46.37	Wetted Per. (ft)		69.29	4.79
Min Ch El (ft)	752.00	Shear (lb/sq ft)		1.79	0.14
Alpha	1.01	Stream Power (lb/ft s)		16.07	0.21
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	3.73	22.24	14.69
C & E Loss (ft)	0.16	Cum SA (acres)	1.79	3.92	6.74

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 3031.29 Profile: 100-YR

E.G. Elev (ft)	758.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.94	Reach Len. (ft)	50.06	50.06	50.06
Crit W.S. (ft)	756.77	Flow Area (sq ft)	69.48	311.95	6.36
E.G. Slope (ft/ft)	0.004143	Area (sq ft)	69.48	311.95	6.36
Q Total (cfs)	2315.70	Flow (cfs)	114.15	2189.05	12.50
Top Width (ft)	202.89	Top Width (ft)	121.91	72.59	8.39
Vel Total (ft/s)	5.97	Avg. Vel. (ft/s)	1.64	7.02	1.97
Max Chl Dpth (ft)	6.66	Hydr. Depth (ft)	0.57	4.30	0.76
Conv. Total (cfs)	35976.1	Conv. (cfs)	1773.4	34008.5	194.3
Length Wtd. (ft)	50.06	Wetted Per. (ft)	122.00	75.81	8.52
Min Ch El (ft)	751.28	Shear (lb/sq ft)	0.15	1.06	0.19
Alpha	1.31	Stream Power (lb/ft s)	0.24	7.47	0.38
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	3.69	21.94	14.68
C & E Loss (ft)	0.02	Cum SA (acres)	1.73	3.85	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2981.23 Profile: 100-YR

E.G. Elev (ft)	758.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.88	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.54	Reach Len. (ft)	49.63	49.63	49.63
Crit W.S. (ft)	756.59	Flow Area (sq ft)	54.61	288.47	
E.G. Slope (ft/ft)	0.005259	Area (sq ft)	54.61	288.47	
Q Total (cfs)	2315.70	Flow (cfs)	101.57	2214.13	
Top Width (ft)	165.37	Top Width (ft)	95.15	70.22	
Vel Total (ft/s)	6.75	Avg. Vel. (ft/s)	1.86	7.68	
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)	0.57	4.11	
Conv. Total (cfs)	31933.2	Conv. (cfs)	1400.6	30532.6	
Length Wtd. (ft)	49.63	Wetted Per. (ft)	95.18	73.28	
Min Ch El (ft)	750.87	Shear (lb/sq ft)	0.19	1.29	
Alpha	1.24	Stream Power (lb/ft s)	0.35	9.92	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	3.62	21.60	14.68
C & E Loss (ft)	0.19	Cum SA (acres)	1.61	3.77	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2931.6 Profile: 100-YR

E.G. Elev (ft)	758.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.84	Reach Len. (ft)	49.80	49.80	49.80
Crit W.S. (ft)		Flow Area (sq ft)	386.48	286.74	
E.G. Slope (ft/ft)	0.001590	Area (sq ft)	386.48	286.74	
Q Total (cfs)	2315.70	Flow (cfs)	927.05	1388.65	
Top Width (ft)	244.04	Top Width (ft)	187.10	56.94	
Vel Total (ft/s)	3.44	Avg. Vel. (ft/s)	2.40	4.84	
Max Chl Dpth (ft)	7.99	Hydr. Depth (ft)	2.07	5.04	
Conv. Total (cfs)	58082.1	Conv. (cfs)	23252.2	34829.9	
Length Wtd. (ft)	49.80	Wetted Per. (ft)	187.51	59.25	
Min Ch El (ft)	749.85	Shear (lb/sq ft)	0.20	0.48	
Alpha	1.38	Stream Power (lb/ft s)	0.49	2.33	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	3.37	21.27	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	1.44	3.70	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2881.8 Profile: 100-YR

E.G. Elev (ft)	758.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.78	Reach Len. (ft)	50.93	50.93	50.93
Crit W.S. (ft)		Flow Area (sq ft)	408.71	280.75	
E.G. Slope (ft/ft)	0.001367	Area (sq ft)	408.71	280.75	
Q Total (cfs)	2315.70	Flow (cfs)	990.34	1325.36	
Top Width (ft)	225.26	Top Width (ft)	174.27	50.99	
Vel Total (ft/s)	3.36	Avg. Vel. (ft/s)	2.42	4.72	
Max Chl Dpth (ft)	7.84	Hydr. Depth (ft)	2.35	5.51	
Conv. Total (cfs)	62628.1	Conv. (cfs)	26783.6	35844.5	
Length Wtd. (ft)	50.93	Wetted Per. (ft)	174.44	53.83	
Min Ch El (ft)	749.94	Shear (lb/sq ft)	0.20	0.45	
Alpha	1.35	Stream Power (lb/ft s)	0.48	2.10	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	2.92	20.94	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	1.24	3.63	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2830.87 Profile: 100-YR

E.G. Elev (ft)	757.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.74	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	756.38	Flow Area (sq ft)	497.23	227.49	
E.G. Slope (ft/ft)	0.001336	Area (sq ft)	549.07	256.30	
Q Total (cfs)	2315.70	Flow (cfs)	1293.04	1022.66	
Top Width (ft)	231.09	Top Width (ft)	187.33	43.76	
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)	2.60	4.50	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	2.65	5.20	
Conv. Total (cfs)	63343.9	Conv. (cfs)	35369.9	27974.0	
Length Wtd. (ft)	10.00	Wetted Per. (ft)	187.65	46.15	
Min Ch El (ft)	749.63	Shear (lb/sq ft)	0.22	0.41	
Alpha	1.24	Stream Power (lb/ft s)	0.57	1.85	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	2.36	20.63	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	1.03	3.58	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2820 BR U Profile: 100-YR

E.G. Elev (ft)	757.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.73	Reach Len. (ft)	16.00	16.00	16.00
Crit W.S. (ft)	756.18	Flow Area (sq ft)	496.74	199.15	
E.G. Slope (ft/ft)	0.002534	Area (sq ft)	538.66	214.94	
Q Total (cfs)	2315.70	Flow (cfs)	1739.93	575.77	
Top Width (ft)	231.07	Top Width (ft)	187.32	43.75	
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)	3.50	2.89	
Max Chl Dpth (ft)	8.10	Hydr. Depth (ft)	2.65	4.55	
Conv. Total (cfs)	46001.4	Conv. (cfs)	34563.7	11437.7	
Length Wtd. (ft)	16.00	Wetted Per. (ft)	198.16	126.57	
Min Ch El (ft)	749.63	Shear (lb/sq ft)	0.40	0.25	
Alpha	1.02	Stream Power (lb/ft s)	1.39	0.72	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	2.23	20.57	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	0.98	3.57	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2820 BR D Profile: 100-YR

E.G. Elev (ft)	757.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.55	Reach Len. (ft)	73.68	73.68	73.68
Crit W.S. (ft)	755.17	Flow Area (sq ft)	221.81	315.84	2.01
E.G. Slope (ft/ft)	0.004871	Area (sq ft)	221.81	315.84	2.01
Q Total (cfs)	2315.70	Flow (cfs)	860.50	1453.67	1.53
Top Width (ft)	182.71	Top Width (ft)	121.11	49.09	12.51
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)	3.88	4.60	0.76
Max Chl Dpth (ft)	8.48	Hydr. Depth (ft)	1.83	6.43	0.16
Conv. Total (cfs)	33178.3	Conv. (cfs)	12328.8	20827.6	21.9
Length Wtd. (ft)	73.68	Wetted Per. (ft)	121.20	163.16	12.58
Min Ch El (ft)	749.07	Shear (lb/sq ft)	0.56	0.59	0.05
Alpha	1.03	Stream Power (lb/ft s)	2.16	2.71	0.04
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	2.09	20.48	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	0.93	3.55	6.72

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2731.19 Profile: 100-YR

E.G. Elev (ft)	757.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.18	Reach Len. (ft)	49.89	49.89	49.89
Crit W.S. (ft)		Flow Area (sq ft)	177.58	338.15	
E.G. Slope (ft/ft)	0.002180	Area (sq ft)	177.58	338.15	
Q Total (cfs)	2315.70	Flow (cfs)	408.06	1907.64	
Top Width (ft)	184.80	Top Width (ft)	116.38	68.42	
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)	2.30	5.64	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	1.53	4.94	
Conv. Total (cfs)	49599.1	Conv. (cfs)	8740.1	40859.0	
Length Wtd. (ft)	49.89	Wetted Per. (ft)	116.44	70.42	
Min Ch El (ft)	749.07	Shear (lb/sq ft)	0.21	0.65	
Alpha	1.35	Stream Power (lb/ft s)	0.48	3.69	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.75	19.92	14.68
C & E Loss (ft)	0.04	Cum SA (acres)	0.73	3.45	6.71

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2681.3 Profile: 100-YR

E.G. Elev (ft)	757.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.18	Reach Len. (ft)	50.20	50.20	50.20
Crit W.S. (ft)		Flow Area (sq ft)	44.46	518.41	3.86
E.G. Slope (ft/ft)	0.001451	Area (sq ft)	44.46	518.41	3.86
Q Total (cfs)	2315.70	Flow (cfs)	53.26	2260.35	2.08
Top Width (ft)	188.72	Top Width (ft)	57.05	115.28	16.39
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)	1.20	4.36	0.54
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)	0.78	4.50	0.24
Conv. Total (cfs)	60800.3	Conv. (cfs)	1398.4	59347.2	54.7
Length Wtd. (ft)	50.20	Wetted Per. (ft)	57.07	117.08	16.42
Min Ch El (ft)	748.91	Shear (lb/sq ft)	0.07	0.40	0.02
Alpha	1.11	Stream Power (lb/ft s)	0.08	1.75	0.01
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.63	19.43	14.68
C & E Loss (ft)	0.03	Cum SA (acres)	0.63	3.35	6.70

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2631.1 Profile: 100-YR

E.G. Elev (ft)	757.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.19	Reach Len. (ft)	49.64	49.64	49.64
Crit W.S. (ft)		Flow Area (sq ft)	48.42	362.43	374.37
E.G. Slope (ft/ft)	0.001031	Area (sq ft)	48.42	362.43	374.37
Q Total (cfs)	2315.70	Flow (cfs)	60.55	1500.24	754.91
Top Width (ft)	281.10	Top Width (ft)	45.05	66.61	169.44
Vel Total (ft/s)	2.95	Avg. Vel. (ft/s)	1.25	4.14	2.02
Max Chl Dpth (ft)	8.40	Hydr. Depth (ft)	1.07	5.44	2.21
Conv. Total (cfs)	72113.8	Conv. (cfs)	1885.5	46719.4	23508.9
Length Wtd. (ft)	49.64	Wetted Per. (ft)	45.10	68.50	170.34
Min Ch El (ft)	748.79	Shear (lb/sq ft)	0.07	0.34	0.14
Alpha	1.43	Stream Power (lb/ft s)	0.09	1.41	0.29
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.57	18.93	14.46
C & E Loss (ft)	0.15	Cum SA (acres)	0.57	3.24	6.60

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2581.46 Profile: 100-YR

E.G. Elev (ft)	757.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.72	Wt. n-Val.		0.035	
W.S. Elev (ft)	755.39	Reach Len. (ft)	50.39	50.39	50.39
Crit W.S. (ft)	755.13	Flow Area (sq ft)		220.18	
E.G. Slope (ft/ft)	0.010015	Area (sq ft)		220.18	
Q Total (cfs)	2315.70	Flow (cfs)		2315.70	
Top Width (ft)	53.99	Top Width (ft)		53.99	
Vel Total (ft/s)	10.52	Avg. Vel. (ft/s)		10.52	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		4.08	
Conv. Total (cfs)	23140.2	Conv. (cfs)		23140.2	
Length Wtd. (ft)	50.39	Wetted Per. (ft)		56.53	
Min Ch El (ft)	749.42	Shear (lb/sq ft)		2.44	
Alpha	1.00	Stream Power (lb/ft s)		25.61	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	1.55	18.59	14.24
C & E Loss (ft)	0.15	Cum SA (acres)	0.54	3.17	6.50

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2531.07 Profile: 100-YR

E.G. Elev (ft)	756.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	755.30	Reach Len. (ft)	49.64	49.64	49.64
Crit W.S. (ft)	755.30	Flow Area (sq ft)		236.61	60.90
E.G. Slope (ft/ft)	0.007307	Area (sq ft)		236.61	60.90
Q Total (cfs)	2315.70	Flow (cfs)		2171.53	144.17
Top Width (ft)	152.96	Top Width (ft)		55.61	97.35
Vel Total (ft/s)	7.78	Avg. Vel. (ft/s)		9.18	2.37
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)		4.26	0.63
Conv. Total (cfs)	27089.4	Conv. (cfs)		25402.9	1686.5
Length Wtd. (ft)	49.64	Wetted Per. (ft)		58.83	97.57
Min Ch El (ft)	748.62	Shear (lb/sq ft)		1.83	0.28
Alpha	1.31	Stream Power (lb/ft s)		16.84	0.67
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	1.55	18.33	14.21
C & E Loss (ft)	0.15	Cum SA (acres)	0.54	3.11	6.44

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2481.43 Profile: 100-YR

E.G. Elev (ft)	755.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.85	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)	753.99	Flow Area (sq ft)	0.54	270.89	133.36
E.G. Slope (ft/ft)	0.003509	Area (sq ft)	0.54	270.89	133.36
Q Total (cfs)	2315.70	Flow (cfs)	0.26	2004.09	311.35
Top Width (ft)	177.05	Top Width (ft)	5.24	50.16	121.66
Vel Total (ft/s)	5.72	Avg. Vel. (ft/s)	0.48	7.40	2.33
Max Chl Dpth (ft)	7.95	Hydr. Depth (ft)	0.10	5.40	1.10
Conv. Total (cfs)	39091.1	Conv. (cfs)	4.4	33830.8	5256.0
Length Wtd. (ft)	49.99	Wetted Per. (ft)	5.24	53.69	122.17
Min Ch El (ft)	746.90	Shear (lb/sq ft)	0.02	1.11	0.24
Alpha	1.47	Stream Power (lb/ft s)	0.01	8.18	0.56
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	1.55	18.04	14.10
C & E Loss (ft)	0.06	Cum SA (acres)	0.54	3.05	6.32

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2431.44 Profile: 100-YR

E.G. Elev (ft)	755.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.81	Reach Len. (ft)	49.77	49.77	49.77
Crit W.S. (ft)		Flow Area (sq ft)		221.76	295.65
E.G. Slope (ft/ft)	0.003572	Area (sq ft)		221.76	295.65
Q Total (cfs)	2315.70	Flow (cfs)		1546.60	769.10
Top Width (ft)	278.76	Top Width (ft)		46.19	232.57
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		6.97	2.60
Max Chl Dpth (ft)	6.70	Hydr. Depth (ft)		4.80	1.27
Conv. Total (cfs)	38746.9	Conv. (cfs)		25878.1	12868.8
Length Wtd. (ft)	49.77	Wetted Per. (ft)		48.66	233.10
Min Ch El (ft)	748.11	Shear (lb/sq ft)		1.02	0.28
Alpha	1.73	Stream Power (lb/ft s)		7.09	0.74
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.55	17.76	13.85
C & E Loss (ft)	0.08	Cum SA (acres)	0.54	2.99	6.11

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2381.67 Profile: 100-YR

E.G. Elev (ft)	755.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.88	Reach Len. (ft)	50.12	50.12	50.12
Crit W.S. (ft)		Flow Area (sq ft)	1.36	226.34	496.81
E.G. Slope (ft/ft)	0.001697	Area (sq ft)	1.36	226.34	496.81
Q Total (cfs)	2315.70	Flow (cfs)	1.42	1233.50	1080.78
Top Width (ft)	333.83	Top Width (ft)	2.01	39.18	292.64
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)	1.04	5.45	2.18
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)	0.68	5.78	1.70
Conv. Total (cfs)	56216.6	Conv. (cfs)	34.4	29944.8	26237.4
Length Wtd. (ft)	50.12	Wetted Per. (ft)	2.42	41.14	293.08
Min Ch El (ft)	747.68	Shear (lb/sq ft)	0.06	0.58	0.18
Alpha	1.76	Stream Power (lb/ft s)	0.06	3.18	0.39
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.54	17.50	13.40
C & E Loss (ft)	0.00	Cum SA (acres)	0.53	2.95	5.81

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2331.55 Profile: 100-YR

E.G. Elev (ft)	755.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.79	Reach Len. (ft)	49.88	49.88	49.88
Crit W.S. (ft)		Flow Area (sq ft)		232.17	473.94
E.G. Slope (ft/ft)	0.001863	Area (sq ft)		232.17	473.94
Q Total (cfs)	2315.70	Flow (cfs)		1229.83	1085.87
Top Width (ft)	324.68	Top Width (ft)		44.35	280.33
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		5.30	2.29
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		5.23	1.69
Conv. Total (cfs)	53652.7	Conv. (cfs)		28494.2	25158.6
Length Wtd. (ft)	49.88	Wetted Per. (ft)		47.23	281.52
Min Ch El (ft)	747.82	Shear (lb/sq ft)		0.57	0.20
Alpha	1.61	Stream Power (lb/ft s)		3.03	0.45
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.54	17.24	12.84
C & E Loss (ft)	0.03	Cum SA (acres)	0.53	2.90	5.49

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2281.67 Profile: 100-YR

E.G. Elev (ft)	754.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.33	Reach Len. (ft)	50.42	50.42	50.42
Crit W.S. (ft)		Flow Area (sq ft)		199.79	326.11
E.G. Slope (ft/ft)	0.003935	Area (sq ft)		199.79	326.11
Q Total (cfs)	2315.70	Flow (cfs)		1469.47	846.23
Top Width (ft)	317.76	Top Width (ft)		40.62	277.14
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)		7.36	2.59
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)		4.92	1.18
Conv. Total (cfs)	36917.1	Conv. (cfs)		23426.4	13490.6
Length Wtd. (ft)	50.42	Wetted Per. (ft)		43.53	277.50
Min Ch El (ft)	747.53	Shear (lb/sq ft)		1.13	0.29
Alpha	1.90	Stream Power (lb/ft s)		8.29	0.75
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.54	16.99	12.38
C & E Loss (ft)	0.09	Cum SA (acres)	0.53	2.85	5.17

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2231.25 Profile: 100-YR

E.G. Elev (ft)	754.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.41	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)		Flow Area (sq ft)		222.30	490.66
E.G. Slope (ft/ft)	0.001890	Area (sq ft)		222.30	490.66
Q Total (cfs)	2315.70	Flow (cfs)		1184.41	1131.29
Top Width (ft)	330.06	Top Width (ft)		42.46	287.60
Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)		5.33	2.31
Max Chl Dpth (ft)	7.17	Hydr. Depth (ft)		5.24	1.71
Conv. Total (cfs)	53263.1	Conv. (cfs)		27242.4	26020.7
Length Wtd. (ft)	50.03	Wetted Per. (ft)		45.33	287.66
Min Ch El (ft)	747.24	Shear (lb/sq ft)		0.58	0.20
Alpha	1.62	Stream Power (lb/ft s)		3.08	0.46
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	1.54	16.75	11.91
C & E Loss (ft)	0.01	Cum SA (acres)	0.53	2.80	4.84

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2181.22 Profile: 100-YR

E.G. Elev (ft)	754.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.19	Reach Len. (ft)	49.93	49.93	49.93
Crit W.S. (ft)		Flow Area (sq ft)		239.39	365.04
E.G. Slope (ft/ft)	0.002272	Area (sq ft)		239.39	365.04
Q Total (cfs)	2315.70	Flow (cfs)		1422.44	893.26
Top Width (ft)	268.67	Top Width (ft)		44.30	224.37
Vel Total (ft/s)	3.83	Avg. Vel. (ft/s)		5.94	2.45
Max Chl Dpth (ft)	6.69	Hydr. Depth (ft)		5.40	1.63
Conv. Total (cfs)	48584.2	Conv. (cfs)		29843.3	18740.9
Length Wtd. (ft)	49.93	Wetted Per. (ft)		47.58	224.68
Min Ch El (ft)	747.50	Shear (lb/sq ft)		0.71	0.23
Alpha	1.63	Stream Power (lb/ft s)		4.24	0.56
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.54	16.48	11.42
C & E Loss (ft)	0.08	Cum SA (acres)	0.53	2.75	4.55

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2131.29 Profile: 100-YR

E.G. Elev (ft)	754.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.30	Reach Len. (ft)	50.18	50.18	50.18
Crit W.S. (ft)		Flow Area (sq ft)		325.00	624.37
E.G. Slope (ft/ft)	0.000761	Area (sq ft)		325.00	624.37
Q Total (cfs)	2320.26	Flow (cfs)		1139.34	1180.92
Top Width (ft)	308.58	Top Width (ft)		60.34	248.25
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)		3.51	1.89
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)		5.39	2.52
Conv. Total (cfs)	84133.7	Conv. (cfs)		41313.0	42820.7
Length Wtd. (ft)	50.18	Wetted Per. (ft)		62.73	248.90
Min Ch El (ft)	748.01	Shear (lb/sq ft)		0.25	0.12
Alpha	1.32	Stream Power (lb/ft s)		0.86	0.23
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.54	16.16	10.85
C & E Loss (ft)	0.01	Cum SA (acres)	0.53	2.69	4.27

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2081.11 Profile: 100-YR

E.G. Elev (ft)	754.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.29	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)		Flow Area (sq ft)		433.17	627.49
E.G. Slope (ft/ft)	0.000481	Area (sq ft)		433.17	627.49
Q Total (cfs)	2320.26	Flow (cfs)		1251.50	1068.77
Top Width (ft)	284.47	Top Width (ft)		77.04	207.43
Vel Total (ft/s)	2.19	Avg. Vel. (ft/s)		2.89	1.70
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		5.62	3.03
Conv. Total (cfs)	105788.8	Conv. (cfs)		57060.0	48728.8
Length Wtd. (ft)	50.03	Wetted Per. (ft)		79.26	207.60
Min Ch El (ft)	747.32	Shear (lb/sq ft)		0.16	0.09
Alpha	1.22	Stream Power (lb/ft s)		0.47	0.15
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.54	15.72	10.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.53	2.61	4.01

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2031.08 Profile: 100-YR

E.G. Elev (ft)	754.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.23	Reach Len. (ft)	50.04	50.04	50.04
Crit W.S. (ft)		Flow Area (sq ft)	50.41	423.74	428.06
E.G. Slope (ft/ft)	0.000681	Area (sq ft)	50.41	423.74	428.06
Q Total (cfs)	2320.26	Flow (cfs)	66.53	1367.60	886.13
Top Width (ft)	252.88	Top Width (ft)	31.57	84.52	136.80
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)	1.32	3.23	2.07
Max Chl Dpth (ft)	7.46	Hydr. Depth (ft)	1.60	5.01	3.13
Conv. Total (cfs)	88921.9	Conv. (cfs)	2549.6	52412.0	33960.3
Length Wtd. (ft)	50.04	Wetted Per. (ft)	31.73	85.21	137.15
Min Ch El (ft)	746.77	Shear (lb/sq ft)	0.07	0.21	0.13
Alpha	1.18	Stream Power (lb/ft s)	0.09	0.68	0.27
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.51	15.23	9.52
C & E Loss (ft)	0.00	Cum SA (acres)	0.52	2.52	3.81

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1981.04 Profile: 100-YR

E.G. Elev (ft)	754.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.20	Reach Len. (ft)	49.93	49.93	49.93
Crit W.S. (ft)		Flow Area (sq ft)	27.74	488.71	366.41
E.G. Slope (ft/ft)	0.000776	Area (sq ft)	27.74	488.71	366.41
Q Total (cfs)	2320.26	Flow (cfs)	40.25	1492.52	787.50
Top Width (ft)	254.52	Top Width (ft)	16.35	116.11	122.05
Vel Total (ft/s)	2.63	Avg. Vel. (ft/s)	1.45	3.05	2.15
Max Chl Dpth (ft)	7.69	Hydr. Depth (ft)	1.70	4.21	3.00
Conv. Total (cfs)	83306.3	Conv. (cfs)	1445.1	53587.1	28274.1
Length Wtd. (ft)	49.93	Wetted Per. (ft)	16.70	117.74	122.38
Min Ch El (ft)	746.51	Shear (lb/sq ft)	0.08	0.20	0.14
Alpha	1.10	Stream Power (lb/ft s)	0.12	0.61	0.31
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.47	14.71	9.07
C & E Loss (ft)	0.01	Cum SA (acres)	0.49	2.40	3.67

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1931.11 Profile: 100-YR

E.G. Elev (ft)	754.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.05	Reach Len. (ft)	49.84	49.84	49.84
Crit W.S. (ft)		Flow Area (sq ft)		471.18	209.95
E.G. Slope (ft/ft)	0.001264	Area (sq ft)		471.18	209.95
Q Total (cfs)	2320.26	Flow (cfs)		1849.33	470.93
Top Width (ft)	204.61	Top Width (ft)		110.06	94.55
Vel Total (ft/s)	3.41	Avg. Vel. (ft/s)		3.92	2.24
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)		4.28	2.22
Conv. Total (cfs)	65254.2	Conv. (cfs)		52009.9	13244.3
Length Wtd. (ft)	49.84	Wetted Per. (ft)		112.39	94.88
Min Ch El (ft)	745.64	Shear (lb/sq ft)		0.33	0.17
Alpha	1.15	Stream Power (lb/ft s)		1.30	0.39
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.45	14.16	8.74
C & E Loss (ft)	0.03	Cum SA (acres)	0.48	2.27	3.54

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1881.27 Profile: 100-YR

E.G. Elev (ft)	754.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.09	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)		Flow Area (sq ft)	13.10	668.78	281.44
E.G. Slope (ft/ft)	0.000423	Area (sq ft)	13.10	668.78	281.44
Q Total (cfs)	2320.26	Flow (cfs)	12.10	1901.72	406.44
Top Width (ft)	229.53	Top Width (ft)	9.55	111.96	108.02
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	0.92	2.84	1.44
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)	1.37	5.97	2.61
Conv. Total (cfs)	112785.2	Conv. (cfs)	588.0	92440.6	19756.6
Length Wtd. (ft)	49.96	Wetted Per. (ft)	9.87	113.84	108.34
Min Ch El (ft)	745.68	Shear (lb/sq ft)	0.04	0.16	0.07
Alpha	1.21	Stream Power (lb/ft s)	0.03	0.44	0.10
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.45	13.50	8.46
C & E Loss (ft)	0.00	Cum SA (acres)	0.47	2.15	3.43

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1831.31 Profile: 100-YR

E.G. Elev (ft)	754.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.07	Reach Len. (ft)	50.10	50.10	50.10
Crit W.S. (ft)		Flow Area (sq ft)	5.46	616.55	375.72
E.G. Slope (ft/ft)	0.000340	Area (sq ft)	5.46	616.55	375.72
Q Total (cfs)	2320.26	Flow (cfs)	3.92	1772.17	544.17
Top Width (ft)	211.34	Top Width (ft)	4.46	85.24	121.63
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)	0.72	2.87	1.45
Max Chl Dpth (ft)	8.39	Hydr. Depth (ft)	1.22	7.23	3.09
Conv. Total (cfs)	125846.0	Conv. (cfs)	212.8	96118.7	29514.6
Length Wtd. (ft)	50.10	Wetted Per. (ft)	5.09	87.62	122.18
Min Ch El (ft)	745.68	Shear (lb/sq ft)	0.02	0.15	0.07
Alpha	1.26	Stream Power (lb/ft s)	0.02	0.43	0.09
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.44	12.77	8.08
C & E Loss (ft)	0.00	Cum SA (acres)	0.47	2.03	3.29

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1781.21 Profile: 100-YR

E.G. Elev (ft)	754.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.02	Reach Len. (ft)	49.91	49.91	49.91
Crit W.S. (ft)		Flow Area (sq ft)		246.93	619.56
E.G. Slope (ft/ft)	0.000650	Area (sq ft)		246.93	619.56
Q Total (cfs)	2320.26	Flow (cfs)		905.15	1415.11
Top Width (ft)	201.23	Top Width (ft)		36.27	164.96
Vel Total (ft/s)	2.68	Avg. Vel. (ft/s)		3.67	2.28
Max Chl Dpth (ft)	9.09	Hydr. Depth (ft)		6.81	3.76
Conv. Total (cfs)	91003.8	Conv. (cfs)		35501.3	55502.4
Length Wtd. (ft)	49.91	Wetted Per. (ft)		39.63	165.44
Min Ch El (ft)	744.93	Shear (lb/sq ft)		0.25	0.15
Alpha	1.17	Stream Power (lb/ft s)		0.93	0.35
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.43	12.27	7.51
C & E Loss (ft)	0.00	Cum SA (acres)	0.46	1.96	3.13

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1731.3 Profile: 100-YR

E.G. Elev (ft)	754.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.00	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)		Flow Area (sq ft)	2.56	317.34	600.14
E.G. Slope (ft/ft)	0.000504	Area (sq ft)	2.56	317.34	600.14
Q Total (cfs)	2320.26	Flow (cfs)	1.79	1098.01	1220.46
Top Width (ft)	202.91	Top Width (ft)	2.79	42.83	157.30
Vel Total (ft/s)	2.52	Avg. Vel. (ft/s)	0.70	3.46	2.03
Max Chl Dpth (ft)	9.54	Hydr. Depth (ft)	0.92	7.41	3.82
Conv. Total (cfs)	103348.9	Conv. (cfs)	79.7	48907.6	54361.7
Length Wtd. (ft)	49.94	Wetted Per. (ft)	3.34	45.88	157.61
Min Ch El (ft)	744.46	Shear (lb/sq ft)	0.02	0.22	0.12
Alpha	1.23	Stream Power (lb/ft s)	0.02	0.75	0.24
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.43	11.95	6.81
C & E Loss (ft)	0.01	Cum SA (acres)	0.46	1.92	2.94

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1681.36 Profile: 100-YR

E.G. Elev (ft)	754.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	753.88	Reach Len. (ft)	50.07	50.07	50.07
Crit W.S. (ft)		Flow Area (sq ft)		311.09	378.75
E.G. Slope (ft/ft)	0.000752	Area (sq ft)		311.09	378.75
Q Total (cfs)	2320.26	Flow (cfs)		1304.87	1015.39
Top Width (ft)	129.68	Top Width (ft)		41.56	88.13
Vel Total (ft/s)	3.36	Avg. Vel. (ft/s)		4.19	2.68
Max Chl Dpth (ft)	9.55	Hydr. Depth (ft)		7.49	4.30
Conv. Total (cfs)	84628.6	Conv. (cfs)		47593.4	37035.2
Length Wtd. (ft)	50.07	Wetted Per. (ft)		45.47	88.69
Min Ch El (ft)	744.33	Shear (lb/sq ft)		0.32	0.20
Alpha	1.15	Stream Power (lb/ft s)		1.35	0.54
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.43	11.59	6.25
C & E Loss (ft)	0.01	Cum SA (acres)	0.46	1.87	2.80

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1631.29 Profile: 100-YR

E.G. Elev (ft)	754.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	753.75	Reach Len. (ft)	49.71	49.71	49.71
Crit W.S. (ft)		Flow Area (sq ft)		539.57	14.18
E.G. Slope (ft/ft)	0.000968	Area (sq ft)		539.57	14.18
Q Total (cfs)	2320.26	Flow (cfs)		2299.17	21.09
Top Width (ft)	98.69	Top Width (ft)		89.47	9.22
Vel Total (ft/s)	4.19	Avg. Vel. (ft/s)		4.26	1.49
Max Chl Dpth (ft)	9.47	Hydr. Depth (ft)		6.03	1.54
Conv. Total (cfs)	74558.3	Conv. (cfs)		73880.5	677.8
Length Wtd. (ft)	49.71	Wetted Per. (ft)		93.16	9.72
Min Ch El (ft)	744.28	Shear (lb/sq ft)		0.35	0.09
Alpha	1.03	Stream Power (lb/ft s)		1.49	0.13
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.43	11.10	6.02
C & E Loss (ft)	0.02	Cum SA (acres)	0.46	1.80	2.75

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1581.58 Profile: 100-YR

E.G. Elev (ft)	753.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	753.75	Reach Len. (ft)	50.23	50.23	50.23
Crit W.S. (ft)		Flow Area (sq ft)	0.09	303.30	439.39
E.G. Slope (ft/ft)	0.000936	Area (sq ft)	0.09	303.30	439.39
Q Total (cfs)	2320.26	Flow (cfs)	0.03	1348.67	971.56
Top Width (ft)	206.36	Top Width (ft)	0.48	44.11	161.77
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	0.31	4.45	2.21
Max Chl Dpth (ft)	9.25	Hydr. Depth (ft)	0.18	6.88	2.72
Conv. Total (cfs)	75847.6	Conv. (cfs)	0.9	44087.1	31759.6
Length Wtd. (ft)	50.23	Wetted Per. (ft)	0.60	47.87	161.89
Min Ch El (ft)	744.50	Shear (lb/sq ft)	0.01	0.37	0.16
Alpha	1.39	Stream Power (lb/ft s)	0.00	1.65	0.35
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	1.43	10.62	5.76
C & E Loss (ft)	0.08	Cum SA (acres)	0.46	1.72	2.65

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1531.35 Profile: 100-YR

E.G. Elev (ft)	753.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.97	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	752.84	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)	750.91	Flow Area (sq ft)		263.87	87.34
E.G. Slope (ft/ft)	0.003684	Area (sq ft)		263.87	87.34
Q Total (cfs)	2320.26	Flow (cfs)		2154.19	166.07
Top Width (ft)	154.46	Top Width (ft)		41.70	112.76
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)		8.16	1.90
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)		6.33	0.77
Conv. Total (cfs)	38229.3	Conv. (cfs)		35493.1	2736.2
Length Wtd. (ft)	49.94	Wetted Per. (ft)		46.79	112.77
Min Ch El (ft)	744.88	Shear (lb/sq ft)		1.30	0.18
Alpha	1.42	Stream Power (lb/ft s)		10.59	0.34
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	1.43	10.29	5.46
C & E Loss (ft)	0.06	Cum SA (acres)	0.46	1.67	2.49

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1481.41 Profile: 100-YR

E.G. Elev (ft)	753.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.61	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	751.89	Reach Len. (ft)	50.11	50.11	50.11
Crit W.S. (ft)	750.97	Flow Area (sq ft)		223.63	21.05
E.G. Slope (ft/ft)	0.006956	Area (sq ft)		223.63	21.05
Q Total (cfs)	2320.26	Flow (cfs)		2288.59	31.67
Top Width (ft)	103.26	Top Width (ft)		41.08	62.18
Vel Total (ft/s)	9.48	Avg. Vel. (ft/s)		10.23	1.50
Max Chl Dpth (ft)	7.56	Hydr. Depth (ft)		5.44	0.34
Conv. Total (cfs)	27820.9	Conv. (cfs)		27441.2	379.8
Length Wtd. (ft)	50.11	Wetted Per. (ft)		45.51	62.19
Min Ch El (ft)	744.33	Shear (lb/sq ft)		2.13	0.15
Alpha	1.15	Stream Power (lb/ft s)		21.84	0.22
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	1.43	10.01	5.40
C & E Loss (ft)	0.24	Cum SA (acres)	0.46	1.62	2.39

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1431.3 Profile: 100-YR

E.G. Elev (ft)	753.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	752.21	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		292.36	81.33
E.G. Slope (ft/ft)	0.003122	Area (sq ft)		292.36	81.33
Q Total (cfs)	2320.26	Flow (cfs)		2185.75	134.51
Top Width (ft)	162.71	Top Width (ft)		48.38	114.33
Vel Total (ft/s)	6.21	Avg. Vel. (ft/s)		7.48	1.65
Max Chl Dpth (ft)	7.73	Hydr. Depth (ft)		6.04	0.71
Conv. Total (cfs)	41528.5	Conv. (cfs)		39121.0	2407.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)		52.25	114.34
Min Ch El (ft)	744.48	Shear (lb/sq ft)		1.09	0.14
Alpha	1.37	Stream Power (lb/ft s)		8.15	0.23
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	1.43	9.71	5.34
C & E Loss (ft)	0.01	Cum SA (acres)	0.46	1.57	2.29

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1381.3 Profile: 100-YR

E.G. Elev (ft)	752.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	752.07	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)		Flow Area (sq ft)	13.48	272.86	105.81
E.G. Slope (ft/ft)	0.003152	Area (sq ft)	13.48	272.86	105.81
Q Total (cfs)	2320.26	Flow (cfs)	39.94	2060.17	220.15
Top Width (ft)	159.62	Top Width (ft)	6.96	46.49	106.18
Vel Total (ft/s)	5.92	Avg. Vel. (ft/s)	2.96	7.55	2.08
Max Chl Dpth (ft)	7.57	Hydr. Depth (ft)	1.94	5.87	1.00
Conv. Total (cfs)	41324.8	Conv. (cfs)	711.3	36692.5	3921.0
Length Wtd. (ft)	49.94	Wetted Per. (ft)	7.97	48.40	106.19
Min Ch El (ft)	744.50	Shear (lb/sq ft)	0.33	1.11	0.20
Alpha	1.46	Stream Power (lb/ft s)	0.99	8.38	0.41
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	1.42	9.39	5.23
C & E Loss (ft)	0.06	Cum SA (acres)	0.45	1.52	2.16

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1331.36 Profile: 100-YR

E.G. Elev (ft)	752.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.42	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	751.19	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)	750.22	Flow Area (sq ft)	17.58	209.14	66.95
E.G. Slope (ft/ft)	0.004778	Area (sq ft)	17.58	209.14	66.95
Q Total (cfs)	2320.26	Flow (cfs)	66.61	2096.61	157.03
Top Width (ft)	116.43	Top Width (ft)	9.01	30.97	76.45
Vel Total (ft/s)	7.90	Avg. Vel. (ft/s)	3.79	10.02	2.35
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)	1.95	6.75	0.88
Conv. Total (cfs)	33566.8	Conv. (cfs)	963.7	30331.3	2271.8
Length Wtd. (ft)	49.96	Wetted Per. (ft)	9.81	33.13	76.69
Min Ch El (ft)	743.76	Shear (lb/sq ft)	0.53	1.88	0.26
Alpha	1.47	Stream Power (lb/ft s)	2.03	18.88	0.61
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	1.40	9.11	5.13
C & E Loss (ft)	0.07	Cum SA (acres)	0.45	1.47	2.06

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1281.4 Profile: 100-YR

E.G. Elev (ft)	752.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.15	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	750.08	Reach Len. (ft)	50.04	50.04	50.04
Crit W.S. (ft)	750.08	Flow Area (sq ft)	22.93	173.79	17.79
E.G. Slope (ft/ft)	0.008672	Area (sq ft)	22.93	173.79	17.79
Q Total (cfs)	2320.26	Flow (cfs)	125.92	2121.23	73.11
Top Width (ft)	54.83	Top Width (ft)	10.62	30.72	13.48
Vel Total (ft/s)	10.82	Avg. Vel. (ft/s)	5.49	12.21	4.11
Max Chl Dpth (ft)	6.49	Hydr. Depth (ft)	2.16	5.66	1.32
Conv. Total (cfs)	24916.0	Conv. (cfs)	1352.2	22778.8	785.1
Length Wtd. (ft)	50.04	Wetted Per. (ft)	11.47	32.04	13.74
Min Ch El (ft)	743.59	Shear (lb/sq ft)	1.08	2.94	0.70
Alpha	1.18	Stream Power (lb/ft s)	5.94	35.85	2.88
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	1.38	8.89	5.08
C & E Loss (ft)	0.06	Cum SA (acres)	0.43	1.44	2.01

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1231.36 Profile: 100-YR

E.G. Elev (ft)	751.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.74	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	748.85	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)	749.53	Flow Area (sq ft)		171.12	9.05
E.G. Slope (ft/ft)	0.016748	Area (sq ft)		171.12	9.05
Q Total (cfs)	2320.26	Flow (cfs)		2286.25	34.01
Top Width (ft)	55.70	Top Width (ft)		42.67	13.03
Vel Total (ft/s)	12.88	Avg. Vel. (ft/s)		13.36	3.76
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)		4.01	0.69
Conv. Total (cfs)	17928.9	Conv. (cfs)		17666.1	262.8
Length Wtd. (ft)	50.03	Wetted Per. (ft)		45.13	13.10
Min Ch El (ft)	743.46	Shear (lb/sq ft)		3.96	0.72
Alpha	1.06	Stream Power (lb/ft s)		52.97	2.71
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	1.37	8.69	5.07
C & E Loss (ft)	0.47	Cum SA (acres)	0.43	1.39	1.99

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1181.33 Profile: 100-YR

E.G. Elev (ft)	750.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.18	Reach Len. (ft)	49.87	49.87	49.87
Crit W.S. (ft)	748.66	Flow Area (sq ft)		181.62	359.82
E.G. Slope (ft/ft)	0.002261	Area (sq ft)		181.62	359.82
Q Total (cfs)	2320.26	Flow (cfs)		965.56	1354.70
Top Width (ft)	156.00	Top Width (ft)		40.67	115.33
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)		5.32	3.76
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		4.47	3.12
Conv. Total (cfs)	48793.4	Conv. (cfs)		20305.0	28488.3
Length Wtd. (ft)	49.87	Wetted Per. (ft)		42.50	115.65
Min Ch El (ft)	743.21	Shear (lb/sq ft)		0.60	0.44
Alpha	1.09	Stream Power (lb/ft s)		3.21	1.65
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	1.37	8.49	4.86
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.35	1.92

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1131.46 Profile: 100-YR

E.G. Elev (ft)	750.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.98	Reach Len. (ft)	50.17	50.17	50.17
Crit W.S. (ft)		Flow Area (sq ft)		292.85	237.82
E.G. Slope (ft/ft)	0.002274	Area (sq ft)		292.85	237.82
Q Total (cfs)	2333.46	Flow (cfs)		1649.48	683.98
Top Width (ft)	176.01	Top Width (ft)		61.10	114.91
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)		5.63	2.88
Max Chl Dpth (ft)	6.79	Hydr. Depth (ft)		4.79	2.07
Conv. Total (cfs)	48929.8	Conv. (cfs)		34587.6	14342.2
Length Wtd. (ft)	50.17	Wetted Per. (ft)		63.11	114.98
Min Ch El (ft)	743.19	Shear (lb/sq ft)		0.66	0.29
Alpha	1.29	Stream Power (lb/ft s)		3.71	0.84
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.37	8.22	4.51
C & E Loss (ft)	0.04	Cum SA (acres)	0.43	1.29	1.79

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1081.29 Profile: 100-YR

E.G. Elev (ft)	750.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.97	Reach Len. (ft)	49.74	49.74	49.74
Crit W.S. (ft)		Flow Area (sq ft)		268.00	390.86
E.G. Slope (ft/ft)	0.001524	Area (sq ft)		268.00	390.86
Q Total (cfs)	2333.46	Flow (cfs)		1347.42	986.04
Top Width (ft)	219.03	Top Width (ft)		48.76	170.28
Vel Total (ft/s)	3.54	Avg. Vel. (ft/s)		5.03	2.52
Max Chl Dpth (ft)	6.89	Hydr. Depth (ft)		5.50	2.30
Conv. Total (cfs)	59778.2	Conv. (cfs)		34518.0	25260.2
Length Wtd. (ft)	49.74	Wetted Per. (ft)		50.72	170.33
Min Ch El (ft)	743.08	Shear (lb/sq ft)		0.50	0.22
Alpha	1.38	Stream Power (lb/ft s)		2.53	0.55
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.37	7.90	4.15
C & E Loss (ft)	0.02	Cum SA (acres)	0.43	1.23	1.62

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1031.55 Profile: 100-YR

E.G. Elev (ft)	750.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.96	Reach Len. (ft)	50.36	50.36	50.36
Crit W.S. (ft)		Flow Area (sq ft)		316.54	442.83
E.G. Slope (ft/ft)	0.000991	Area (sq ft)		316.54	442.83
Q Total (cfs)	2333.46	Flow (cfs)		1386.89	946.57
Top Width (ft)	229.28	Top Width (ft)		50.16	179.12
Vel Total (ft/s)	3.07	Avg. Vel. (ft/s)		4.38	2.14
Max Chl Dpth (ft)	8.87	Hydr. Depth (ft)		6.31	2.47
Conv. Total (cfs)	74113.9	Conv. (cfs)		44049.5	30064.4
Length Wtd. (ft)	50.36	Wetted Per. (ft)		53.34	179.23
Min Ch El (ft)	741.09	Shear (lb/sq ft)		0.37	0.15
Alpha	1.40	Stream Power (lb/ft s)		1.61	0.33
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.37	7.56	3.68
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.17	1.42

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 981.19 Profile: 100-YR

E.G. Elev (ft)	750.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.93	Reach Len. (ft)	49.83	49.83	49.83
Crit W.S. (ft)		Flow Area (sq ft)		287.25	507.72
E.G. Slope (ft/ft)	0.000917	Area (sq ft)		287.25	507.72
Q Total (cfs)	2333.46	Flow (cfs)		1206.20	1127.26
Top Width (ft)	227.99	Top Width (ft)		45.01	182.99
Vel Total (ft/s)	2.94	Avg. Vel. (ft/s)		4.20	2.22
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)		6.38	2.77
Conv. Total (cfs)	77040.2	Conv. (cfs)		39823.2	37217.0
Length Wtd. (ft)	49.83	Wetted Per. (ft)		48.68	183.17
Min Ch El (ft)	741.52	Shear (lb/sq ft)		0.34	0.16
Alpha	1.33	Stream Power (lb/ft s)		1.42	0.35
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.37	7.21	3.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	1.11	1.21

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 931.36 Profile: 100-YR

E.G. Elev (ft)	750.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.84	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)		Flow Area (sq ft)		266.22	476.59
E.G. Slope (ft/ft)	0.001035	Area (sq ft)		266.22	476.59
Q Total (cfs)	2333.46	Flow (cfs)		1218.28	1115.19
Top Width (ft)	212.35	Top Width (ft)		38.82	173.53
Vel Total (ft/s)	3.14	Avg. Vel. (ft/s)		4.58	2.34
Max Chl Dpth (ft)	8.22	Hydr. Depth (ft)		6.86	2.75
Conv. Total (cfs)	72515.2	Conv. (cfs)		37859.4	34655.8
Length Wtd. (ft)	49.96	Wetted Per. (ft)		43.42	174.02
Min Ch El (ft)	741.62	Shear (lb/sq ft)		0.40	0.18
Alpha	1.37	Stream Power (lb/ft s)		1.81	0.41
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.37	6.90	2.56
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	1.07	1.01

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 881.4 Profile: 100-YR

E.G. Elev (ft)	750.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.80	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)		Flow Area (sq ft)		279.05	459.27
E.G. Slope (ft/ft)	0.000940	Area (sq ft)		279.05	459.27
Q Total (cfs)	2333.46	Flow (cfs)		1232.19	1101.27
Top Width (ft)	190.14	Top Width (ft)		40.41	149.73
Vel Total (ft/s)	3.16	Avg. Vel. (ft/s)		4.42	2.40
Max Chl Dpth (ft)	8.65	Hydr. Depth (ft)		6.91	3.07
Conv. Total (cfs)	76126.2	Conv. (cfs)		40198.6	35927.6
Length Wtd. (ft)	49.99	Wetted Per. (ft)		44.64	150.29
Min Ch El (ft)	741.15	Shear (lb/sq ft)		0.37	0.18
Alpha	1.30	Stream Power (lb/ft s)		1.62	0.43
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.37	6.59	2.03
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	1.02	0.82

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 831.41 Profile: 100-YR

E.G. Elev (ft)	749.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.77	Reach Len. (ft)	50.10	50.10	50.10
Crit W.S. (ft)		Flow Area (sq ft)		275.34	476.31
E.G. Slope (ft/ft)	0.000834	Area (sq ft)		275.34	476.31
Q Total (cfs)	2333.46	Flow (cfs)		1176.70	1156.77
Top Width (ft)	177.01	Top Width (ft)		37.72	139.28
Vel Total (ft/s)	3.10	Avg. Vel. (ft/s)		4.27	2.43
Max Chl Dpth (ft)	8.84	Hydr. Depth (ft)		7.30	3.42
Conv. Total (cfs)	80821.7	Conv. (cfs)		40756.0	40065.7
Length Wtd. (ft)	50.10	Wetted Per. (ft)		42.29	139.79
Min Ch El (ft)	740.93	Shear (lb/sq ft)		0.34	0.18
Alpha	1.26	Stream Power (lb/ft s)		1.45	0.43
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.37	6.27	1.49
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	0.98	0.66

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 781.31 Profile: 100-YR

E.G. Elev (ft)	749.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	749.65	Reach Len. (ft)	49.95	49.95	49.95
Crit W.S. (ft)		Flow Area (sq ft)	6.21	312.70	363.02
E.G. Slope (ft/ft)	0.000872	Area (sq ft)	6.21	312.70	363.02
Q Total (cfs)	2333.46	Flow (cfs)	7.68	1481.09	844.68
Top Width (ft)	161.08	Top Width (ft)	4.33	39.75	117.00
Vel Total (ft/s)	3.42	Avg. Vel. (ft/s)	1.24	4.74	2.33
Max Chl Dpth (ft)	8.99	Hydr. Depth (ft)	1.44	7.87	3.10
Conv. Total (cfs)	79008.5	Conv. (cfs)	260.2	50148.2	28600.1
Length Wtd. (ft)	49.95	Wetted Per. (ft)	5.19	42.59	117.54
Min Ch El (ft)	740.66	Shear (lb/sq ft)	0.07	0.40	0.17
Alpha	1.38	Stream Power (lb/ft s)	0.08	1.89	0.39
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.36	5.93	1.01
C & E Loss (ft)	0.02	Cum SA (acres)	0.43	0.93	0.51

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 731.36 Profile: 100-YR

E.G. Elev (ft)	749.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	749.66	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	43.06	304.30	421.55
E.G. Slope (ft/ft)	0.000640	Area (sq ft)	43.06	304.30	421.55
Q Total (cfs)	2333.46	Flow (cfs)	76.82	1272.46	984.18
Top Width (ft)	160.09	Top Width (ft)	15.61	37.56	106.92
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)	1.78	4.18	2.33
Max Chl Dpth (ft)	9.15	Hydr. Depth (ft)	2.76	8.10	3.94
Conv. Total (cfs)	92248.0	Conv. (cfs)	3036.9	50303.7	38907.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	16.46	39.60	107.64
Min Ch El (ft)	740.51	Shear (lb/sq ft)	0.10	0.31	0.16
Alpha	1.30	Stream Power (lb/ft s)	0.19	1.28	0.37
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.34	5.58	0.56
C & E Loss (ft)	0.02	Cum SA (acres)	0.41	0.89	0.38

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 681.36 Profile: 100-YR

E.G. Elev (ft)	749.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	749.36	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)		Flow Area (sq ft)	90.04	382.23	9.83
E.G. Slope (ft/ft)	0.001325	Area (sq ft)	90.04	382.23	9.83
Q Total (cfs)	2333.46	Flow (cfs)	243.04	2081.85	8.57
Top Width (ft)	104.43	Top Width (ft)	31.04	54.43	18.96
Vel Total (ft/s)	4.84	Avg. Vel. (ft/s)	2.70	5.45	0.87
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)	2.90	7.02	0.52
Conv. Total (cfs)	64102.7	Conv. (cfs)	6676.6	57190.8	235.3
Length Wtd. (ft)	49.99	Wetted Per. (ft)	31.93	57.77	18.99
Min Ch El (ft)	740.95	Shear (lb/sq ft)	0.23	0.55	0.04
Alpha	1.16	Stream Power (lb/ft s)	0.63	2.98	0.04
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	1.26	5.18	0.31
C & E Loss (ft)	0.02	Cum SA (acres)	0.39	0.83	0.31

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 631.37 Profile: 100-YR

E.G. Elev (ft)	749.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.34	Reach Len. (ft)	50.01	50.01	50.01
Crit W.S. (ft)		Flow Area (sq ft)	164.28	352.09	
E.G. Slope (ft/ft)	0.001323	Area (sq ft)	164.28	352.09	
Q Total (cfs)	2333.46	Flow (cfs)	510.53	1822.93	
Top Width (ft)	99.18	Top Width (ft)	45.99	53.19	
Vel Total (ft/s)	4.52	Avg. Vel. (ft/s)	3.11	5.18	
Max Chl Dpth (ft)	8.83	Hydr. Depth (ft)	3.57	6.62	
Conv. Total (cfs)	64146.7	Conv. (cfs)	14034.5	50112.2	
Length Wtd. (ft)	50.01	Wetted Per. (ft)	47.10	57.36	
Min Ch El (ft)	740.51	Shear (lb/sq ft)	0.29	0.51	
Alpha	1.13	Stream Power (lb/ft s)	0.90	2.63	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.11	4.76	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.34	0.77	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 581.36 Profile: 100-YR

E.G. Elev (ft)	749.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.30	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	179.51	367.67	
E.G. Slope (ft/ft)	0.001152	Area (sq ft)	179.51	367.67	
Q Total (cfs)	2333.46	Flow (cfs)	507.07	1826.39	
Top Width (ft)	106.19	Top Width (ft)	52.68	53.51	
Vel Total (ft/s)	4.26	Avg. Vel. (ft/s)	2.82	4.97	
Max Chl Dpth (ft)	9.26	Hydr. Depth (ft)	3.41	6.87	
Conv. Total (cfs)	68745.3	Conv. (cfs)	14938.7	53806.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)	53.54	57.45	
Min Ch El (ft)	740.04	Shear (lb/sq ft)	0.24	0.46	
Alpha	1.16	Stream Power (lb/ft s)	0.68	2.29	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.92	4.35	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.29	0.71	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 531.36 Profile: 100-YR

E.G. Elev (ft)	749.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.86	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	60.48	329.47	
E.G. Slope (ft/ft)	0.002171	Area (sq ft)	60.48	329.47	
Q Total (cfs)	2333.46	Flow (cfs)	137.23	2196.23	
Top Width (ft)	89.31	Top Width (ft)	40.19	49.12	
Vel Total (ft/s)	5.98	Avg. Vel. (ft/s)	2.27	6.67	
Max Chl Dpth (ft)	8.98	Hydr. Depth (ft)	1.50	6.71	
Conv. Total (cfs)	50077.4	Conv. (cfs)	2945.0	47132.4	
Length Wtd. (ft)	50.00	Wetted Per. (ft)	40.30	53.27	
Min Ch El (ft)	739.88	Shear (lb/sq ft)	0.20	0.84	
Alpha	1.18	Stream Power (lb/ft s)	0.46	5.59	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.78	3.95	0.30
C & E Loss (ft)	0.12	Cum SA (acres)	0.23	0.65	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 481.36 Profile: 100-YR

E.G. Elev (ft)	749.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.035	
W.S. Elev (ft)	749.06	Reach Len. (ft)	71.37	71.37	71.37
Crit W.S. (ft)		Flow Area (sq ft)		567.53	
E.G. Slope (ft/ft)	0.001020	Area (sq ft)		567.53	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	103.93	Top Width (ft)		103.93	
Vel Total (ft/s)	4.11	Avg. Vel. (ft/s)		4.11	
Max Chl Dpth (ft)	8.32	Hydr. Depth (ft)		5.46	
Conv. Total (cfs)	73050.8	Conv. (cfs)		73050.8	
Length Wtd. (ft)	71.37	Wetted Per. (ft)		107.50	
Min Ch El (ft)	740.74	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.38	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.74	3.43	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.21	0.56	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 409.99 Profile: 100-YR

E.G. Elev (ft)	749.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.96	Reach Len. (ft)	36.50	36.50	36.50
Crit W.S. (ft)		Flow Area (sq ft)	249.25	324.24	
E.G. Slope (ft/ft)	0.001034	Area (sq ft)	249.25	324.24	
Q Total (cfs)	2333.46	Flow (cfs)	780.10	1553.36	
Top Width (ft)	101.99	Top Width (ft)	57.30	44.69	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)	3.13	4.79	
Max Chl Dpth (ft)	8.96	Hydr. Depth (ft)	4.35	7.26	
Conv. Total (cfs)	72579.9	Conv. (cfs)	24264.3	48315.6	
Length Wtd. (ft)	36.50	Wetted Per. (ft)	58.75	49.31	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.27	0.42	
Alpha	1.12	Stream Power (lb/ft s)	0.86	2.03	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.54	2.70	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.16	0.44	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 373.49 Profile: 100-YR

E.G. Elev (ft)	749.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.84	Reach Len. (ft)	54.34	54.34	54.34
Crit W.S. (ft)		Flow Area (sq ft)	155.78	362.70	
E.G. Slope (ft/ft)	0.001267	Area (sq ft)	155.78	362.70	
Q Total (cfs)	2333.46	Flow (cfs)	449.67	1883.79	
Top Width (ft)	100.48	Top Width (ft)	47.37	53.11	
Vel Total (ft/s)	4.50	Avg. Vel. (ft/s)	2.89	5.19	
Max Chl Dpth (ft)	8.84	Hydr. Depth (ft)	3.29	6.83	
Conv. Total (cfs)	65563.0	Conv. (cfs)	12634.2	52928.8	
Length Wtd. (ft)	54.34	Wetted Per. (ft)	48.29	56.91	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.26	0.50	
Alpha	1.15	Stream Power (lb/ft s)	0.74	2.62	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.37	2.41	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.12	0.40	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 319.15 Profile: 100-YR

E.G. Elev (ft)	749.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.78	Reach Len. (ft)	57.20	57.20	57.20
Crit W.S. (ft)		Flow Area (sq ft)	179.97	340.88	
E.G. Slope (ft/ft)	0.001182	Area (sq ft)	179.97	340.88	
Q Total (cfs)	2333.46	Flow (cfs)	585.14	1748.32	
Top Width (ft)	89.59	Top Width (ft)	42.56	47.02	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)	3.25	5.13	
Max Chl Dpth (ft)	8.78	Hydr. Depth (ft)	4.23	7.25	
Conv. Total (cfs)	67873.8	Conv. (cfs)	17020.2	50853.6	
Length Wtd. (ft)	57.20	Wetted Per. (ft)	44.30	51.75	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.30	0.49	
Alpha	1.11	Stream Power (lb/ft s)	0.97	2.49	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.16	1.97	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.06	0.34	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 261.95 Profile: 100-YR

E.G. Elev (ft)	749.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.37	Reach Len. (ft)	52.31	52.31	52.31
Crit W.S. (ft)		Flow Area (sq ft)	22.05	353.58	
E.G. Slope (ft/ft)	0.002036	Area (sq ft)	22.05	353.58	
Q Total (cfs)	2333.46	Flow (cfs)	49.91	2283.55	
Top Width (ft)	65.80	Top Width (ft)	13.36	52.44	
Vel Total (ft/s)	6.21	Avg. Vel. (ft/s)	2.26	6.46	
Max Chl Dpth (ft)	8.37	Hydr. Depth (ft)	1.65	6.74	
Conv. Total (cfs)	51714.7	Conv. (cfs)	1106.1	50608.6	
Length Wtd. (ft)	52.31	Wetted Per. (ft)	14.04	57.12	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.20	0.79	
Alpha	1.06	Stream Power (lb/ft s)	0.45	5.08	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.03	1.52	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.03	0.27	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 209.64 Profile: 100-YR

E.G. Elev (ft)	748.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.035	
W.S. Elev (ft)	747.92	Reach Len. (ft)	57.93	57.93	57.93
Crit W.S. (ft)		Flow Area (sq ft)		302.90	
E.G. Slope (ft/ft)	0.003354	Area (sq ft)		302.90	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	48.11	Top Width (ft)		48.11	
Vel Total (ft/s)	7.70	Avg. Vel. (ft/s)		7.70	
Max Chl Dpth (ft)	7.92	Hydr. Depth (ft)		6.30	
Conv. Total (cfs)	40294.3	Conv. (cfs)		40294.3	
Length Wtd. (ft)	57.93	Wetted Per. (ft)		54.61	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.16	
Alpha	1.00	Stream Power (lb/ft s)		8.95	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.01	1.12	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	0.21	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 151.71 Profile: 100-YR

E.G. Elev (ft)	748.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.035	
W.S. Elev (ft)	747.64	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		291.79	
E.G. Slope (ft/ft)	0.003728	Area (sq ft)		291.79	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	47.90	Top Width (ft)		47.90	
Vel Total (ft/s)	8.00	Avg. Vel. (ft/s)		8.00	
Max Chl Dpth (ft)	7.64	Hydr. Depth (ft)		6.09	
Conv. Total (cfs)	38215.6	Conv. (cfs)		38215.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		53.85	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.26	
Alpha	1.00	Stream Power (lb/ft s)		10.09	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.01	0.73	0.30
C & E Loss (ft)	0.07	Cum SA (acres)	0.02	0.15	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 101.71 Profile: 100-YR

E.G. Elev (ft)	748.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.65	Wt. n-Val.		0.035	
W.S. Elev (ft)	746.66	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	745.69	Flow Area (sq ft)		226.57	
E.G. Slope (ft/ft)	0.007302	Area (sq ft)		226.57	199.11
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	175.57	Top Width (ft)		41.53	134.03
Vel Total (ft/s)	10.30	Avg. Vel. (ft/s)		10.30	
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		5.46	
Conv. Total (cfs)	27307.4	Conv. (cfs)		27307.4	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		47.37	
Min Ch El (ft)	739.82	Shear (lb/sq ft)		2.18	
Alpha	1.00	Stream Power (lb/ft s)		22.46	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.43	0.19
C & E Loss (ft)		Cum SA (acres)	0.02	0.10	0.22

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 91.71 BR U Profile: 100-YR

E.G. Elev (ft)	748.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.39	Wt. n-Val.		0.035	
W.S. Elev (ft)	745.84	Reach Len. (ft)	35.00	35.00	35.00
Crit W.S. (ft)	745.84	Flow Area (sq ft)		188.02	
E.G. Slope (ft/ft)	0.012201	Area (sq ft)		188.02	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	39.36	Top Width (ft)		39.36	
Vel Total (ft/s)	12.41	Avg. Vel. (ft/s)		12.41	
Max Chl Dpth (ft)	6.02	Hydr. Depth (ft)		4.78	
Conv. Total (cfs)	21125.7	Conv. (cfs)		21125.7	
Length Wtd. (ft)	35.00	Wetted Per. (ft)		43.67	
Min Ch El (ft)	739.82	Shear (lb/sq ft)		3.28	
Alpha	1.00	Stream Power (lb/ft s)		40.70	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.38	0.17
C & E Loss (ft)		Cum SA (acres)	0.02	0.09	0.21

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 91.71 BR D Profile: 100-YR

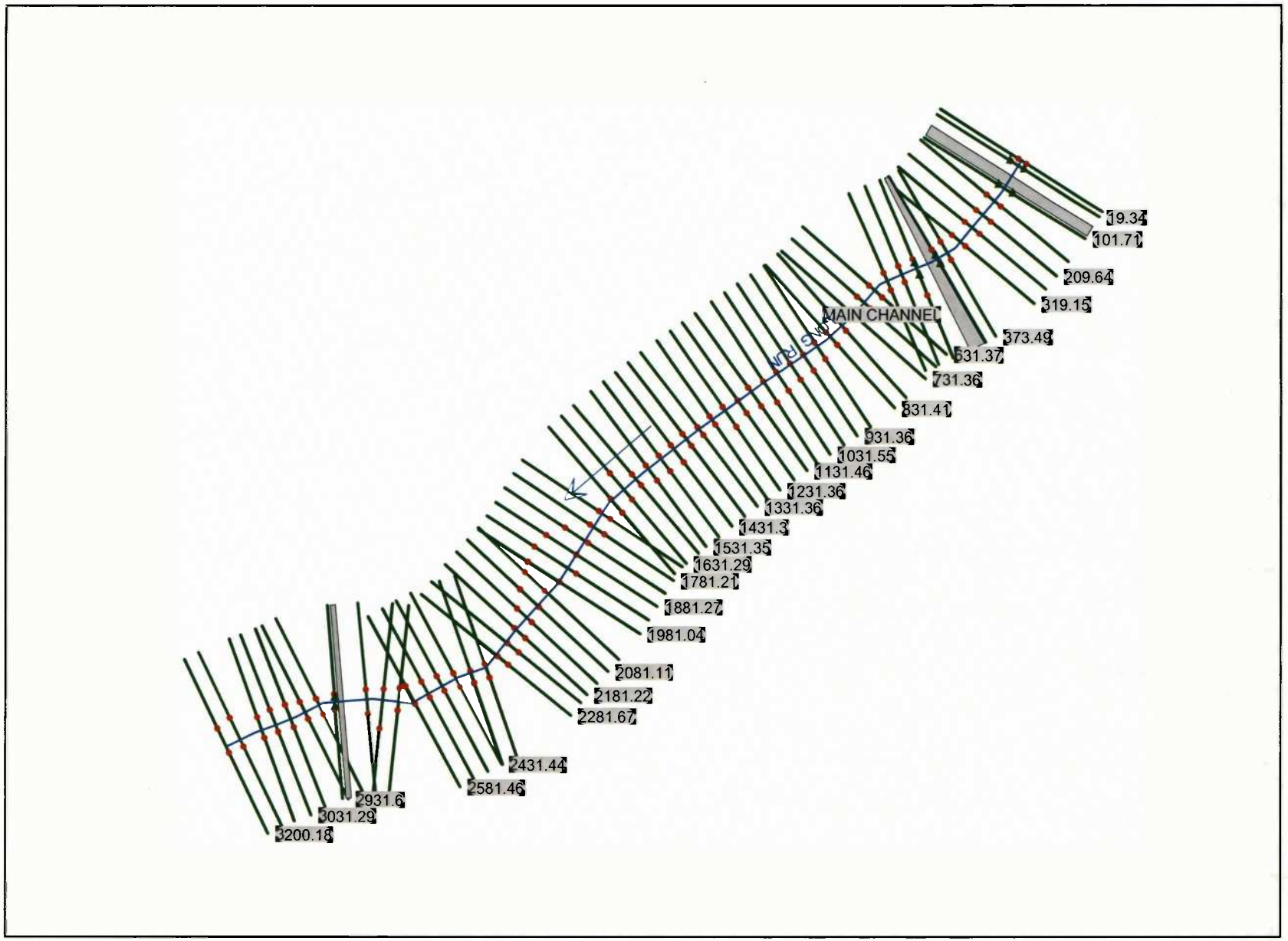
E.G. Elev (ft)	747.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.26	Wt. n-Val.		0.035	
W.S. Elev (ft)	745.20	Reach Len. (ft)	37.37	37.37	37.37
Crit W.S. (ft)	745.20	Flow Area (sq ft)		193.64	
E.G. Slope (ft/ft)	0.012018	Area (sq ft)		193.64	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	42.84	Top Width (ft)		42.84	
Vel Total (ft/s)	12.05	Avg. Vel. (ft/s)		12.05	
Max Chl Dpth (ft)	5.79	Hydr. Depth (ft)		4.52	
Conv. Total (cfs)	21285.1	Conv. (cfs)		21285.1	
Length Wtd. (ft)	37.37	Wetted Per. (ft)		46.48	
Min Ch El (ft)	739.41	Shear (lb/sq ft)		3.13	
Alpha	1.00	Stream Power (lb/ft s)		37.67	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.23	0.17
C & E Loss (ft)		Cum SA (acres)	0.02	0.06	0.21

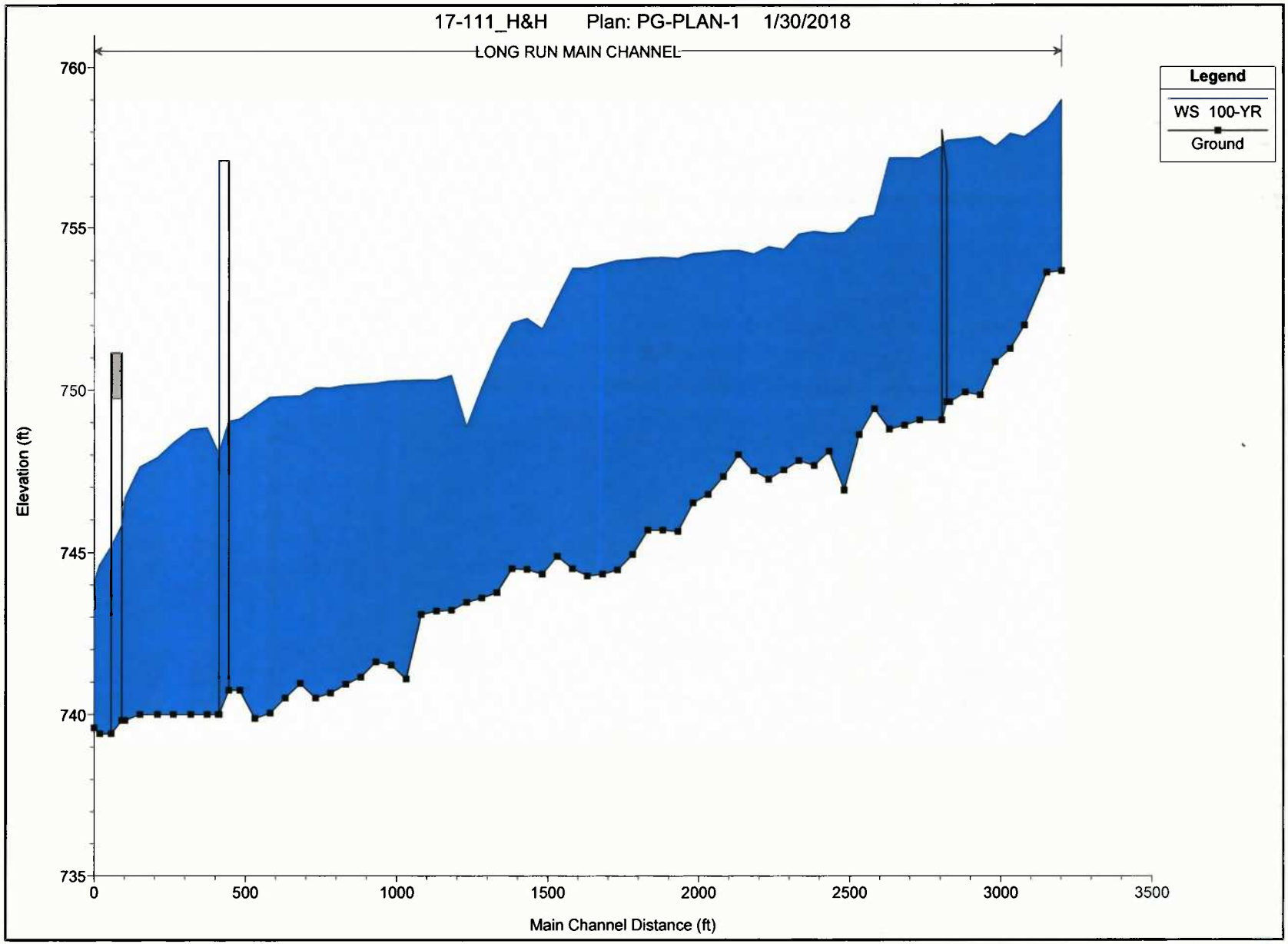
Plan: EG-5 LONG RUN MAIN CHANNEL RS: 19.34 Profile: 100-YR

E.G. Elev (ft)	746.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.31	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	744.64	Reach Len. (ft)	19.34	19.34	19.34
Crit W.S. (ft)	744.88	Flow Area (sq ft)	2.30	190.14	
E.G. Slope (ft/ft)	0.013661	Area (sq ft)	21.62	190.14	203.01
Q Total (cfs)	2333.46	Flow (cfs)	11.27	2322.19	
Top Width (ft)	313.18	Top Width (ft)	23.27	47.05	242.86
Vel Total (ft/s)	12.13	Avg. Vel. (ft/s)	4.90	12.21	
Max Chl Dpth (ft)	5.23	Hydr. Depth (ft)	1.20	4.04	
Conv. Total (cfs)	19964.6	Conv. (cfs)	96.5	19868.1	
Length Wtd. (ft)	19.34	Wetted Per. (ft)	1.92	49.24	
Min Ch El (ft)	739.41	Shear (lb/sq ft)	1.02	3.29	
Alpha	1.01	Stream Power (lb/ft s)	5.01	40.22	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	0.01	0.07	0.08
C & E Loss (ft)	0.02	Cum SA (acres)	0.01	0.02	0.10

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 0 Profile: 100-YR

E.G. Elev (ft)	746.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.48	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	744.10	Reach Len. (ft)			
Crit W.S. (ft)	744.88	Flow Area (sq ft)	2.48	107.28	157.93
E.G. Slope (ft/ft)	0.024168	Area (sq ft)	2.48	107.28	157.93
Q Total (cfs)	2333.46	Flow (cfs)	4.05	1602.61	726.79
Top Width (ft)	267.45	Top Width (ft)	16.48	29.66	221.32
Vel Total (ft/s)	8.72	Avg. Vel. (ft/s)	1.63	14.94	4.60
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)	0.15	3.62	0.71
Conv. Total (cfs)	15009.9	Conv. (cfs)	26.1	10308.7	4675.1
Length Wtd. (ft)		Wetted Per. (ft)	16.48	31.50	222.57
Min Ch El (ft)	739.59	Shear (lb/sq ft)	0.23	5.14	1.07
Alpha	2.10	Stream Power (lb/ft s)	0.37	76.75	4.93
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			


MAIN CHANNEL
19.34
101.71
209.64
319.15
373.49
531.37
731.36
831.41
931.36
1031.55
1131.46
1231.36
1331.36
1431.3
1531.35
1631.29
1781.21
1881.27
1981.04
2081.11
2181.22
2281.67
2431.44
2581.46
2931.6
3031.29
3200.18


17-111_H&H Plan: PG-PLAN-1 1/30/2018
LONG RUN MAIN CHANNEL
Legend
WS 100-YR
Ground
Elevation (ft)
760
755
750
745
740
735
0
500
1000
1500
2000
2500
3000
3500
Main Channel Distance (ft)

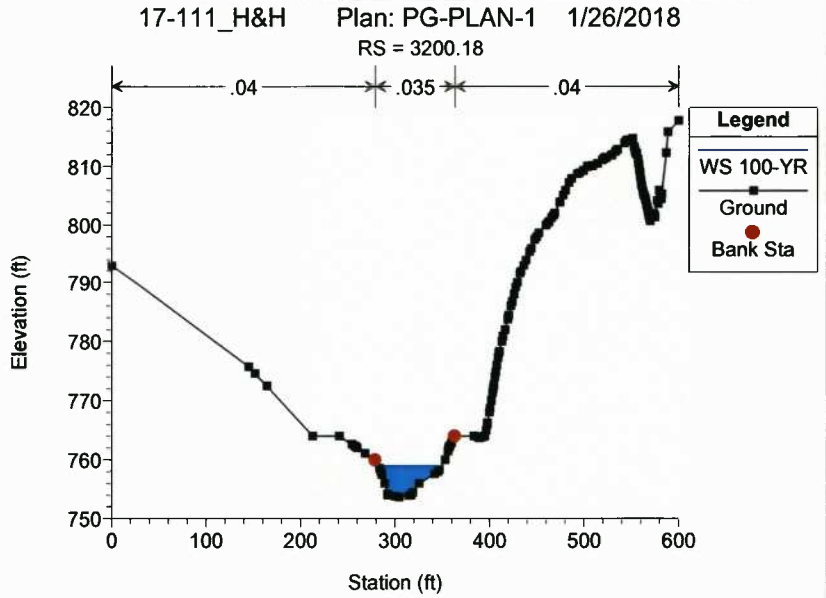
HEC-RAS Plan: PG-1 River: LONG RUN Reach: MAIN CHANNEL Profile: 100-YR

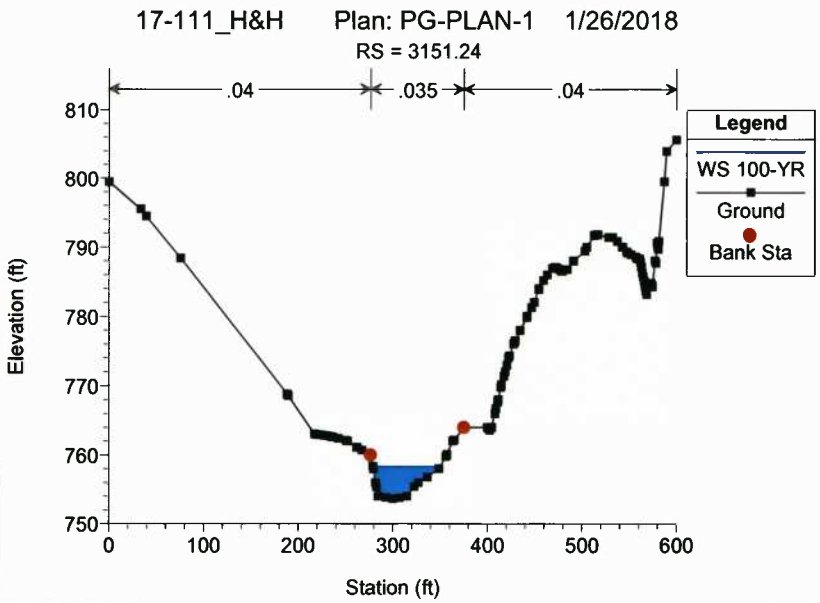
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
MAIN CHANNEL	3200.18	100-YR	2216.44	753.67	758.99	758.83	760.49	0.010951	9.81	225.96	67.21	0.94
MAIN CHANNEL	3151.24	100-YR	2216.44	753.62	758.36	758.36	759.91	0.012670	10.00	221.64	71.36	1.00
MAIN CHANNEL	3077.66	100-YR	2315.70	752.00	757.84	757.29	759.08	0.007689	8.95	259.89	72.33	0.81
MAIN CHANNEL	3031.29	100-YR	2315.70	751.28	757.95	756.77	758.67	0.004123	7.01	388.73	202.94	0.60
MAIN CHANNEL	2981.23	100-YR	2315.70	750.87	757.54	756.59	758.42	0.005229	7.66	344.12	165.93	0.67
MAIN CHANNEL	2931.6	100-YR	2315.70	749.85	757.84		758.10	0.001582	4.83	674.43	244.08	0.38
MAIN CHANNEL	2881.8	100-YR	2315.70	749.94	757.78		758.02	0.001361	4.71	690.62	225.31	0.35
MAIN CHANNEL	2830.87	100-YR	2315.70	749.63	757.74	756.38	757.94	0.001330	4.49	725.96	231.12	0.35
MAIN CHANNEL	2820		Bridge									
MAIN CHANNEL	2731.19	100-YR	2315.70	749.07	757.18		757.60	0.002180	5.64	515.73	184.80	0.45
MAIN CHANNEL	2681.3	100-YR	2315.70	748.91	757.18		757.47	0.001451	4.36	566.74	188.72	0.36
MAIN CHANNEL	2631.1	100-YR	2315.70	748.79	757.19		757.38	0.001031	4.14	785.22	281.10	0.31
MAIN CHANNEL	2581.46	100-YR	2315.70	749.42	755.39	755.13	757.11	0.010015	10.52	220.18	53.99	0.92
MAIN CHANNEL	2531.07	100-YR	2315.70	748.62	755.30	755.30	756.54	0.007307	9.18	297.51	152.96	0.78
MAIN CHANNEL	2481.43	100-YR	2315.70	746.90	754.85	753.99	755.59	0.003509	7.40	404.79	177.05	0.56
MAIN CHANNEL	2431.44	100-YR	2315.70	748.11	754.81		755.35	0.003572	6.97	517.41	278.76	0.56
MAIN CHANNEL	2381.67	100-YR	2315.70	747.68	754.88		755.16	0.001697	5.45	724.51	333.83	0.40
MAIN CHANNEL	2331.55	100-YR	2315.70	747.82	754.79		755.06	0.001863	5.30	706.11	324.68	0.41
MAIN CHANNEL	2281.67	100-YR	2315.70	747.53	754.33		754.90	0.003935	7.36	525.90	317.76	0.58
MAIN CHANNEL	2231.25	100-YR	2315.70	747.24	754.41		754.68	0.001890	5.33	712.95	330.06	0.41
MAIN CHANNEL	2181.22	100-YR	2315.70	747.50	754.19		754.56	0.002272	5.94	604.43	268.67	0.45
MAIN CHANNEL	2131.29	100-YR	2320.26	748.01	754.30		754.42	0.000761	3.51	949.37	308.58	0.27
MAIN CHANNEL	2081.11	100-YR	2320.26	747.32	754.29		754.39	0.000481	2.89	1060.66	284.47	0.21
MAIN CHANNEL	2031.08	100-YR	2320.26	746.77	754.23		754.35	0.000681	3.23	902.21	252.88	0.25
MAIN CHANNEL	1981.04	100-YR	2320.26	746.51	754.20		754.32	0.000776	3.05	882.86	254.52	0.26
MAIN CHANNEL	1931.11	100-YR	2320.26	745.64	754.05		754.26	0.001264	3.92	681.13	204.61	0.33
MAIN CHANNEL	1881.27	100-YR	2320.26	745.68	754.09		754.20	0.000423	2.84	963.33	229.53	0.21
MAIN CHANNEL	1831.31	100-YR	2320.26	745.68	754.07		754.18	0.000340	2.87	997.73	211.34	0.19
MAIN CHANNEL	1781.21	100-YR	2320.26	744.93	754.02		754.15	0.000650	3.67	866.49	201.23	0.25
MAIN CHANNEL	1731.3	100-YR	2320.26	744.46	754.00		754.12	0.000504	3.46	920.04	202.91	0.22
MAIN CHANNEL	1681.36	100-YR	2320.26	744.33	753.88		754.08	0.000752	4.19	689.84	129.68	0.27
MAIN CHANNEL	1631.29	100-YR	2320.26	744.28	753.75		754.03	0.000968	4.26	553.75	98.69	0.31
MAIN CHANNEL	1581.58	100-YR	2320.26	744.50	753.75		753.96	0.000936	4.45	742.78	206.36	0.30
MAIN CHANNEL	1531.35	100-YR	2320.26	744.88	752.84	750.91	753.80	0.003684	8.16	351.21	154.46	0.57
MAIN CHANNEL	1481.41	100-YR	2320.26	744.33	751.89	750.97	753.49	0.006956	10.23	244.68	103.26	0.77
MAIN CHANNEL	1431.3	100-YR	2320.26	744.48	752.21		753.03	0.003122	7.48	373.69	162.71	0.54
MAIN CHANNEL	1381.3	100-YR	2320.26	744.50	752.07		752.87	0.003152	7.55	392.15	159.62	0.55
MAIN CHANNEL	1331.36	100-YR	2320.26	743.76	751.19	750.22	752.61	0.004778	10.02	293.68	116.43	0.68
MAIN CHANNEL	1281.4	100-YR	2320.26	743.59	750.08	750.08	752.23	0.008672	12.21	214.51	54.83	0.90
MAIN CHANNEL	1231.36	100-YR	2320.26	743.46	748.85	749.53	751.59	0.016748	13.36	180.17	55.70	1.18
MAIN CHANNEL	1181.33	100-YR	2320.26	743.21	750.45	748.66	750.72	0.001798	4.89	584.40	158.21	0.40

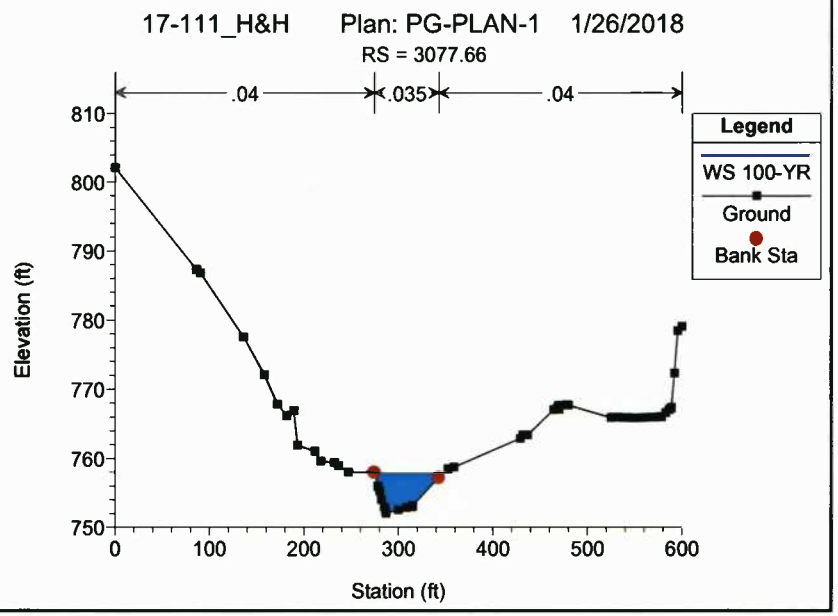
HEC-RAS Plan: PG-1 River: LONG RUN Reach: MAIN CHANNEL Profile: 100-YR (Continued)

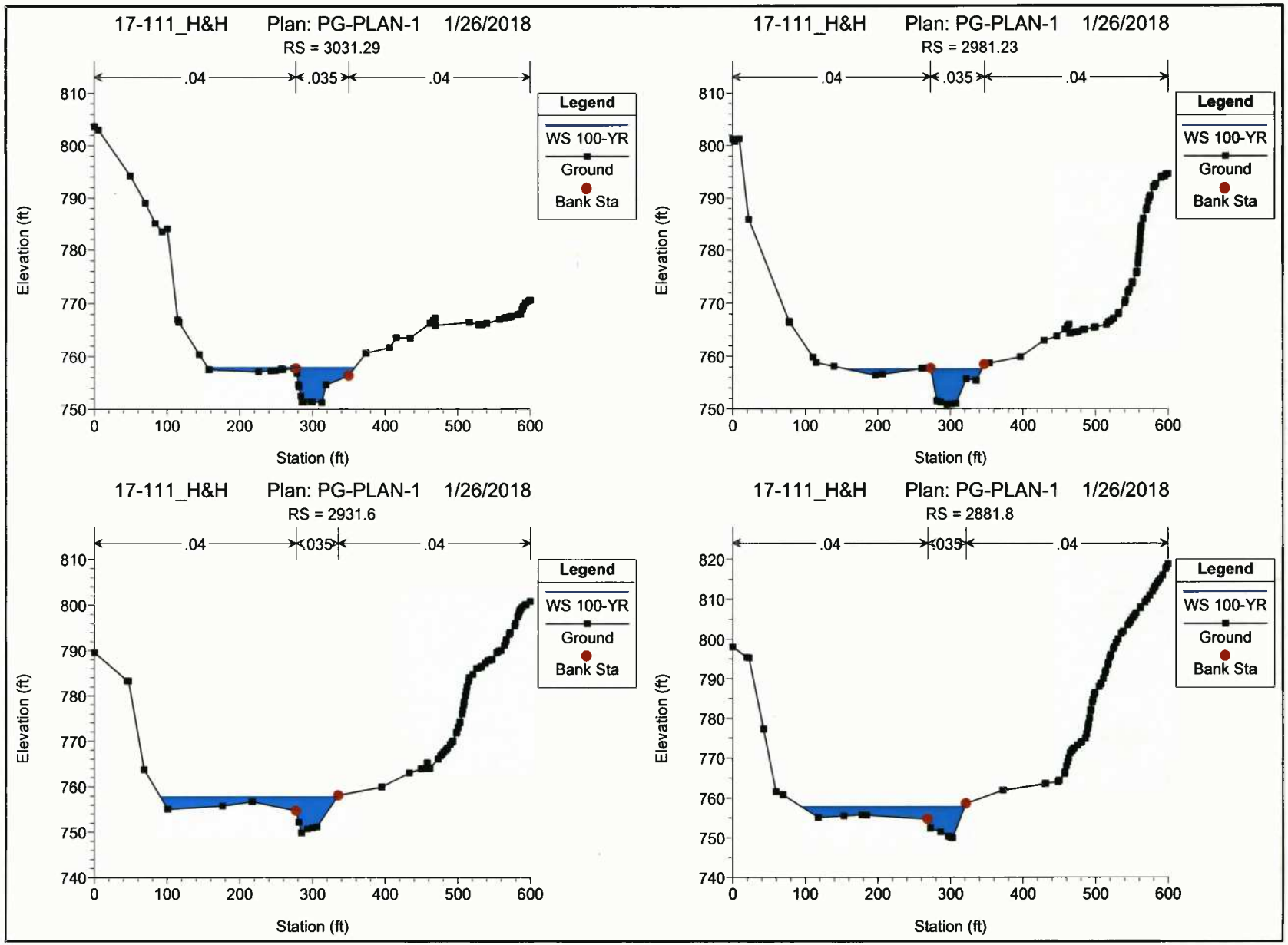
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
MAIN CHANNEL	1131.46	100-YR	2333.46	743.19	750.32		750.63	0.001720	5.09	590.22	182.96	0.40
MAIN CHANNEL	1081.29	100-YR	2333.46	743.08	750.31		750.53	0.001164	4.53	735.27	231.87	0.33
MAIN CHANNEL	1031.55	100-YR	2333.46	741.09	750.30		750.47	0.000764	3.96	839.32	236.19	0.27
MAIN CHANNEL	981.19	100-YR	2333.46	741.52	750.28		750.42	0.000694	3.76	875.39	229.05	0.26
MAIN CHANNEL	931.36	100-YR	2333.46	741.62	750.22		750.38	0.000774	4.07	822.64	213.32	0.27
MAIN CHANNEL	881.4	100-YR	2333.46	741.15	750.18		750.35	0.000716	3.96	811.39	191.33	0.26
MAIN CHANNEL	831.41	100-YR	2333.46	740.93	750.16		750.31	0.000645	3.86	820.86	178.22	0.25
MAIN CHANNEL	781.31	100-YR	2333.46	740.66	750.07		750.27	0.000671	4.30	748.82	162.40	0.26
MAIN CHANNEL	731.36	100-YR	2333.46	740.51	750.07		750.23	0.000503	3.83	834.81	161.54	0.23
MAIN CHANNEL	681.36	100-YR	2333.46	740.95	749.82		750.17	0.001033	5.02	532.34	113.65	0.32
MAIN CHANNEL	631.37	100-YR	2333.46	740.51	749.80		750.10	0.001028	4.74	563.23	100.60	0.32
MAIN CHANNEL	581.36	100-YR	2333.46	740.04	749.78		750.05	0.000892	4.53	598.61	107.69	0.30
MAIN CHANNEL	531.36	100-YR	2333.46	739.88	749.45		749.96	0.001597	5.98	445.15	97.94	0.39
MAIN CHANNEL	481.36	100-YR	2333.46	740.74	749.10	745.54	749.86	0.001625	6.98	334.47	104.33	0.43
MAIN CHANNEL	444.86		Bridge									
MAIN CHANNEL	409.99	100-YR	2333.46	740.00	748.08		749.63	0.003947	10.01	233.22	98.69	0.64
MAIN CHANNEL	373.49	100-YR	2333.46	740.00	748.84		749.20	0.001267	5.19	518.48	100.48	0.35
MAIN CHANNEL	319.15	100-YR	2333.46	740.00	748.78		749.13	0.001182	5.13	520.84	89.59	0.34
MAIN CHANNEL	261.95	100-YR	2333.46	740.00	748.37		749.01	0.002036	6.46	375.63	65.80	0.44
MAIN CHANNEL	209.64	100-YR	2333.46	740.00	747.92		748.85	0.003354	7.70	302.90	48.11	0.54
MAIN CHANNEL	151.71	100-YR	2333.46	740.00	747.64		748.63	0.003728	8.00	291.79	47.90	0.57
MAIN CHANNEL	101.71	100-YR	2333.46	739.82	746.66	745.69	748.31	0.007302	10.30	226.57	175.57	0.78
MAIN CHANNEL	91.71		Bridge									
MAIN CHANNEL	19.34	100-YR	2333.46	739.41	744.64	744.88	746.95	0.013661	12.21	192.44	313.18	1.07
MAIN CHANNEL	0	100-YR	2333.46	739.59	744.10	744.88	746.59	0.024168	14.94	267.69	267.45	1.38

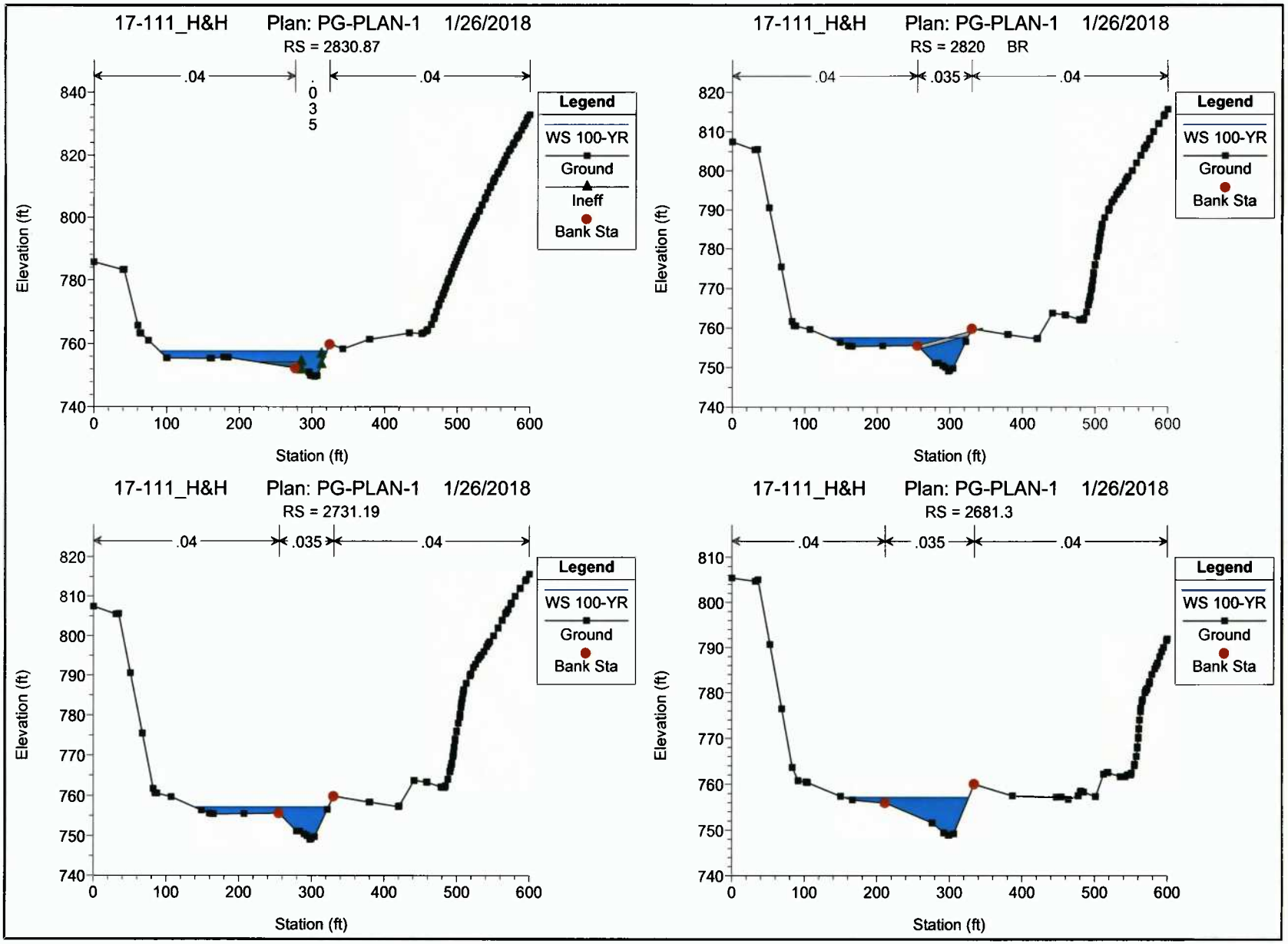
No Data for Plot

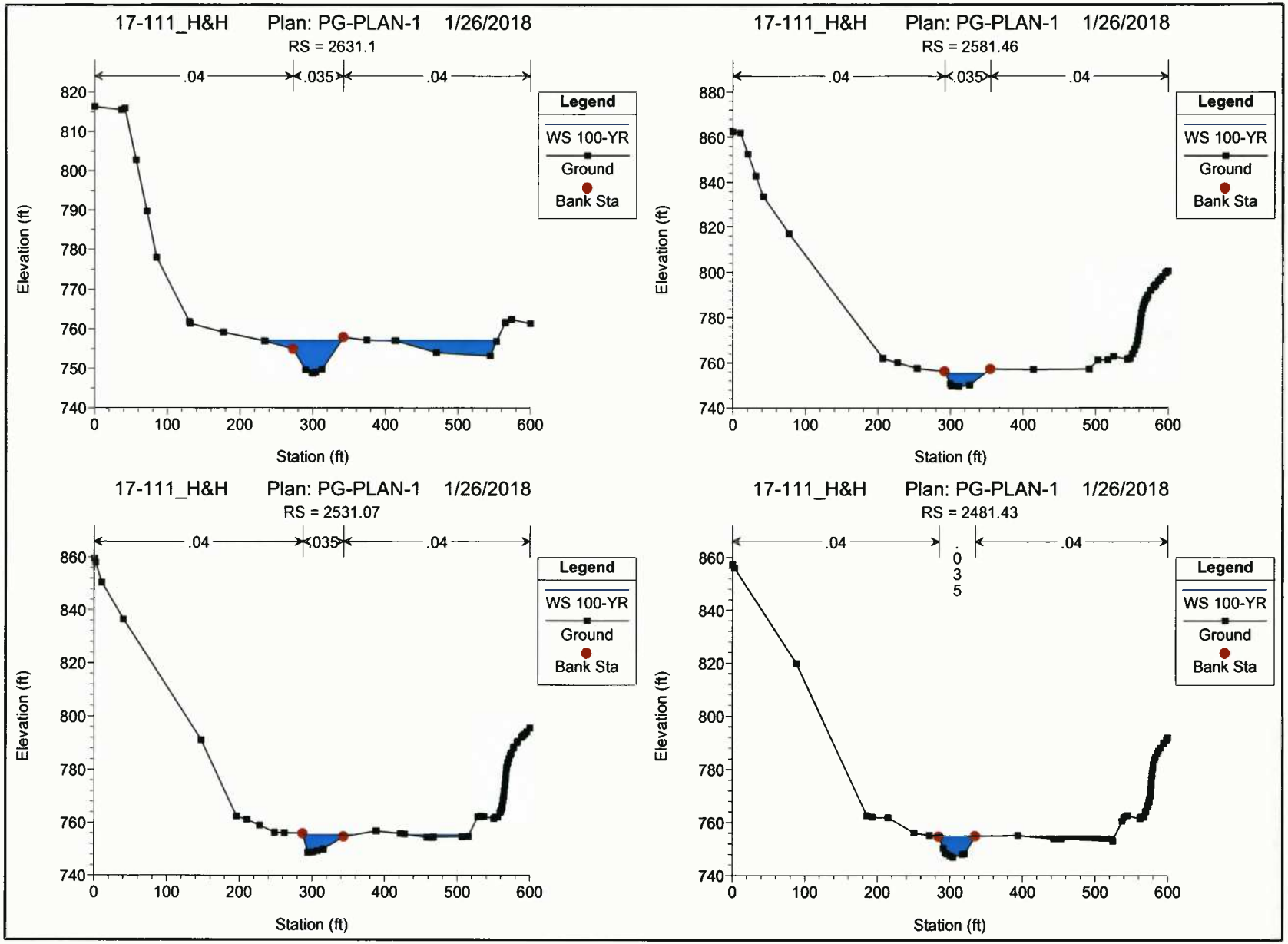


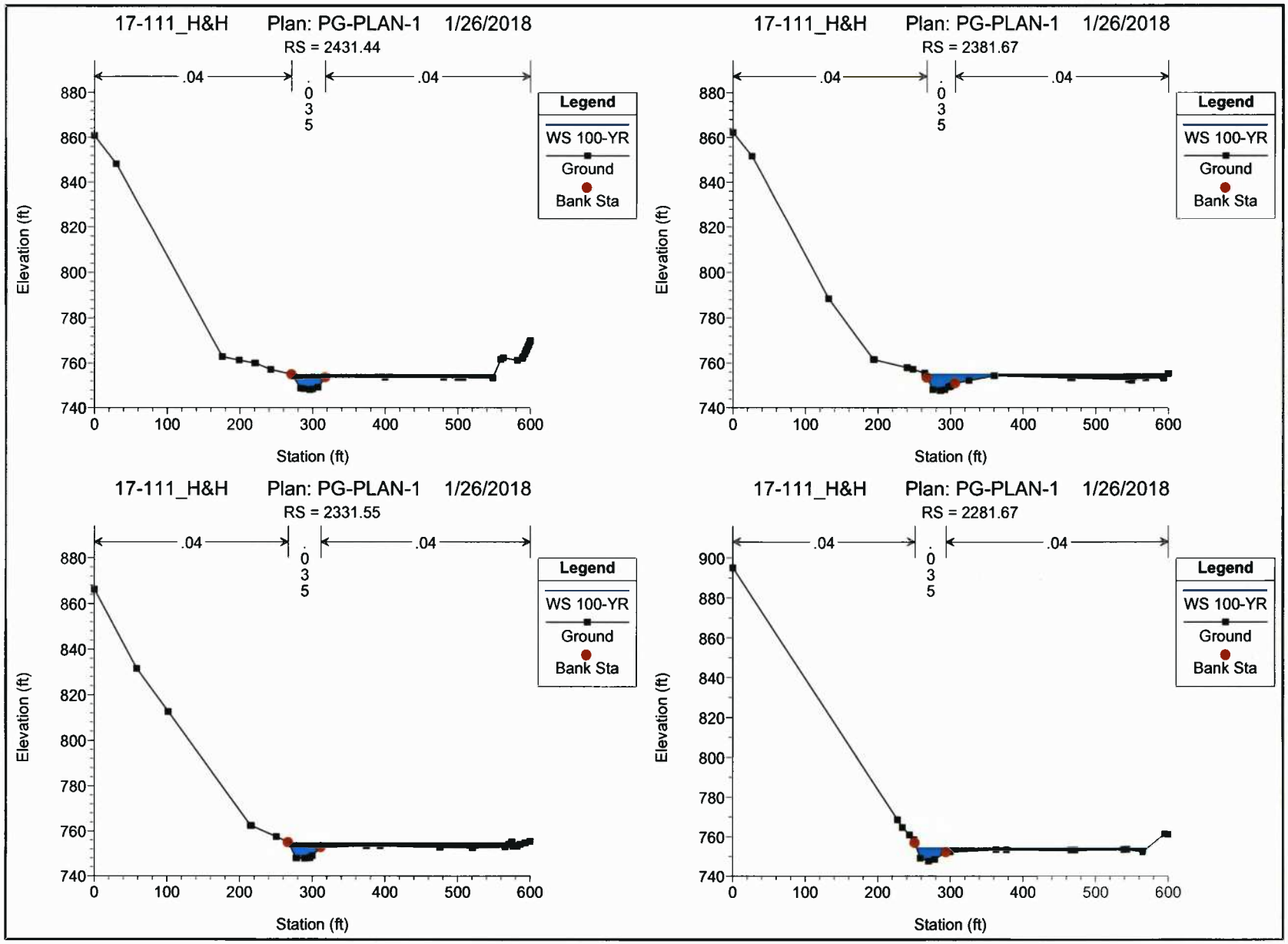


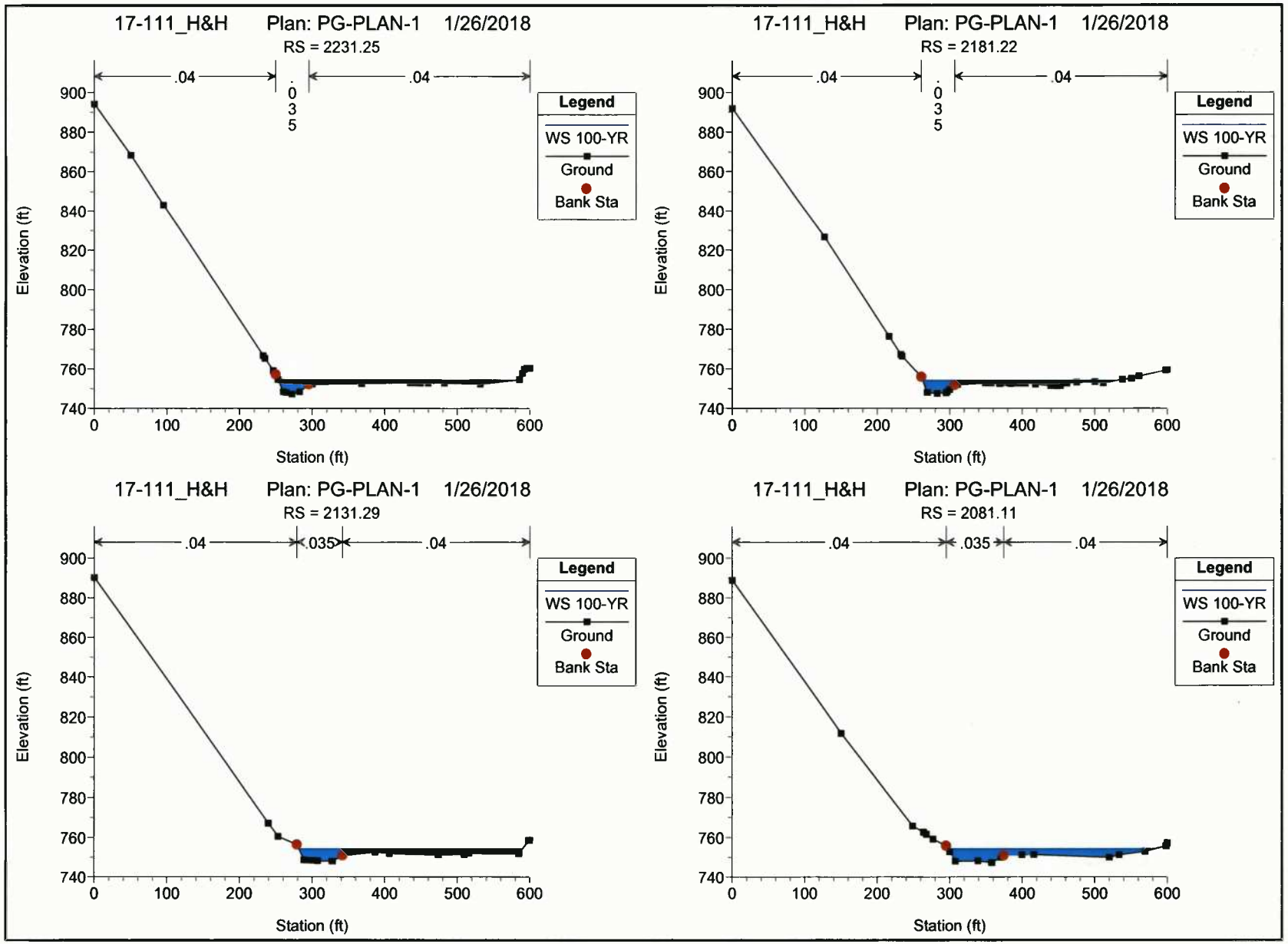


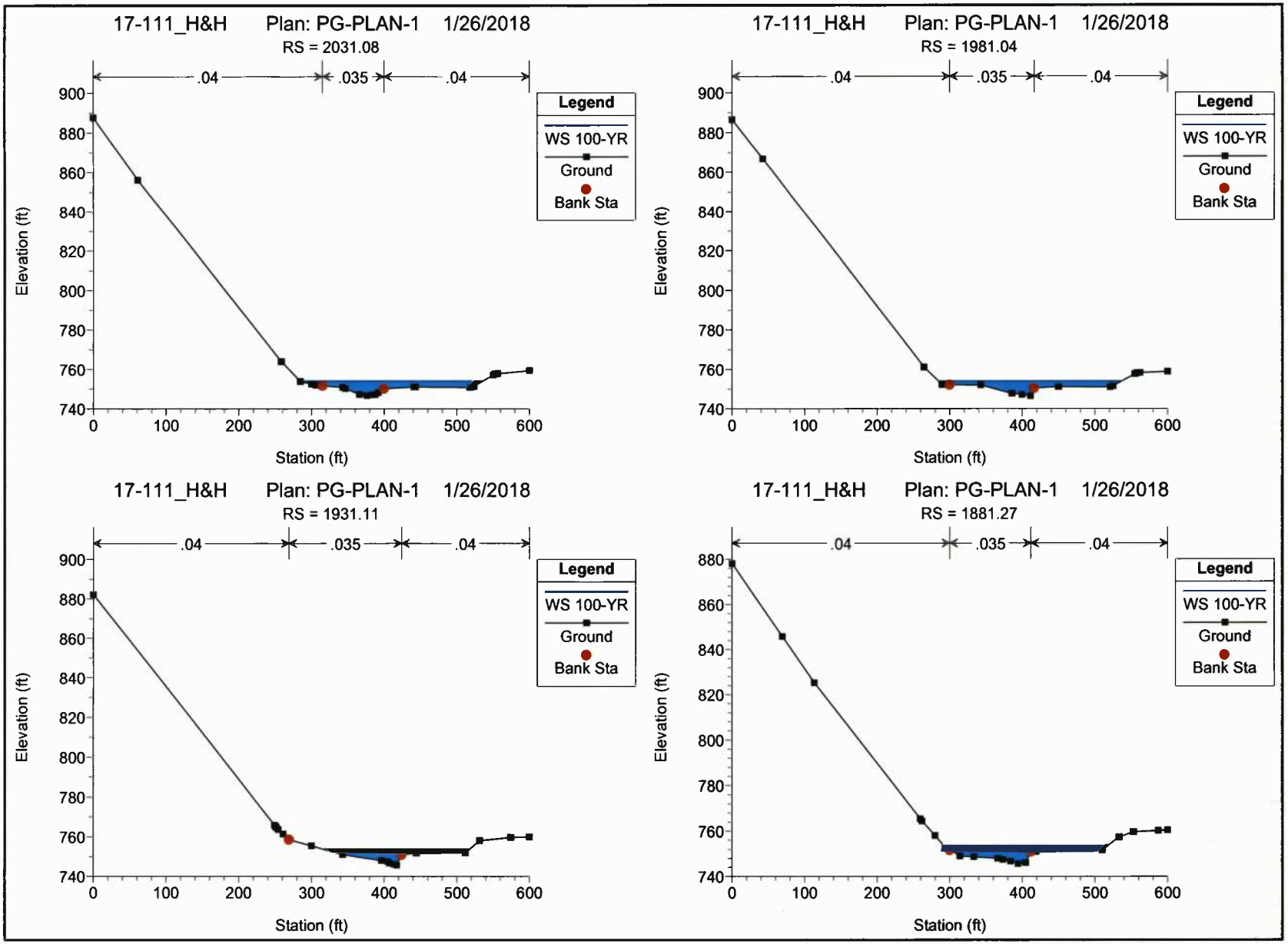

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 3031.29
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2981.23
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2931.6
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2881.8
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

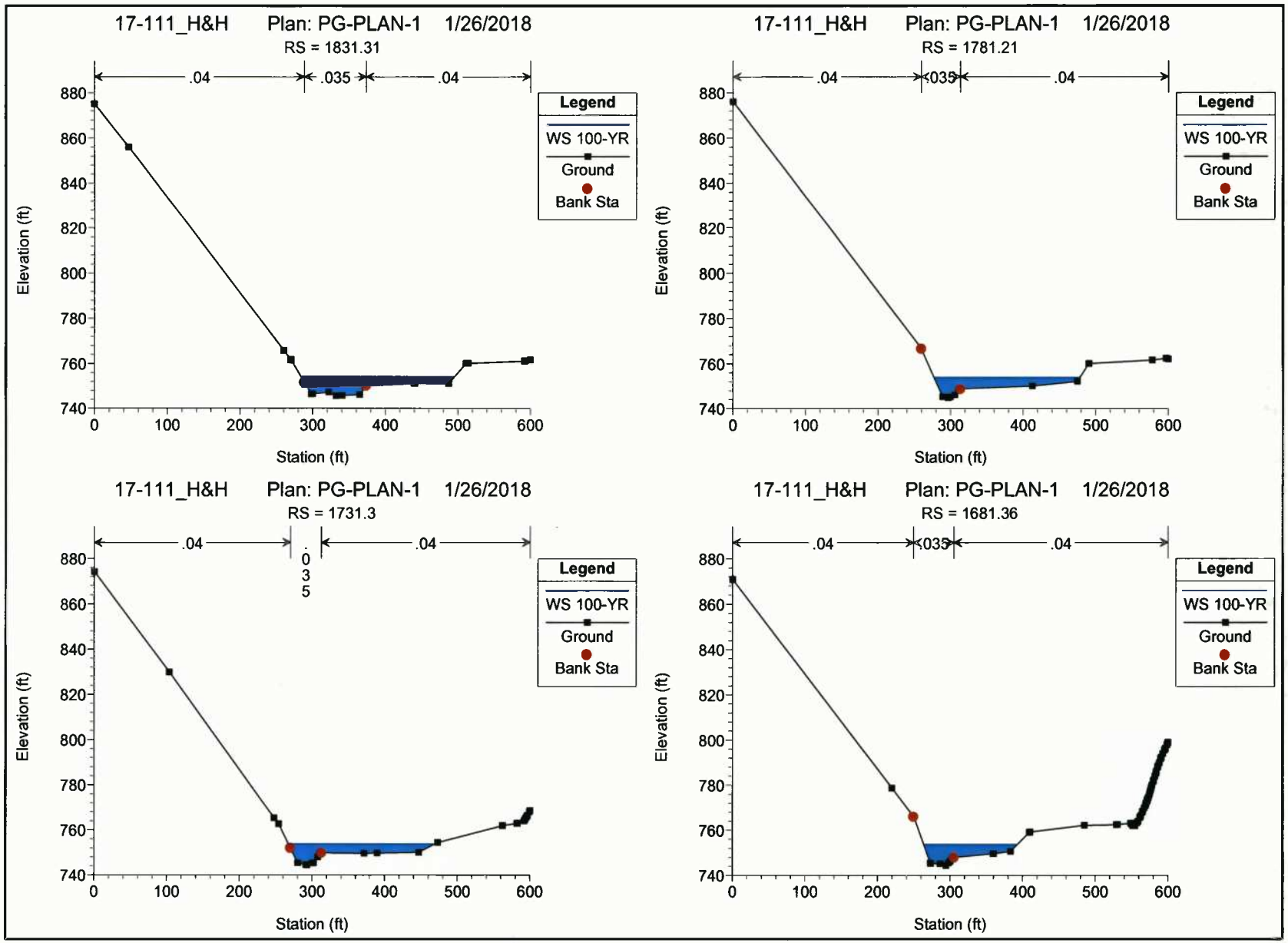

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2830.87
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2820 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2731.19
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2681.3
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

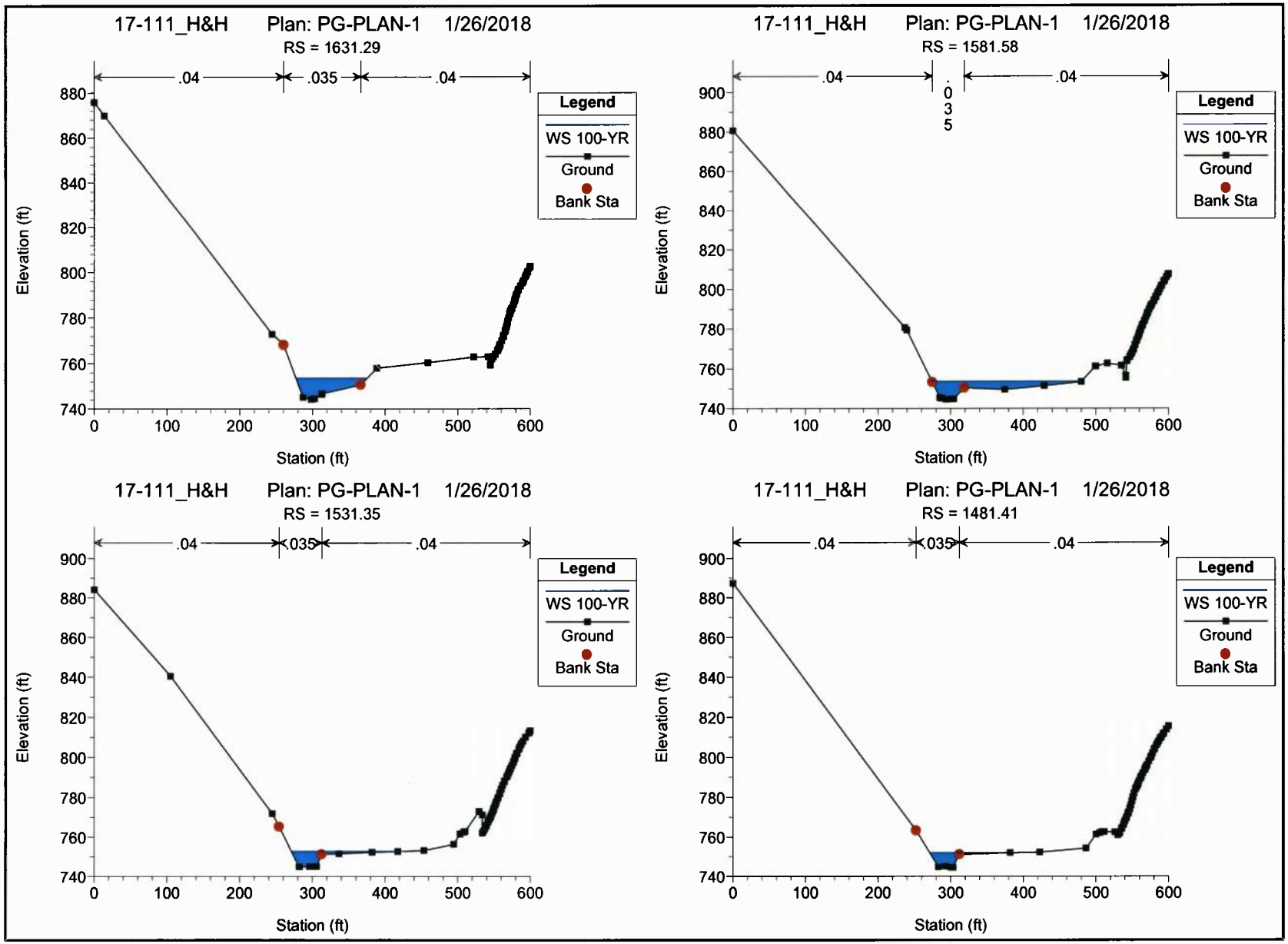

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2631.1
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2581.46
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2531.07
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2481.43
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

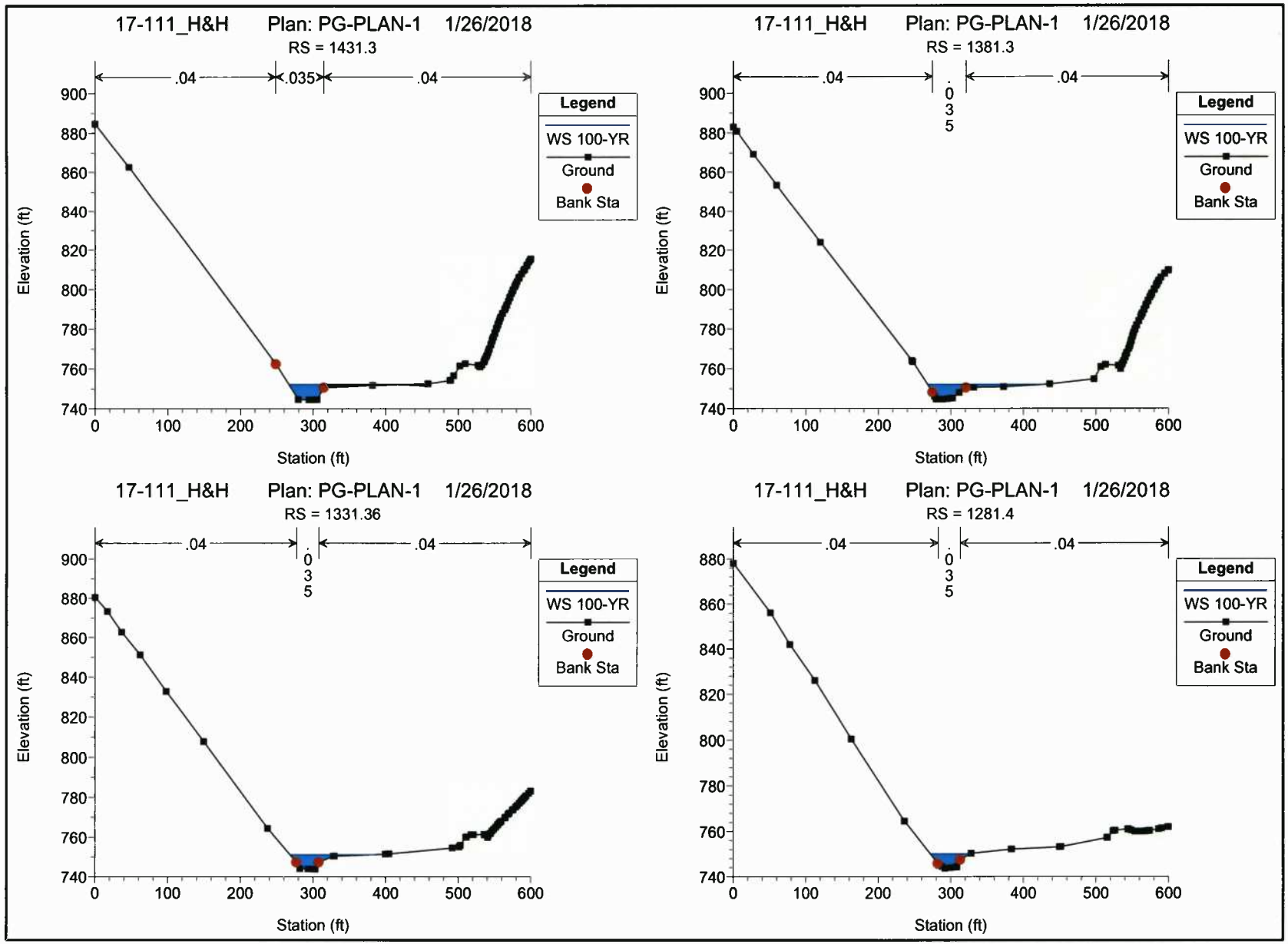

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2431.44
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2381.67
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2331.55
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2281.67
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

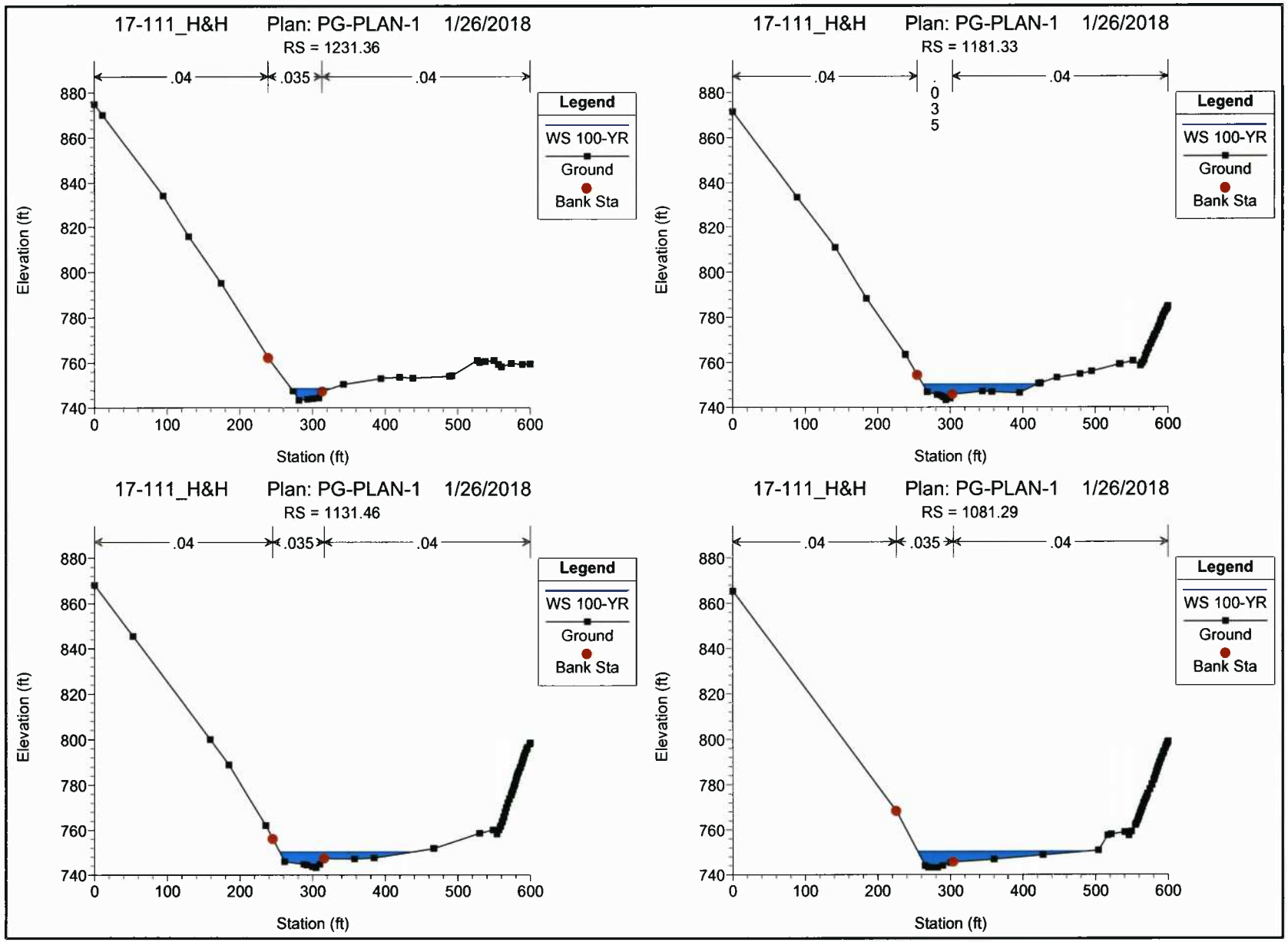

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2231.25
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2181.22
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2131.29
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2081.11
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

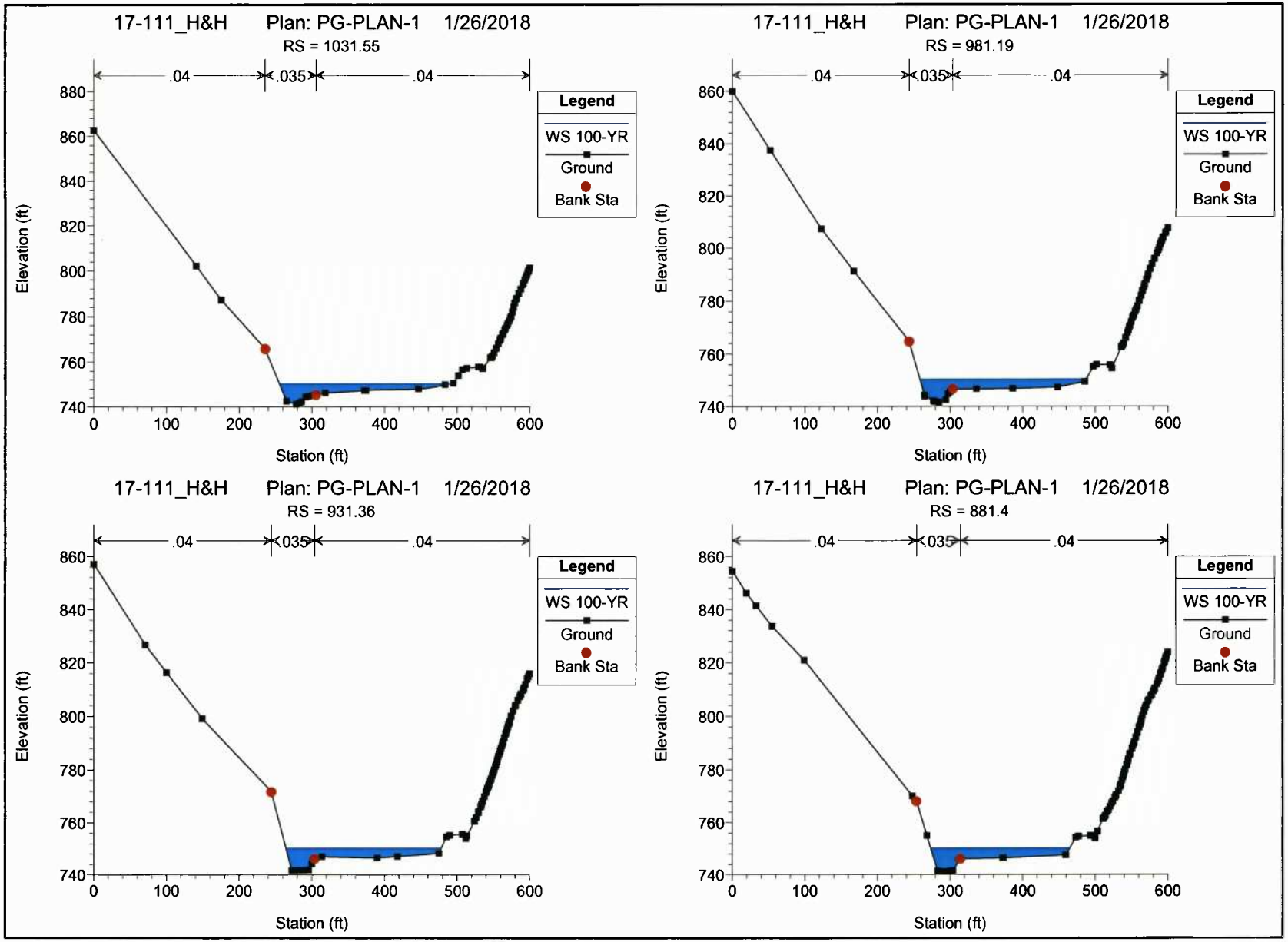

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2031.08
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1981.04
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1931.11
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1881.27
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

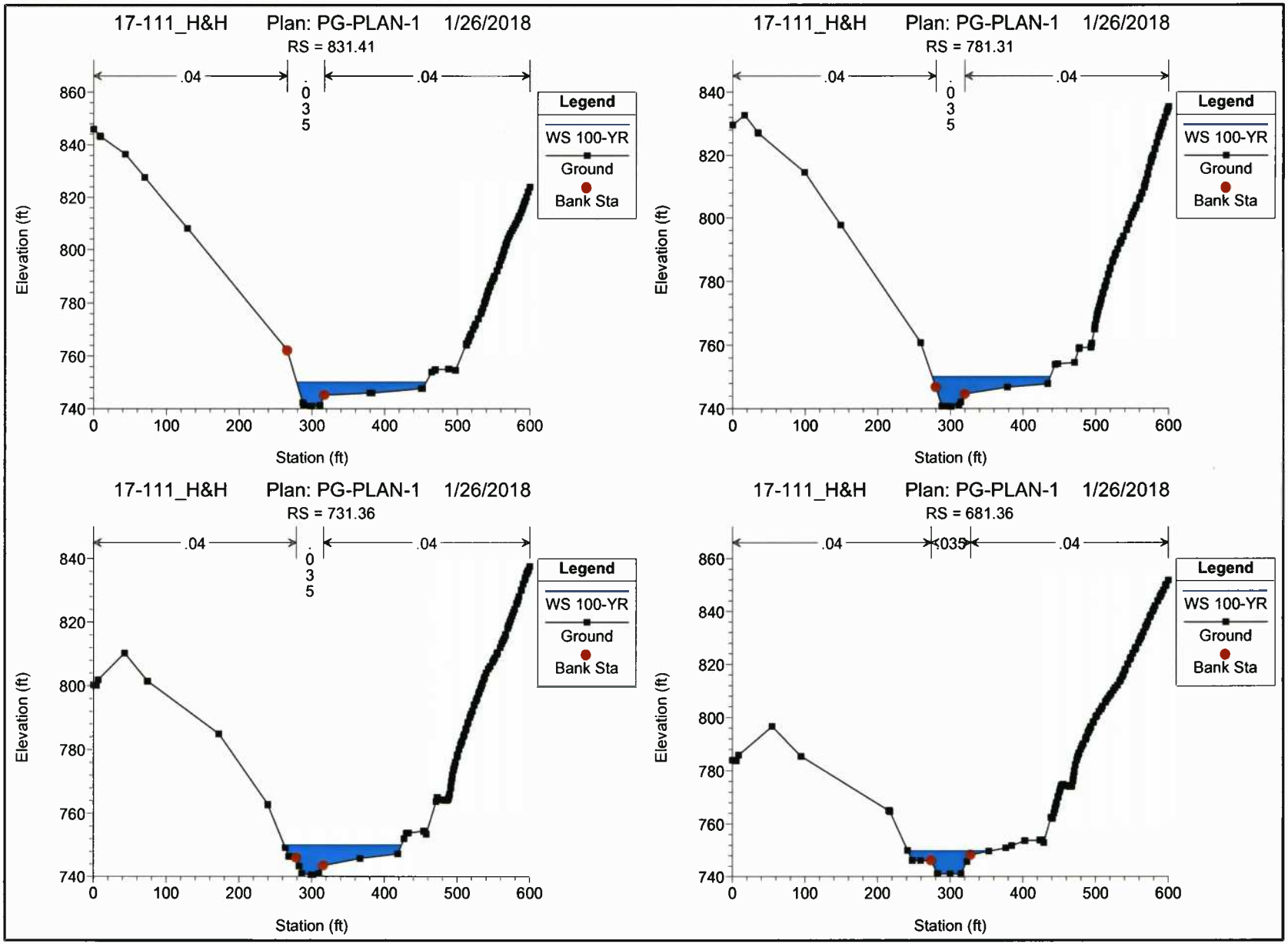

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1831.31
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1781.21
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1731.3
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1681.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

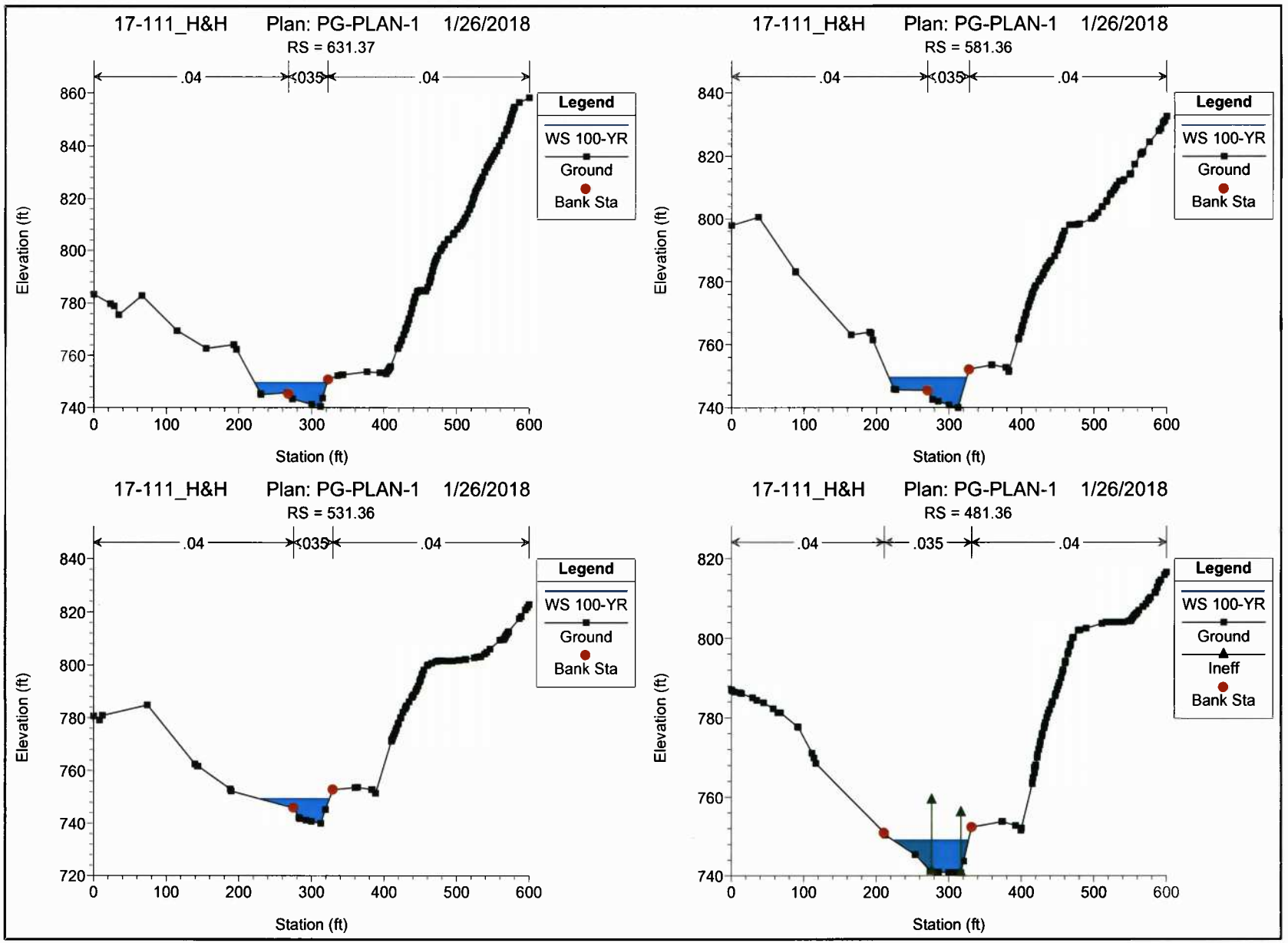

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1631.29
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1581.58
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1531.35
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1481.41
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

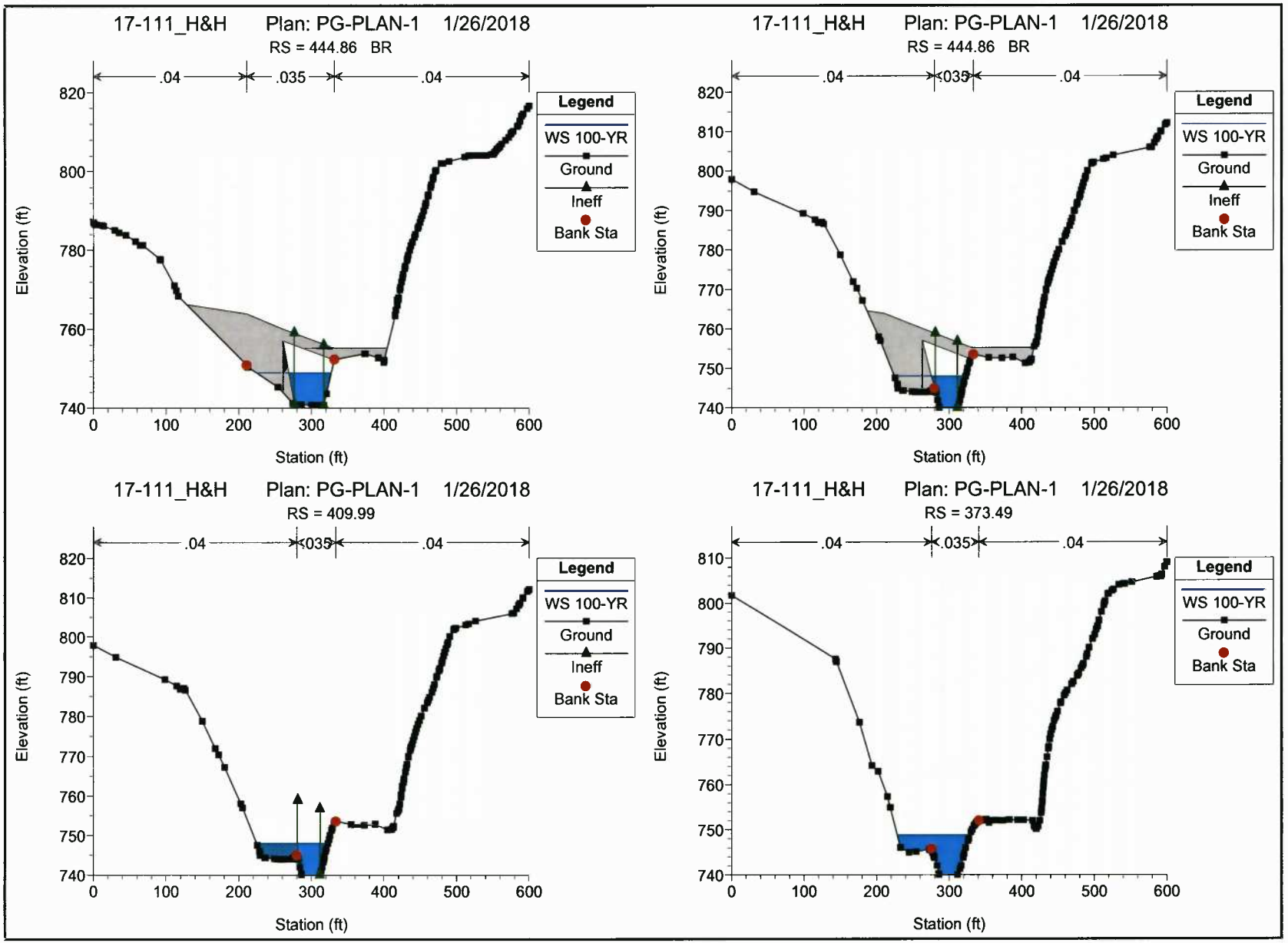

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1431.3
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1381.3
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1331.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1281.4
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

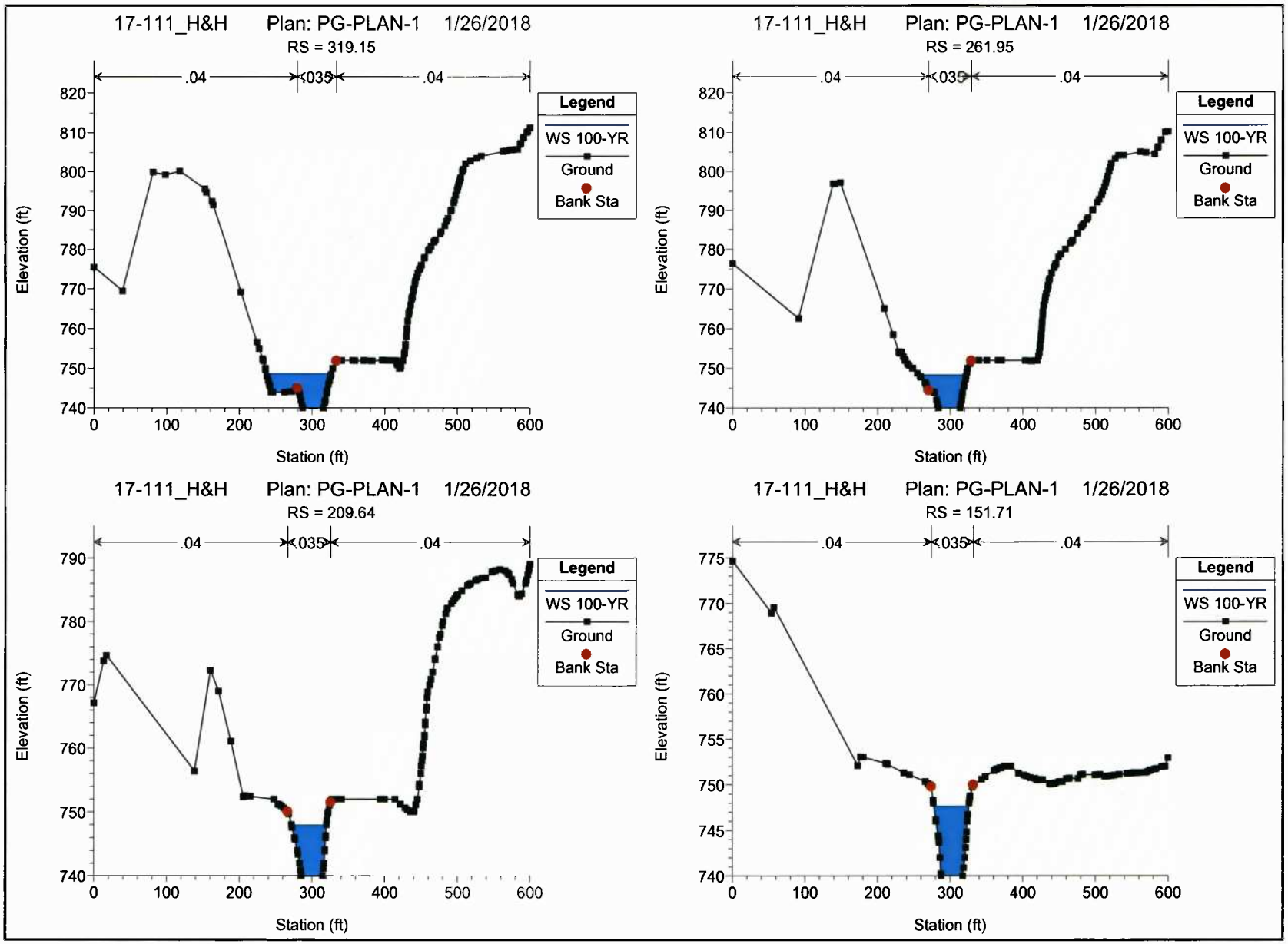

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1231.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1181.33
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1131.46
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1081.29
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

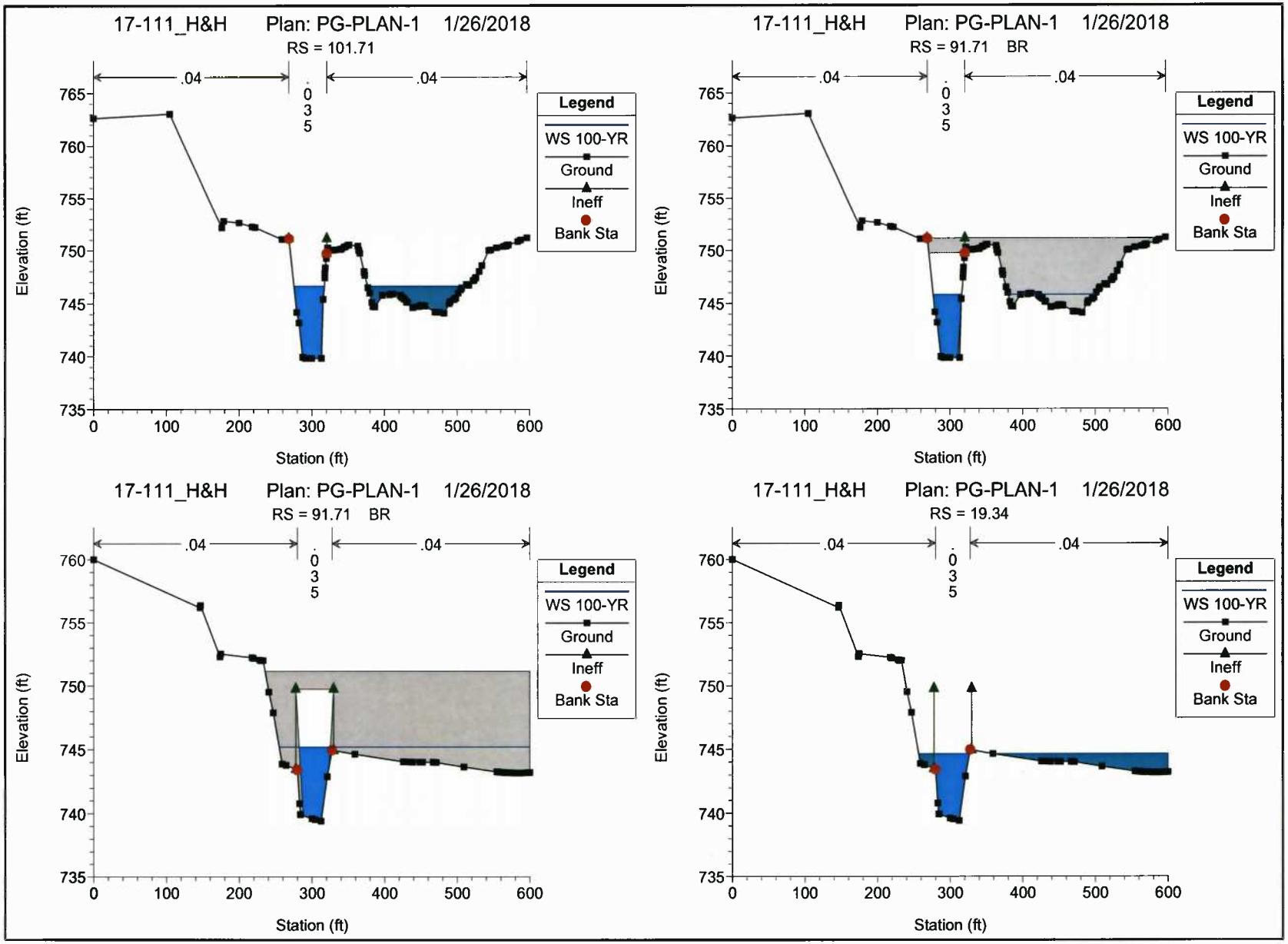

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1031.55
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 981.19
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 931.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 881.4
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)

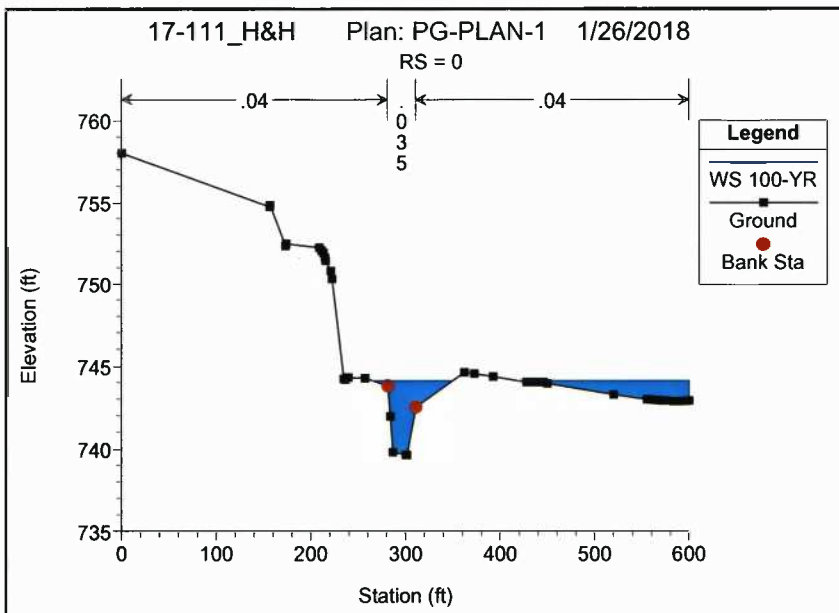

17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 831.41
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 781.31
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 731.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 681.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 631.37
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 581.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 531.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 481.36
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 444.86 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 444.86 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 409.99
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 373.49
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 319.15
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 261.95
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 209.64
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 151.71
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 101.71
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 91.71 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 91.71 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 19.34
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 0
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
760
755
750
745
740
735
0
100
200
300
400
500
600
Station (ft)

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2820 Profile: 100-YR

E.G. US. (ft)	757.94	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	757.74	E.G. Elev (ft)	757.92	757.84
Q Total (cfs)	2315.70	W.S. Elev (ft)	757.72	757.55
Q Bridge (cfs)	445.02	Crit W.S. (ft)	756.38	755.17
Q Weir (cfs)		Max Chl Dpth (ft)	8.09	8.48
Weir Sta Lft (ft)		Vel Total (ft/s)	3.49	4.29
Weir Sta Rgt (ft)		Flow Area (sq ft)	662.83	539.66
Weir Submerg		Froude # Chl	0.22	0.26
Weir Max Depth (ft)		Specif Force (cu ft)	1555.12	1590.88
Min El Weir Flow (ft)	755.37	Hydr Depth (ft)	2.89	2.95
Min El Prs (ft)	756.74	W.P. Total (ft)	368.55	296.93
Delta EG (ft)	0.34	Conv. Total (cfs)	40336.7	33178.3
Delta WS (ft)	0.57	Top Width (ft)	229.03	182.71
BR Open Area (sq ft)	142.14	Frctn Loss (ft)	0.06	0.23
BR Open Vel (ft/s)	3.13	C & E Loss (ft)	0.01	0.01
BR Sluice Coef		Shear Total (lb/sq ft)	0.37	0.55
BR Sel Method	Energy only	Power Total (lb/ft s)	1.29	2.37

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 444.86 Profile: 100-YR

E.G. US. (ft)	749.86	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	749.10	E.G. Elev (ft)	749.80	749.64
Q Total (cfs)	2333.46	W.S. Elev (ft)	749.03	748.09
Q Bridge (cfs)	2333.46	Crit W.S. (ft)	745.56	746.10
Q Weir (cfs)		Max Chl Dpth (ft)	8.29	8.09
Weir Sta Lft (ft)		Vel Total (ft/s)	7.05	9.99
Weir Sta Rgt (ft)		Flow Area (sq ft)	331.21	233.65
Weir Submerg		Froude # Chl	0.43	0.64
Weir Max Depth (ft)		Specif Force (cu ft)	1861.53	1638.03
Min El Weir Flow (ft)	756.68	Hydr Depth (ft)	8.15	7.67
Min El Prs (ft)	757.10	W.P. Total (ft)	40.82	32.10
Delta EG (ft)	0.23	Conv. Total (cfs)	56780.6	37256.2
Delta WS (ft)	1.03	Top Width (ft)	58.42	47.31
BR Open Area (sq ft)	437.10	Frctn Loss (ft)	0.08	0.01
BR Open Vel (ft/s)	9.99	C & E Loss (ft)	0.08	0.00
BR Sluice Coef		Shear Total (lb/sq ft)	0.86	1.78
BR Sel Method	Energy only	Power Total (lb/ft s)	6.03	17.80

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 91.71 Profile: 100-YR

E.G. US. (ft)	748.31	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	746.66	E.G. Elev (ft)	748.24	747.46
Q Total (cfs)	2333.46	W.S. Elev (ft)	745.84	745.20
Q Bridge (cfs)	2333.46	Crit W.S. (ft)	745.84	745.20
Q Weir (cfs)		Max Chl Dpth (ft)	6.02	5.79
Weir Sta Lft (ft)		Vel Total (ft/s)	12.41	12.05
Weir Sta Rgt (ft)		Flow Area (sq ft)	188.02	193.64
Weir Submerg		Froude # Chl	1.00	1.00
Weir Max Depth (ft)		Specif Force (cu ft)	1414.63	1366.89
Min El Weir Flow (ft)	751.16	Hydr Depth (ft)	4.78	4.52
Min El Prs (ft)	749.74	W.P. Total (ft)	43.67	46.48
Delta EG (ft)	1.36	Conv. Total (cfs)	21125.7	21285.1
Delta WS (ft)	2.02	Top Width (ft)	39.36	42.84
BR Open Area (sq ft)	361.29	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.41	C & E Loss (ft)		

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 91.71 Profile: 100-YR (Continued)

BR Sluice Coef		Shear Total (lb/sq ft)	3.28	3.13
BR Sel Method	Momentum	Power Total (lb/ft s)	40.70	37.67

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 3200.18 Profile: 100-YR

E.G. Elev (ft)	760.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.50	Wt. n-Val.		0.035	
W.S. Elev (ft)	758.99	Reach Len. (ft)	48.94	48.94	48.94
Crit W.S. (ft)	758.83	Flow Area (sq ft)		225.96	
E.G. Slope (ft/ft)	0.010951	Area (sq ft)		225.96	
Q Total (cfs)	2216.44	Flow (cfs)		2216.44	
Top Width (ft)	67.21	Top Width (ft)		67.21	
Vel Total (ft/s)	9.81	Avg. Vel. (ft/s)		9.81	
Max Chl Dpth (ft)	5.32	Hydr. Depth (ft)		3.36	
Conv. Total (cfs)	21179.9	Conv. (cfs)		21179.9	
Length Wtd. (ft)	48.94	Wetted Per. (ft)		68.88	
Min Ch El (ft)	753.67	Shear (lb/sq ft)		2.24	
Alpha	1.00	Stream Power (lb/ft s)		22.00	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	3.62	23.14	15.31
C & E Loss (ft)	0.01	Cum SA (acres)	1.76	4.11	6.79

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 3151.24 Profile: 100-YR

E.G. Elev (ft)	759.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.55	Wt. n-Val.		0.035	
W.S. Elev (ft)	758.36	Reach Len. (ft)	73.58	73.58	73.58
Crit W.S. (ft)	758.36	Flow Area (sq ft)		221.64	
E.G. Slope (ft/ft)	0.012670	Area (sq ft)		221.64	
Q Total (cfs)	2216.44	Flow (cfs)		2216.44	
Top Width (ft)	71.36	Top Width (ft)		71.36	
Vel Total (ft/s)	10.00	Avg. Vel. (ft/s)		10.00	
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)		3.11	
Conv. Total (cfs)	19691.2	Conv. (cfs)		19691.2	
Length Wtd. (ft)	73.58	Wetted Per. (ft)		73.22	
Min Ch El (ft)	753.62	Shear (lb/sq ft)		2.39	
Alpha	1.00	Stream Power (lb/ft s)		23.94	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	3.62	22.89	15.31
C & E Loss (ft)	0.09	Cum SA (acres)	1.76	4.03	6.79

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 3077.66 Profile: 100-YR

E.G. Elev (ft)	759.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.24	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	757.84	Reach Len. (ft)	46.37	46.37	46.37
Crit W.S. (ft)	757.29	Flow Area (sq ft)		258.44	1.45
E.G. Slope (ft/ft)	0.007689	Area (sq ft)		258.44	1.45
Q Total (cfs)	2315.70	Flow (cfs)		2313.57	2.13
Top Width (ft)	72.33	Top Width (ft)		67.55	4.78
Vel Total (ft/s)	8.91	Avg. Vel. (ft/s)		8.95	1.47
Max Chl Dpth (ft)	5.84	Hydr. Depth (ft)		3.83	0.30
Conv. Total (cfs)	26409.4	Conv. (cfs)		26385.1	24.3
Length Wtd. (ft)	46.37	Wetted Per. (ft)		69.30	4.82
Min Ch El (ft)	752.00	Shear (lb/sq ft)		1.79	0.14
Alpha	1.01	Stream Power (lb/ft s)		16.02	0.21
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	3.62	22.48	15.31
C & E Loss (ft)	0.16	Cum SA (acres)	1.76	3.92	6.78

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 3031.29 Profile: 100-YR

E.G. Elev (ft)	758.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.95	Reach Len. (ft)	50.06	50.06	50.06
Crit W.S. (ft)	756.77	Flow Area (sq ft)	70.05	312.29	6.40
E.G. Slope (ft/ft)	0.004123	Area (sq ft)	70.05	312.29	6.40
Q Total (cfs)	2315.70	Flow (cfs)	115.41	2187.72	12.58
Top Width (ft)	202.94	Top Width (ft)	121.94	72.59	8.41
Vel Total (ft/s)	5.96	Avg. Vel. (ft/s)	1.65	7.01	1.97
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)	0.57	4.30	0.76
Conv. Total (cfs)	36062.8	Conv. (cfs)	1797.3	34069.7	195.8
Length Wtd. (ft)	50.06	Wetted Per. (ft)	122.02	75.81	8.55
Min Ch El (ft)	751.28	Shear (lb/sq ft)	0.15	1.06	0.19
Alpha	1.31	Stream Power (lb/ft s)	0.24	7.43	0.38
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	3.58	22.18	15.30
C & E Loss (ft)	0.02	Cum SA (acres)	1.70	3.84	6.78

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2981.23 Profile: 100-YR

E.G. Elev (ft)	758.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.54	Reach Len. (ft)	49.63	49.63	49.63
Crit W.S. (ft)	756.59	Flow Area (sq ft)	55.21	288.91	
E.G. Slope (ft/ft)	0.005229	Area (sq ft)	55.21	288.91	
Q Total (cfs)	2315.70	Flow (cfs)	102.78	2212.92	
Top Width (ft)	165.93	Top Width (ft)	95.67	70.25	
Vel Total (ft/s)	6.73	Avg. Vel. (ft/s)	1.86	7.66	
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)	0.58	4.11	
Conv. Total (cfs)	32023.2	Conv. (cfs)	1421.4	30601.8	
Length Wtd. (ft)	49.63	Wetted Per. (ft)	95.70	73.31	
Min Ch El (ft)	750.87	Shear (lb/sq ft)	0.19	1.29	
Alpha	1.24	Stream Power (lb/ft s)	0.35	9.85	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	3.51	21.83	15.30
C & E Loss (ft)	0.19	Cum SA (acres)	1.57	3.76	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2931.6 Profile: 100-YR

E.G. Elev (ft)	758.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.84	Reach Len. (ft)	49.80	49.80	49.80
Crit W.S. (ft)		Flow Area (sq ft)	387.40	287.02	
E.G. Slope (ft/ft)	0.001582	Area (sq ft)	387.40	287.02	
Q Total (cfs)	2315.70	Flow (cfs)	928.46	1387.24	
Top Width (ft)	244.08	Top Width (ft)	187.12	56.96	
Vel Total (ft/s)	3.43	Avg. Vel. (ft/s)	2.40	4.83	
Max Chl Dpth (ft)	7.99	Hydr. Depth (ft)	2.07	5.04	
Conv. Total (cfs)	58221.9	Conv. (cfs)	23343.5	34878.4	
Length Wtd. (ft)	49.80	Wetted Per. (ft)	187.53	59.27	
Min Ch El (ft)	749.85	Shear (lb/sq ft)	0.20	0.48	
Alpha	1.38	Stream Power (lb/ft s)	0.49	2.31	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	3.26	21.50	15.30
C & E Loss (ft)	0.01	Cum SA (acres)	1.41	3.69	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2881.8 Profile: 100-YR

E.G. Elev (ft)	758.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.78	Reach Len. (ft)	50.93	50.93	50.93
Crit W.S. (ft)		Flow Area (sq ft)	409.60	281.01	
E.G. Slope (ft/ft)	0.001361	Area (sq ft)	409.60	281.01	
Q Total (cfs)	2315.70	Flow (cfs)	991.51	1324.19	
Top Width (ft)	225.31	Top Width (ft)	174.31	51.00	
Vel Total (ft/s)	3.35	Avg. Vel. (ft/s)	2.42	4.71	
Max Chl Dpth (ft)	7.84	Hydr. Depth (ft)	2.35	5.51	
Conv. Total (cfs)	62771.5	Conv. (cfs)	26876.8	35894.7	
Length Wtd. (ft)	50.93	Wetted Per. (ft)	174.48	53.85	
Min Ch El (ft)	749.94	Shear (lb/sq ft)	0.20	0.44	
Alpha	1.35	Stream Power (lb/ft s)	0.48	2.09	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	2.80	21.18	15.30
C & E Loss (ft)	0.01	Cum SA (acres)	1.21	3.63	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2830.87 Profile: 100-YR

E.G. Elev (ft)	757.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.74	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	756.38	Flow Area (sq ft)	498.23	227.73	
E.G. Slope (ft/ft)	0.001330	Area (sq ft)	550.08	256.54	
Q Total (cfs)	2315.70	Flow (cfs)	1294.02	1021.68	
Top Width (ft)	231.12	Top Width (ft)	187.35	43.77	
Vel Total (ft/s)	3.19	Avg. Vel. (ft/s)	2.60	4.49	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	2.66	5.20	
Conv. Total (cfs)	63504.0	Conv. (cfs)	35486.1	28017.9	
Length Wtd. (ft)	10.00	Wetted Per. (ft)	187.67	46.16	
Min Ch El (ft)	749.63	Shear (lb/sq ft)	0.22	0.41	
Alpha	1.24	Stream Power (lb/ft s)	0.57	1.84	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	2.24	20.87	15.30
C & E Loss (ft)	0.00	Cum SA (acres)	1.00	3.57	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2820 BR U Profile: 100-YR

E.G. Elev (ft)	757.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.72	Reach Len. (ft)	16.00	16.00	16.00
Crit W.S. (ft)	756.38	Flow Area (sq ft)	478.10	184.73	
E.G. Slope (ft/ft)	0.003296	Area (sq ft)	514.62	212.90	
Q Total (cfs)	2315.70	Flow (cfs)	1740.83	574.88	
Top Width (ft)	229.03	Top Width (ft)	187.28	41.75	
Vel Total (ft/s)	3.49	Avg. Vel. (ft/s)	3.64	3.11	
Max Chl Dpth (ft)	8.09	Hydr. Depth (ft)	2.55	4.42	
Conv. Total (cfs)	40336.7	Conv. (cfs)	30323.1	10013.6	
Length Wtd. (ft)	16.00	Wetted Per. (ft)	240.50	128.04	
Min Ch El (ft)	749.63	Shear (lb/sq ft)	0.41	0.30	
Alpha	1.01	Stream Power (lb/ft s)	1.49	0.92	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	2.12	20.81	15.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.95	3.56	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2820 BR D Profile: 100-YR

E.G. Elev (ft)	757.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.55	Reach Len. (ft)	73.68	73.68	73.68
Crit W.S. (ft)	755.17	Flow Area (sq ft)	221.81	315.84	2.01
E.G. Slope (ft/ft)	0.004871	Area (sq ft)	221.81	315.84	2.01
Q Total (cfs)	2315.70	Flow (cfs)	860.50	1453.67	1.53
Top Width (ft)	182.71	Top Width (ft)	121.11	49.09	12.51
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)	3.88	4.60	0.76
Max Chl Dpth (ft)	8.48	Hydr. Depth (ft)	1.83	6.43	0.16
Conv. Total (cfs)	33178.3	Conv. (cfs)	12328.8	20827.6	21.9
Length Wtd. (ft)	73.68	Wetted Per. (ft)	121.20	163.16	12.58
Min Ch El (ft)	749.07	Shear (lb/sq ft)	0.56	0.59	0.05
Alpha	1.03	Stream Power (lb/ft s)	2.16	2.71	0.04
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	1.99	20.71	15.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.90	3.54	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2731.19 Profile: 100-YR

E.G. Elev (ft)	757.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.18	Reach Len. (ft)	49.89	49.89	49.89
Crit W.S. (ft)		Flow Area (sq ft)	177.58	338.15	
E.G. Slope (ft/ft)	0.002180	Area (sq ft)	177.58	338.15	
Q Total (cfs)	2315.70	Flow (cfs)	408.06	1907.64	
Top Width (ft)	184.80	Top Width (ft)	116.38	68.42	
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)	2.30	5.64	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	1.53	4.94	
Conv. Total (cfs)	49599.1	Conv. (cfs)	8740.1	40859.0	
Length Wtd. (ft)	49.89	Wetted Per. (ft)	116.44	70.42	
Min Ch El (ft)	749.07	Shear (lb/sq ft)	0.21	0.65	
Alpha	1.35	Stream Power (lb/ft s)	0.48	3.69	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.65	20.16	15.30
C & E Loss (ft)	0.04	Cum SA (acres)	0.70	3.44	6.76

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2681.3 Profile: 100-YR

E.G. Elev (ft)	757.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.18	Reach Len. (ft)	50.20	50.20	50.20
Crit W.S. (ft)		Flow Area (sq ft)	44.46	518.41	3.86
E.G. Slope (ft/ft)	0.001451	Area (sq ft)	44.46	518.41	3.86
Q Total (cfs)	2315.70	Flow (cfs)	53.26	2260.35	2.08
Top Width (ft)	188.72	Top Width (ft)	57.05	115.28	16.39
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)	1.20	4.36	0.54
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)	0.78	4.50	0.24
Conv. Total (cfs)	60800.3	Conv. (cfs)	1398.4	59347.2	54.7
Length Wtd. (ft)	50.20	Wetted Per. (ft)	57.07	117.08	16.42
Min Ch El (ft)	748.91	Shear (lb/sq ft)	0.07	0.40	0.02
Alpha	1.11	Stream Power (lb/ft s)	0.08	1.75	0.01
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.52	19.67	15.29
C & E Loss (ft)	0.03	Cum SA (acres)	0.60	3.34	6.75

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2631.1 Profile: 100-YR

E.G. Elev (ft)	757.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.19	Reach Len. (ft)	49.64	49.64	49.64
Crit W.S. (ft)		Flow Area (sq ft)	48.42	362.43	374.37
E.G. Slope (ft/ft)	0.001031	Area (sq ft)	48.42	362.43	374.37
Q Total (cfs)	2315.70	Flow (cfs)	60.55	1500.24	754.91
Top Width (ft)	281.10	Top Width (ft)	45.05	66.61	169.44
Vel Total (ft/s)	2.95	Avg. Vel. (ft/s)	1.25	4.14	2.02
Max Chl Dpth (ft)	8.40	Hydr. Depth (ft)	1.07	5.44	2.21
Conv. Total (cfs)	72113.8	Conv. (cfs)	1885.5	46719.4	23508.9
Length Wtd. (ft)	49.64	Wetted Per. (ft)	45.10	68.50	170.34
Min Ch El (ft)	748.79	Shear (lb/sq ft)	0.07	0.34	0.14
Alpha	1.43	Stream Power (lb/ft s)	0.09	1.41	0.29
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.47	19.16	15.08
C & E Loss (ft)	0.15	Cum SA (acres)	0.54	3.23	6.64

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2581.46 Profile: 100-YR

E.G. Elev (ft)	757.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.72	Wt. n-Val.		0.035	
W.S. Elev (ft)	755.39	Reach Len. (ft)	50.39	50.39	50.39
Crit W.S. (ft)	755.13	Flow Area (sq ft)		220.18	
E.G. Slope (ft/ft)	0.010015	Area (sq ft)		220.18	
Q Total (cfs)	2315.70	Flow (cfs)		2315.70	
Top Width (ft)	53.99	Top Width (ft)		53.99	
Vel Total (ft/s)	10.52	Avg. Vel. (ft/s)		10.52	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		4.08	
Conv. Total (cfs)	23140.2	Conv. (cfs)		23140.2	
Length Wtd. (ft)	50.39	Wetted Per. (ft)		56.53	
Min Ch El (ft)	749.42	Shear (lb/sq ft)		2.44	
Alpha	1.00	Stream Power (lb/ft s)		25.61	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	1.44	18.83	14.86
C & E Loss (ft)	0.15	Cum SA (acres)	0.51	3.17	6.54

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2531.07 Profile: 100-YR

E.G. Elev (ft)	756.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	755.30	Reach Len. (ft)	49.64	49.64	49.64
Crit W.S. (ft)	755.30	Flow Area (sq ft)		236.61	60.90
E.G. Slope (ft/ft)	0.007307	Area (sq ft)		236.61	60.90
Q Total (cfs)	2315.70	Flow (cfs)		2171.53	144.17
Top Width (ft)	152.96	Top Width (ft)		55.61	97.35
Vel Total (ft/s)	7.78	Avg. Vel. (ft/s)		9.18	2.37
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)		4.26	0.63
Conv. Total (cfs)	27089.4	Conv. (cfs)		25402.9	1686.5
Length Wtd. (ft)	49.64	Wetted Per. (ft)		58.83	97.57
Min Ch El (ft)	748.62	Shear (lb/sq ft)		1.83	0.28
Alpha	1.31	Stream Power (lb/ft s)		16.84	0.67
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	1.44	18.57	14.83
C & E Loss (ft)	0.15	Cum SA (acres)	0.51	3.10	6.49

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2481.43 Profile: 100-YR

E.G. Elev (ft)	755.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.85	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)	753.99	Flow Area (sq ft)	0.54	270.89	133.36
E.G. Slope (ft/ft)	0.003509	Area (sq ft)	0.54	270.89	133.36
Q Total (cfs)	2315.70	Flow (cfs)	0.26	2004.09	311.35
Top Width (ft)	177.05	Top Width (ft)	5.24	50.16	121.66
Vel Total (ft/s)	5.72	Avg. Vel. (ft/s)	0.48	7.40	2.33
Max Chl Dpth (ft)	7.95	Hydr. Depth (ft)	0.10	5.40	1.10
Conv. Total (cfs)	39091.1	Conv. (cfs)	4.4	33830.8	5256.0
Length Wtd. (ft)	49.99	Wetted Per. (ft)	5.24	53.69	122.17
Min Ch El (ft)	746.90	Shear (lb/sq ft)	0.02	1.11	0.24
Alpha	1.47	Stream Power (lb/ft s)	0.01	8.18	0.56
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	1.44	18.28	14.72
C & E Loss (ft)	0.06	Cum SA (acres)	0.51	3.04	6.36

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2431.44 Profile: 100-YR

E.G. Elev (ft)	755.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.81	Reach Len. (ft)	49.77	49.77	49.77
Crit W.S. (ft)		Flow Area (sq ft)		221.76	295.65
E.G. Slope (ft/ft)	0.003572	Area (sq ft)		221.76	295.65
Q Total (cfs)	2315.70	Flow (cfs)		1546.60	769.10
Top Width (ft)	278.76	Top Width (ft)		46.19	232.57
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		6.97	2.60
Max Chl Dpth (ft)	6.70	Hydr. Depth (ft)		4.80	1.27
Conv. Total (cfs)	38746.9	Conv. (cfs)		25878.1	12868.8
Length Wtd. (ft)	49.77	Wetted Per. (ft)		48.66	233.10
Min Ch El (ft)	748.11	Shear (lb/sq ft)		1.02	0.28
Alpha	1.73	Stream Power (lb/ft s)		7.09	0.74
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.44	18.00	14.47
C & E Loss (ft)	0.08	Cum SA (acres)	0.51	2.99	6.16

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2381.67 Profile: 100-YR

E.G. Elev (ft)	755.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.88	Reach Len. (ft)	50.12	50.12	50.12
Crit W.S. (ft)		Flow Area (sq ft)	1.36	226.34	496.81
E.G. Slope (ft/ft)	0.001697	Area (sq ft)	1.36	226.34	496.81
Q Total (cfs)	2315.70	Flow (cfs)	1.42	1233.50	1080.78
Top Width (ft)	333.83	Top Width (ft)	2.01	39.18	292.64
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)	1.04	5.45	2.18
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)	0.68	5.78	1.70
Conv. Total (cfs)	56216.6	Conv. (cfs)	34.4	29944.8	26237.4
Length Wtd. (ft)	50.12	Wetted Per. (ft)	2.42	41.14	293.08
Min Ch El (ft)	747.68	Shear (lb/sq ft)	0.06	0.58	0.18
Alpha	1.76	Stream Power (lb/ft s)	0.06	3.18	0.39
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.44	17.74	14.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.50	2.94	5.86

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2331.55 Profile: 100-YR

E.G. Elev (ft)	755.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.79	Reach Len. (ft)	49.88	49.88	49.88
Crit W.S. (ft)		Flow Area (sq ft)		232.17	473.94
E.G. Slope (ft/ft)	0.001863	Area (sq ft)		232.17	473.94
Q Total (cfs)	2315.70	Flow (cfs)		1229.83	1085.87
Top Width (ft)	324.68	Top Width (ft)		44.35	280.33
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		5.30	2.29
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		5.23	1.69
Conv. Total (cfs)	53652.7	Conv. (cfs)		28494.2	25158.6
Length Wtd. (ft)	49.88	Wetted Per. (ft)		47.23	281.52
Min Ch El (ft)	747.82	Shear (lb/sq ft)		0.57	0.20
Alpha	1.61	Stream Power (lb/ft s)		3.03	0.45
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.44	17.48	13.46
C & E Loss (ft)	0.03	Cum SA (acres)	0.50	2.89	5.53

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2281.67 Profile: 100-YR

E.G. Elev (ft)	754.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.33	Reach Len. (ft)	50.42	50.42	50.42
Crit W.S. (ft)		Flow Area (sq ft)		199.79	326.11
E.G. Slope (ft/ft)	0.003935	Area (sq ft)		199.79	326.11
Q Total (cfs)	2315.70	Flow (cfs)		1469.47	846.23
Top Width (ft)	317.76	Top Width (ft)		40.62	277.14
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)		7.36	2.59
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)		4.92	1.18
Conv. Total (cfs)	36917.1	Conv. (cfs)		23426.4	13490.6
Length Wtd. (ft)	50.42	Wetted Per. (ft)		43.53	277.50
Min Ch El (ft)	747.53	Shear (lb/sq ft)		1.13	0.29
Alpha	1.90	Stream Power (lb/ft s)		8.29	0.75
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.44	17.23	13.00
C & E Loss (ft)	0.09	Cum SA (acres)	0.50	2.84	5.21

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2231.25 Profile: 100-YR

E.G. Elev (ft)	754.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.41	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)		Flow Area (sq ft)		222.30	490.66
E.G. Slope (ft/ft)	0.001890	Area (sq ft)		222.30	490.66
Q Total (cfs)	2315.70	Flow (cfs)		1184.41	1131.29
Top Width (ft)	330.06	Top Width (ft)		42.46	287.60
Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)		5.33	2.31
Max Chl Dpth (ft)	7.17	Hydr. Depth (ft)		5.24	1.71
Conv. Total (cfs)	53263.1	Conv. (cfs)		27242.4	26020.7
Length Wtd. (ft)	50.03	Wetted Per. (ft)		45.33	287.66
Min Ch El (ft)	747.24	Shear (lb/sq ft)		0.58	0.20
Alpha	1.62	Stream Power (lb/ft s)		3.08	0.46
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	1.44	16.98	12.53
C & E Loss (ft)	0.01	Cum SA (acres)	0.50	2.79	4.88

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2181.22 Profile: 100-YR

E.G. Elev (ft)	754.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.19	Reach Len. (ft)	49.93	49.93	49.93
Crit W.S. (ft)		Flow Area (sq ft)		239.39	365.04
E.G. Slope (ft/ft)	0.002272	Area (sq ft)		239.39	365.04
Q Total (cfs)	2315.70	Flow (cfs)		1422.44	893.26
Top Width (ft)	268.67	Top Width (ft)		44.30	224.37
Vel Total (ft/s)	3.83	Avg. Vel. (ft/s)		5.94	2.45
Max Chl Dpth (ft)	6.69	Hydr. Depth (ft)		5.40	1.63
Conv. Total (cfs)	48584.2	Conv. (cfs)		29843.3	18740.9
Length Wtd. (ft)	49.93	Wetted Per. (ft)		47.58	224.68
Min Ch El (ft)	747.50	Shear (lb/sq ft)		0.71	0.23
Alpha	1.63	Stream Power (lb/ft s)		4.24	0.56
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.44	16.72	12.04
C & E Loss (ft)	0.08	Cum SA (acres)	0.50	2.74	4.59

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2131.29 Profile: 100-YR

E.G. Elev (ft)	754.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.30	Reach Len. (ft)	50.18	50.18	50.18
Crit W.S. (ft)		Flow Area (sq ft)		325.00	624.37
E.G. Slope (ft/ft)	0.000761	Area (sq ft)		325.00	624.37
Q Total (cfs)	2320.26	Flow (cfs)		1139.34	1180.92
Top Width (ft)	308.58	Top Width (ft)		60.34	248.25
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)		3.51	1.89
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)		5.39	2.52
Conv. Total (cfs)	84133.7	Conv. (cfs)		41313.0	42820.7
Length Wtd. (ft)	50.18	Wetted Per. (ft)		62.73	248.90
Min Ch El (ft)	748.01	Shear (lb/sq ft)		0.25	0.12
Alpha	1.32	Stream Power (lb/ft s)		0.86	0.23
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.44	16.40	11.47
C & E Loss (ft)	0.01	Cum SA (acres)	0.50	2.68	4.32

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2081.11 Profile: 100-YR

E.G. Elev (ft)	754.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.29	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)		Flow Area (sq ft)		433.17	627.49
E.G. Slope (ft/ft)	0.000481	Area (sq ft)		433.17	627.49
Q Total (cfs)	2320.26	Flow (cfs)		1251.50	1068.77
Top Width (ft)	284.47	Top Width (ft)		77.04	207.43
Vel Total (ft/s)	2.19	Avg. Vel. (ft/s)		2.89	1.70
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		5.62	3.03
Conv. Total (cfs)	105788.8	Conv. (cfs)		57060.0	48728.8
Length Wtd. (ft)	50.03	Wetted Per. (ft)		79.26	207.60
Min Ch El (ft)	747.32	Shear (lb/sq ft)		0.16	0.09
Alpha	1.22	Stream Power (lb/ft s)		0.47	0.15
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.44	15.96	10.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.50	2.60	4.06

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2031.08 Profile: 100-YR

E.G. Elev (ft)	754.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.23	Reach Len. (ft)	50.04	50.04	50.04
Crit W.S. (ft)		Flow Area (sq ft)	50.41	423.74	428.06
E.G. Slope (ft/ft)	0.000681	Area (sq ft)	50.41	423.74	428.06
Q Total (cfs)	2320.26	Flow (cfs)	66.53	1367.60	886.13
Top Width (ft)	252.88	Top Width (ft)	31.57	84.52	136.80
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)	1.32	3.23	2.07
Max Chl Dpth (ft)	7.46	Hydr. Depth (ft)	1.60	5.01	3.13
Conv. Total (cfs)	88921.9	Conv. (cfs)	2549.6	52412.0	33960.3
Length Wtd. (ft)	50.04	Wetted Per. (ft)	31.73	85.21	137.15
Min Ch El (ft)	746.77	Shear (lb/sq ft)	0.07	0.21	0.13
Alpha	1.18	Stream Power (lb/ft s)	0.09	0.68	0.27
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.41	15.47	10.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.48	2.51	3.86

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1981.04 Profile: 100-YR

E.G. Elev (ft)	754.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.20	Reach Len. (ft)	49.93	49.93	49.93
Crit W.S. (ft)		Flow Area (sq ft)	27.74	488.71	366.41
E.G. Slope (ft/ft)	0.000776	Area (sq ft)	27.74	488.71	366.41
Q Total (cfs)	2320.26	Flow (cfs)	40.25	1492.52	787.50
Top Width (ft)	254.52	Top Width (ft)	16.35	116.11	122.05
Vel Total (ft/s)	2.63	Avg. Vel. (ft/s)	1.45	3.05	2.15
Max Chl Dpth (ft)	7.69	Hydr. Depth (ft)	1.70	4.21	3.00
Conv. Total (cfs)	83306.3	Conv. (cfs)	1445.1	53587.1	28274.1
Length Wtd. (ft)	49.93	Wetted Per. (ft)	16.70	117.74	122.38
Min Ch El (ft)	746.51	Shear (lb/sq ft)	0.08	0.20	0.14
Alpha	1.10	Stream Power (lb/ft s)	0.12	0.61	0.31
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.36	14.94	9.69
C & E Loss (ft)	0.01	Cum SA (acres)	0.46	2.40	3.71

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1931.11 Profile: 100-YR

E.G. Elev (ft)	754.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.05	Reach Len. (ft)	49.84	49.84	49.84
Crit W.S. (ft)		Flow Area (sq ft)		471.18	209.95
E.G. Slope (ft/ft)	0.001264	Area (sq ft)		471.18	209.95
Q Total (cfs)	2320.26	Flow (cfs)		1849.33	470.93
Top Width (ft)	204.61	Top Width (ft)		110.06	94.55
Vel Total (ft/s)	3.41	Avg. Vel. (ft/s)		3.92	2.24
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)		4.28	2.22
Conv. Total (cfs)	65254.2	Conv. (cfs)		52009.9	13244.3
Length Wtd. (ft)	49.84	Wetted Per. (ft)		112.39	94.88
Min Ch El (ft)	745.64	Shear (lb/sq ft)		0.33	0.17
Alpha	1.15	Stream Power (lb/ft s)		1.30	0.39
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.35	14.39	9.36
C & E Loss (ft)	0.03	Cum SA (acres)	0.45	2.27	3.59

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1881.27 Profile: 100-YR

E.G. Elev (ft)	754.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.09	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)		Flow Area (sq ft)	13.10	668.78	281.44
E.G. Slope (ft/ft)	0.000423	Area (sq ft)	13.10	668.78	281.44
Q Total (cfs)	2320.26	Flow (cfs)	12.10	1901.72	406.44
Top Width (ft)	229.53	Top Width (ft)	9.55	111.96	108.02
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	0.92	2.84	1.44
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)	1.37	5.97	2.61
Conv. Total (cfs)	112785.2	Conv. (cfs)	588.0	92440.6	19756.6
Length Wtd. (ft)	49.96	Wetted Per. (ft)	9.87	113.84	108.34
Min Ch El (ft)	745.68	Shear (lb/sq ft)	0.04	0.16	0.07
Alpha	1.21	Stream Power (lb/ft s)	0.03	0.44	0.10
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.34	13.74	9.07
C & E Loss (ft)	0.00	Cum SA (acres)	0.44	2.14	3.47

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1831.31 Profile: 100-YR

E.G. Elev (ft)	754.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.07	Reach Len. (ft)	50.10	50.10	50.10
Crit W.S. (ft)		Flow Area (sq ft)	5.46	616.55	375.72
E.G. Slope (ft/ft)	0.000340	Area (sq ft)	5.46	616.55	375.72
Q Total (cfs)	2320.26	Flow (cfs)	3.92	1772.17	544.17
Top Width (ft)	211.34	Top Width (ft)	4.46	85.24	121.63
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)	0.72	2.87	1.45
Max Chl Dpth (ft)	8.39	Hydr. Depth (ft)	1.22	7.23	3.09
Conv. Total (cfs)	125846.0	Conv. (cfs)	212.8	96118.7	29514.6
Length Wtd. (ft)	50.10	Wetted Per. (ft)	5.09	87.62	122.18
Min Ch El (ft)	745.68	Shear (lb/sq ft)	0.02	0.15	0.07
Alpha	1.26	Stream Power (lb/ft s)	0.02	0.43	0.09
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.33	13.00	8.70
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	2.03	3.34

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1781.21 Profile: 100-YR

E.G. Elev (ft)	754.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.02	Reach Len. (ft)	49.91	49.91	49.91
Crit W.S. (ft)		Flow Area (sq ft)		246.93	619.56
E.G. Slope (ft/ft)	0.000650	Area (sq ft)		246.93	619.56
Q Total (cfs)	2320.26	Flow (cfs)		905.15	1415.11
Top Width (ft)	201.23	Top Width (ft)		36.27	164.96
Vel Total (ft/s)	2.68	Avg. Vel. (ft/s)		3.67	2.28
Max Chl Dpth (ft)	9.09	Hydr. Depth (ft)		6.81	3.76
Conv. Total (cfs)	91003.8	Conv. (cfs)		35501.3	55502.4
Length Wtd. (ft)	49.91	Wetted Per. (ft)		39.63	165.44
Min Ch El (ft)	744.93	Shear (lb/sq ft)		0.25	0.15
Alpha	1.17	Stream Power (lb/ft s)		0.93	0.35
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.33	12.51	8.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	1.96	3.17

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1731.3 Profile: 100-YR

E.G. Elev (ft)	754.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.00	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)		Flow Area (sq ft)	2.56	317.34	600.14
E.G. Slope (ft/ft)	0.000504	Area (sq ft)	2.56	317.34	600.14
Q Total (cfs)	2320.26	Flow (cfs)	1.79	1098.01	1220.46
Top Width (ft)	202.91	Top Width (ft)	2.79	42.83	157.30
Vel Total (ft/s)	2.52	Avg. Vel. (ft/s)	0.70	3.46	2.03
Max Chl Dpth (ft)	9.54	Hydr. Depth (ft)	0.92	7.41	3.82
Conv. Total (cfs)	103348.9	Conv. (cfs)	79.7	48907.6	54361.7
Length Wtd. (ft)	49.94	Wetted Per. (ft)	3.34	45.88	157.61
Min Ch El (ft)	744.46	Shear (lb/sq ft)	0.02	0.22	0.12
Alpha	1.23	Stream Power (lb/ft s)	0.02	0.75	0.24
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.33	12.18	7.43
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.91	2.99

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1681.36 Profile: 100-YR

E.G. Elev (ft)	754.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	753.88	Reach Len. (ft)	50.07	50.07	50.07
Crit W.S. (ft)		Flow Area (sq ft)		311.09	378.75
E.G. Slope (ft/ft)	0.000752	Area (sq ft)		311.09	378.75
Q Total (cfs)	2320.26	Flow (cfs)		1304.87	1015.39
Top Width (ft)	129.68	Top Width (ft)		41.56	88.13
Vel Total (ft/s)	3.36	Avg. Vel. (ft/s)		4.19	2.68
Max Chl Dpth (ft)	9.55	Hydr. Depth (ft)		7.49	4.30
Conv. Total (cfs)	84628.6	Conv. (cfs)		47593.4	37035.2
Length Wtd. (ft)	50.07	Wetted Per. (ft)		45.47	88.69
Min Ch El (ft)	744.33	Shear (lb/sq ft)		0.32	0.20
Alpha	1.15	Stream Power (lb/ft s)		1.35	0.54
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.32	11.82	6.87
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.86	2.85

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1631.29 Profile: 100-YR

E.G. Elev (ft)	754.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	753.75	Reach Len. (ft)	49.71	49.71	49.71
Crit W.S. (ft)		Flow Area (sq ft)		539.57	14.18
E.G. Slope (ft/ft)	0.000968	Area (sq ft)		539.57	14.18
Q Total (cfs)	2320.26	Flow (cfs)		2299.17	21.09
Top Width (ft)	98.69	Top Width (ft)		89.47	9.22
Vel Total (ft/s)	4.19	Avg. Vel. (ft/s)		4.26	1.49
Max Chl Dpth (ft)	9.47	Hydr. Depth (ft)		6.03	1.54
Conv. Total (cfs)	74558.3	Conv. (cfs)		73880.5	677.8
Length Wtd. (ft)	49.71	Wetted Per. (ft)		93.16	9.72
Min Ch El (ft)	744.28	Shear (lb/sq ft)		0.35	0.09
Alpha	1.03	Stream Power (lb/ft s)		1.49	0.13
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.32	11.33	6.64
C & E Loss (ft)	0.02	Cum SA (acres)	0.43	1.79	2.79

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1581.58 Profile: 100-YR

E.G. Elev (ft)	753.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	753.75	Reach Len. (ft)	50.23	50.23	50.23
Crit W.S. (ft)		Flow Area (sq ft)	0.09	303.30	439.39
E.G. Slope (ft/ft)	0.000936	Area (sq ft)	0.09	303.30	439.39
Q Total (cfs)	2320.26	Flow (cfs)	0.03	1348.67	971.56
Top Width (ft)	206.36	Top Width (ft)	0.48	44.11	161.77
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	0.31	4.45	2.21
Max Chl Dpth (ft)	9.25	Hydr. Depth (ft)	0.18	6.88	2.72
Conv. Total (cfs)	75847.6	Conv. (cfs)	0.9	44087.1	31759.6
Length Wtd. (ft)	50.23	Wetted Per. (ft)	0.60	47.87	161.89
Min Ch El (ft)	744.50	Shear (lb/sq ft)	0.01	0.37	0.16
Alpha	1.39	Stream Power (lb/ft s)	0.00	1.65	0.35
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	1.32	10.85	6.38
C & E Loss (ft)	0.08	Cum SA (acres)	0.43	1.71	2.70

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1531.35 Profile: 100-YR

E.G. Elev (ft)	753.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.97	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	752.84	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)	750.91	Flow Area (sq ft)		263.87	87.34
E.G. Slope (ft/ft)	0.003684	Area (sq ft)		263.87	87.34
Q Total (cfs)	2320.26	Flow (cfs)		2154.19	166.07
Top Width (ft)	154.46	Top Width (ft)		41.70	112.76
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)		8.16	1.90
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)		6.33	0.77
Conv. Total (cfs)	38229.3	Conv. (cfs)		35493.1	2736.2
Length Wtd. (ft)	49.94	Wetted Per. (ft)		46.79	112.77
Min Ch El (ft)	744.88	Shear (lb/sq ft)		1.30	0.18
Alpha	1.42	Stream Power (lb/ft s)		10.59	0.34
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	1.32	10.53	6.08
C & E Loss (ft)	0.06	Cum SA (acres)	0.43	1.66	2.54

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1481.41 Profile: 100-YR

E.G. Elev (ft)	753.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.61	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	751.89	Reach Len. (ft)	50.11	50.11	50.11
Crit W.S. (ft)	750.97	Flow Area (sq ft)		223.63	21.05
E.G. Slope (ft/ft)	0.006956	Area (sq ft)		223.63	21.05
Q Total (cfs)	2320.26	Flow (cfs)		2288.59	31.67
Top Width (ft)	103.26	Top Width (ft)		41.08	62.18
Vel Total (ft/s)	9.48	Avg. Vel. (ft/s)		10.23	1.50
Max Chl Dpth (ft)	7.56	Hydr. Depth (ft)		5.44	0.34
Conv. Total (cfs)	27820.9	Conv. (cfs)		27441.2	379.8
Length Wtd. (ft)	50.11	Wetted Per. (ft)		45.51	62.19
Min Ch El (ft)	744.33	Shear (lb/sq ft)		2.13	0.15
Alpha	1.15	Stream Power (lb/ft s)		21.84	0.22
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	1.32	10.25	6.02
C & E Loss (ft)	0.24	Cum SA (acres)	0.43	1.61	2.44

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1431.3 Profile: 100-YR

E.G. Elev (ft)	753.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	752.21	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		292.36	81.33
E.G. Slope (ft/ft)	0.003122	Area (sq ft)		292.36	81.33
Q Total (cfs)	2320.26	Flow (cfs)		2185.75	134.51
Top Width (ft)	162.71	Top Width (ft)		48.38	114.33
Vel Total (ft/s)	6.21	Avg. Vel. (ft/s)		7.48	1.65
Max Chl Dpth (ft)	7.73	Hydr. Depth (ft)		6.04	0.71
Conv. Total (cfs)	41528.5	Conv. (cfs)		39121.0	2407.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)		52.25	114.34
Min Ch El (ft)	744.48	Shear (lb/sq ft)		1.09	0.14
Alpha	1.37	Stream Power (lb/ft s)		8.15	0.23
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	1.32	9.95	5.96
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.56	2.34

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1381.3 Profile: 100-YR

E.G. Elev (ft)	752.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	752.07	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)		Flow Area (sq ft)	13.48	272.86	105.81
E.G. Slope (ft/ft)	0.003152	Area (sq ft)	13.48	272.86	105.81
Q Total (cfs)	2320.26	Flow (cfs)	39.94	2060.17	220.15
Top Width (ft)	159.62	Top Width (ft)	6.96	46.49	106.18
Vel Total (ft/s)	5.92	Avg. Vel. (ft/s)	2.96	7.55	2.08
Max Chl Dpth (ft)	7.57	Hydr. Depth (ft)	1.94	5.87	1.00
Conv. Total (cfs)	41324.8	Conv. (cfs)	711.3	36692.5	3921.0
Length Wtd. (ft)	49.94	Wetted Per. (ft)	7.97	48.40	106.19
Min Ch El (ft)	744.50	Shear (lb/sq ft)	0.33	1.11	0.20
Alpha	1.46	Stream Power (lb/ft s)	0.99	8.38	0.41
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	1.32	9.63	5.85
C & E Loss (ft)	0.06	Cum SA (acres)	0.42	1.51	2.21

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1331.36 Profile: 100-YR

E.G. Elev (ft)	752.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.42	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	751.19	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)	750.22	Flow Area (sq ft)	17.58	209.14	66.95
E.G. Slope (ft/ft)	0.004778	Area (sq ft)	17.58	209.14	66.95
Q Total (cfs)	2320.26	Flow (cfs)	66.61	2096.61	157.03
Top Width (ft)	116.43	Top Width (ft)	9.01	30.97	76.45
Vel Total (ft/s)	7.90	Avg. Vel. (ft/s)	3.79	10.02	2.35
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)	1.95	6.75	0.88
Conv. Total (cfs)	33566.8	Conv. (cfs)	963.7	30331.3	2271.8
Length Wtd. (ft)	49.96	Wetted Per. (ft)	9.81	33.13	76.69
Min Ch El (ft)	743.76	Shear (lb/sq ft)	0.53	1.88	0.26
Alpha	1.47	Stream Power (lb/ft s)	2.03	18.88	0.61
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	1.30	9.35	5.75
C & E Loss (ft)	0.07	Cum SA (acres)	0.41	1.46	2.10

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1281.4 Profile: 100-YR

E.G. Elev (ft)	752.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.15	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	750.08	Reach Len. (ft)	50.04	50.04	50.04
Crit W.S. (ft)	750.08	Flow Area (sq ft)	22.93	173.79	17.79
E.G. Slope (ft/ft)	0.008672	Area (sq ft)	22.93	173.79	17.79
Q Total (cfs)	2320.26	Flow (cfs)	125.92	2121.23	73.11
Top Width (ft)	54.83	Top Width (ft)	10.62	30.72	13.48
Vel Total (ft/s)	10.82	Avg. Vel. (ft/s)	5.49	12.21	4.11
Max Chl Dpth (ft)	6.49	Hydr. Depth (ft)	2.16	5.66	1.32
Conv. Total (cfs)	24916.0	Conv. (cfs)	1352.2	22778.8	785.1
Length Wtd. (ft)	50.04	Wetted Per. (ft)	11.47	32.04	13.74
Min Ch El (ft)	743.59	Shear (lb/sq ft)	1.08	2.94	0.70
Alpha	1.18	Stream Power (lb/ft s)	5.94	35.85	2.88
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	1.28	9.13	5.70
C & E Loss (ft)	0.06	Cum SA (acres)	0.40	1.43	2.05

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1231.36 Profile: 100-YR

E.G. Elev (ft)	751.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.74	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	748.85	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)	749.53	Flow Area (sq ft)		171.12	9.05
E.G. Slope (ft/ft)	0.016748	Area (sq ft)		171.12	9.05
Q Total (cfs)	2320.26	Flow (cfs)		2286.25	34.01
Top Width (ft)	55.70	Top Width (ft)		42.67	13.03
Vel Total (ft/s)	12.88	Avg. Vel. (ft/s)		13.36	3.76
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)		4.01	0.69
Conv. Total (cfs)	17928.9	Conv. (cfs)		17666.1	262.8
Length Wtd. (ft)	50.03	Wetted Per. (ft)		45.13	13.10
Min Ch El (ft)	743.46	Shear (lb/sq ft)		3.96	0.72
Alpha	1.06	Stream Power (lb/ft s)		52.97	2.71
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	1.26	8.93	5.69
C & E Loss (ft)	0.49	Cum SA (acres)	0.40	1.39	2.04

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1181.33 Profile: 100-YR

E.G. Elev (ft)	750.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.45	Reach Len. (ft)	49.87	49.87	49.87
Crit W.S. (ft)	748.66	Flow Area (sq ft)		192.81	391.59
E.G. Slope (ft/ft)	0.001798	Area (sq ft)		192.81	391.59
Q Total (cfs)	2320.26	Flow (cfs)		942.93	1377.33
Top Width (ft)	158.21	Top Width (ft)		41.17	117.04
Vel Total (ft/s)	3.97	Avg. Vel. (ft/s)		4.89	3.52
Max Chl Dpth (ft)	7.24	Hydr. Depth (ft)		4.68	3.35
Conv. Total (cfs)	54714.1	Conv. (cfs)		22235.3	32478.8
Length Wtd. (ft)	49.87	Wetted Per. (ft)		43.07	117.38
Min Ch El (ft)	743.21	Shear (lb/sq ft)		0.50	0.37
Alpha	1.08	Stream Power (lb/ft s)		2.46	1.32
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.26	8.72	5.46
C & E Loss (ft)	0.00	Cum SA (acres)	0.40	1.34	1.96

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1131.46 Profile: 100-YR

E.G. Elev (ft)	750.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.32	Reach Len. (ft)	50.17	50.17	50.17
Crit W.S. (ft)		Flow Area (sq ft)		313.21	277.02
E.G. Slope (ft/ft)	0.001720	Area (sq ft)		313.21	277.02
Q Total (cfs)	2333.46	Flow (cfs)		1593.82	739.64
Top Width (ft)	182.96	Top Width (ft)		61.63	121.33
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)		5.09	2.67
Max Chl Dpth (ft)	7.13	Hydr. Depth (ft)		5.08	2.28
Conv. Total (cfs)	56268.6	Conv. (cfs)		38433.0	17835.6
Length Wtd. (ft)	50.17	Wetted Per. (ft)		63.74	121.40
Min Ch El (ft)	743.19	Shear (lb/sq ft)		0.53	0.24
Alpha	1.28	Stream Power (lb/ft s)		2.68	0.65
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	1.26	8.43	5.07
C & E Loss (ft)	0.03	Cum SA (acres)	0.40	1.28	1.83

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1081.29 Profile: 100-YR

E.G. Elev (ft)	750.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.31	Reach Len. (ft)	49.74	49.74	49.74
Crit W.S. (ft)		Flow Area (sq ft)		284.62	450.65
E.G. Slope (ft/ft)	0.001164	Area (sq ft)		284.62	450.65
Q Total (cfs)	2333.46	Flow (cfs)		1290.70	1042.76
Top Width (ft)	231.87	Top Width (ft)		49.31	182.56
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)		4.53	2.31
Max Chl Dpth (ft)	7.23	Hydr. Depth (ft)		5.77	2.47
Conv. Total (cfs)	68408.8	Conv. (cfs)		37838.8	30570.1
Length Wtd. (ft)	49.74	Wetted Per. (ft)		51.36	182.62
Min Ch El (ft)	743.08	Shear (lb/sq ft)		0.40	0.18
Alpha	1.37	Stream Power (lb/ft s)		1.83	0.41
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.26	8.09	4.65
C & E Loss (ft)	0.01	Cum SA (acres)	0.40	1.22	1.65

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1031.55 Profile: 100-YR

E.G. Elev (ft)	750.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.30	Reach Len. (ft)	50.36	50.36	50.36
Crit W.S. (ft)		Flow Area (sq ft)		333.85	505.47
E.G. Slope (ft/ft)	0.000764	Area (sq ft)		333.85	505.47
Q Total (cfs)	2333.46	Flow (cfs)		1321.54	1011.92
Top Width (ft)	236.19	Top Width (ft)		50.59	185.60
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)		3.96	2.00
Max Chl Dpth (ft)	9.21	Hydr. Depth (ft)		6.60	2.72
Conv. Total (cfs)	84408.7	Conv. (cfs)		47804.4	36604.3
Length Wtd. (ft)	50.36	Wetted Per. (ft)		53.90	185.71
Min Ch El (ft)	741.09	Shear (lb/sq ft)		0.30	0.13
Alpha	1.37	Stream Power (lb/ft s)		1.17	0.26
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.26	7.74	4.11
C & E Loss (ft)	0.01	Cum SA (acres)	0.40	1.16	1.44

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 981.19 Profile: 100-YR

E.G. Elev (ft)	750.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.28	Reach Len. (ft)	49.83	49.83	49.83
Crit W.S. (ft)		Flow Area (sq ft)		303.15	572.24
E.G. Slope (ft/ft)	0.000694	Area (sq ft)		303.15	572.24
Q Total (cfs)	2333.46	Flow (cfs)		1139.94	1193.52
Top Width (ft)	229.05	Top Width (ft)		45.37	183.69
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)		3.76	2.09
Max Chl Dpth (ft)	8.76	Hydr. Depth (ft)		6.68	3.12
Conv. Total (cfs)	88566.9	Conv. (cfs)		43266.7	45300.2
Length Wtd. (ft)	49.83	Wetted Per. (ft)		49.18	183.95
Min Ch El (ft)	741.52	Shear (lb/sq ft)		0.27	0.13
Alpha	1.29	Stream Power (lb/ft s)		1.00	0.28
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.26	7.37	3.49
C & E Loss (ft)	0.00	Cum SA (acres)	0.40	1.10	1.23

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 931.36 Profile: 100-YR

E.G. Elev (ft)	750.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.22	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)		Flow Area (sq ft)		280.84	541.80
E.G. Slope (ft/ft)	0.000774	Area (sq ft)		280.84	541.80
Q Total (cfs)	2333.46	Flow (cfs)		1142.66	1190.80
Top Width (ft)	213.32	Top Width (ft)		39.18	174.15
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)		4.07	2.20
Max Chl Dpth (ft)	8.60	Hydr. Depth (ft)		7.17	3.11
Conv. Total (cfs)	83861.7	Conv. (cfs)		41065.9	42795.9
Length Wtd. (ft)	49.96	Wetted Per. (ft)		43.94	174.74
Min Ch El (ft)	741.62	Shear (lb/sq ft)		0.31	0.15
Alpha	1.31	Stream Power (lb/ft s)		1.26	0.33
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.26	7.03	2.85
C & E Loss (ft)	0.00	Cum SA (acres)	0.40	1.06	1.02

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 881.4 Profile: 100-YR

E.G. Elev (ft)	750.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.18	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)		Flow Area (sq ft)		294.61	516.78
E.G. Slope (ft/ft)	0.000716	Area (sq ft)		294.61	516.78
Q Total (cfs)	2333.46	Flow (cfs)		1167.63	1165.83
Top Width (ft)	191.33	Top Width (ft)		40.82	150.51
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)		3.96	2.26
Max Chl Dpth (ft)	9.03	Hydr. Depth (ft)		7.22	3.43
Conv. Total (cfs)	87203.6	Conv. (cfs)		43635.5	43568.1
Length Wtd. (ft)	49.99	Wetted Per. (ft)		45.21	151.15
Min Ch El (ft)	741.15	Shear (lb/sq ft)		0.29	0.15
Alpha	1.26	Stream Power (lb/ft s)		1.15	0.34
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.26	6.70	2.24
C & E Loss (ft)	0.00	Cum SA (acres)	0.40	1.01	0.84

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 831.41 Profile: 100-YR

E.G. Elev (ft)	750.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.16	Reach Len. (ft)	50.10	50.10	50.10
Crit W.S. (ft)		Flow Area (sq ft)		290.12	530.74
E.G. Slope (ft/ft)	0.000645	Area (sq ft)		290.12	530.74
Q Total (cfs)	2333.46	Flow (cfs)		1119.56	1213.91
Top Width (ft)	178.22	Top Width (ft)		38.15	140.08
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)		3.86	2.29
Max Chl Dpth (ft)	9.23	Hydr. Depth (ft)		7.61	3.79
Conv. Total (cfs)	91850.6	Conv. (cfs)		44068.4	47782.2
Length Wtd. (ft)	50.10	Wetted Per. (ft)		42.87	140.67
Min Ch El (ft)	740.93	Shear (lb/sq ft)		0.27	0.15
Alpha	1.22	Stream Power (lb/ft s)		1.05	0.35
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.26	6.37	1.64
C & E Loss (ft)	0.01	Cum SA (acres)	0.40	0.96	0.67

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 781.31 Profile: 100-YR

E.G. Elev (ft)	750.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	750.07	Reach Len. (ft)	49.95	49.95	49.95
Crit W.S. (ft)		Flow Area (sq ft)	8.13	329.14	411.55
E.G. Slope (ft/ft)	0.000671	Area (sq ft)	8.13	329.14	411.55
Q Total (cfs)	2333.46	Flow (cfs)	9.65	1414.84	908.98
Top Width (ft)	162.40	Top Width (ft)	4.95	39.75	117.70
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	1.19	4.30	2.21
Max Chl Dpth (ft)	9.41	Hydr. Depth (ft)	1.64	8.28	3.50
Conv. Total (cfs)	90080.7	Conv. (cfs)	372.4	54618.2	35090.1
Length Wtd. (ft)	49.95	Wetted Per. (ft)	5.94	42.59	118.35
Min Ch El (ft)	740.66	Shear (lb/sq ft)	0.06	0.32	0.15
Alpha	1.35	Stream Power (lb/ft s)	0.07	1.39	0.32
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.26	6.01	1.10
C & E Loss (ft)	0.01	Cum SA (acres)	0.39	0.92	0.52

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 731.36 Profile: 100-YR

E.G. Elev (ft)	750.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	750.07	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	49.61	319.69	465.51
E.G. Slope (ft/ft)	0.000503	Area (sq ft)	49.61	319.69	465.51
Q Total (cfs)	2333.46	Flow (cfs)	83.46	1225.37	1024.64
Top Width (ft)	161.54	Top Width (ft)	16.34	37.56	107.64
Vel Total (ft/s)	2.80	Avg. Vel. (ft/s)	1.68	3.83	2.20
Max Chl Dpth (ft)	9.56	Hydr. Depth (ft)	3.04	8.51	4.32
Conv. Total (cfs)	104004.2	Conv. (cfs)	3719.7	54615.5	45668.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	17.30	39.60	108.47
Min Ch El (ft)	740.51	Shear (lb/sq ft)	0.09	0.25	0.13
Alpha	1.27	Stream Power (lb/ft s)	0.15	0.97	0.30
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.22	5.64	0.60
C & E Loss (ft)	0.02	Cum SA (acres)	0.38	0.87	0.39

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 681.36 Profile: 100-YR

E.G. Elev (ft)	750.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	749.82	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)		Flow Area (sq ft)	104.52	407.31	20.50
E.G. Slope (ft/ft)	0.001033	Area (sq ft)	104.52	407.31	20.50
Q Total (cfs)	2333.46	Flow (cfs)	270.04	2043.26	20.16
Top Width (ft)	113.65	Top Width (ft)	31.82	54.43	27.40
Vel Total (ft/s)	4.38	Avg. Vel. (ft/s)	2.58	5.02	0.98
Max Chl Dpth (ft)	8.87	Hydr. Depth (ft)	3.28	7.48	0.75
Conv. Total (cfs)	72610.9	Conv. (cfs)	8403.0	63580.6	627.3
Length Wtd. (ft)	49.99	Wetted Per. (ft)	32.83	57.77	27.44
Min Ch El (ft)	740.95	Shear (lb/sq ft)	0.21	0.45	0.05
Alpha	1.19	Stream Power (lb/ft s)	0.53	2.28	0.05
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.14	5.22	0.32
C & E Loss (ft)	0.02	Cum SA (acres)	0.35	0.82	0.32

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 631.37 Profile: 100-YR

E.G. Elev (ft)	750.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.80	Reach Len. (ft)	50.01	50.01	50.01
Crit W.S. (ft)		Flow Area (sq ft)	186.07	377.16	
E.G. Slope (ft/ft)	0.001028	Area (sq ft)	186.07	377.16	
Q Total (cfs)	2333.46	Flow (cfs)	545.79	1787.67	
Top Width (ft)	100.60	Top Width (ft)	46.91	53.69	
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)	2.93	4.74	
Max Chl Dpth (ft)	9.29	Hydr. Depth (ft)	3.97	7.03	
Conv. Total (cfs)	72783.2	Conv. (cfs)	17023.9	55759.2	
Length Wtd. (ft)	50.01	Wetted Per. (ft)	48.14	58.04	
Min Ch El (ft)	740.51	Shear (lb/sq ft)	0.25	0.42	
Alpha	1.12	Stream Power (lb/ft s)	0.73	1.98	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.97	4.77	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.31	0.76	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 581.36 Profile: 100-YR

E.G. Elev (ft)	750.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.78	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	205.06	393.54	
E.G. Slope (ft/ft)	0.000892	Area (sq ft)	205.06	393.54	
Q Total (cfs)	2333.46	Flow (cfs)	549.87	1783.59	
Top Width (ft)	107.69	Top Width (ft)	53.58	54.11	
Vel Total (ft/s)	3.90	Avg. Vel. (ft/s)	2.68	4.53	
Max Chl Dpth (ft)	9.74	Hydr. Depth (ft)	3.83	7.27	
Conv. Total (cfs)	78146.8	Conv. (cfs)	18414.9	59731.9	
Length Wtd. (ft)	50.00	Wetted Per. (ft)	54.56	58.22	
Min Ch El (ft)	740.04	Shear (lb/sq ft)	0.21	0.38	
Alpha	1.14	Stream Power (lb/ft s)	0.56	1.71	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.74	4.33	0.30
C & E Loss (ft)	0.02	Cum SA (acres)	0.25	0.70	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 531.36 Profile: 100-YR

E.G. Elev (ft)	749.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.45	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	86.49	358.66	
E.G. Slope (ft/ft)	0.001597	Area (sq ft)	86.49	358.66	
Q Total (cfs)	2333.46	Flow (cfs)	189.64	2143.82	
Top Width (ft)	97.94	Top Width (ft)	48.06	49.89	
Vel Total (ft/s)	5.24	Avg. Vel. (ft/s)	2.19	5.98	
Max Chl Dpth (ft)	9.57	Hydr. Depth (ft)	1.80	7.19	
Conv. Total (cfs)	58393.1	Conv. (cfs)	4745.5	53647.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)	48.19	54.23	
Min Ch El (ft)	739.88	Shear (lb/sq ft)	0.18	0.66	
Alpha	1.21	Stream Power (lb/ft s)	0.39	3.94	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.58	3.90	0.30
C & E Loss (ft)	0.02	Cum SA (acres)	0.19	0.64	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 481.36 Profile: 100-YR

E.G. Elev (ft)	749.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.035	
W.S. Elev (ft)	749.10	Reach Len. (ft)	36.50	36.50	36.50
Crit W.S. (ft)	745.54	Flow Area (sq ft)		334.47	
E.G. Slope (ft/ft)	0.001625	Area (sq ft)		571.92	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	104.33	Top Width (ft)		104.33	
Vel Total (ft/s)	6.98	Avg. Vel. (ft/s)		6.98	
Max Chl Dpth (ft)	8.36	Hydr. Depth (ft)		8.23	
Conv. Total (cfs)	57894.6	Conv. (cfs)		57894.6	
Length Wtd. (ft)	36.50	Wetted Per. (ft)		40.63	
Min Ch El (ft)	740.74	Shear (lb/sq ft)		0.83	
Alpha	1.00	Stream Power (lb/ft s)		5.83	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.53	3.36	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.17	0.55	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 444.86 BR U Profile: 100-YR

E.G. Elev (ft)	749.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.77	Wt. n-Val.		0.035	
W.S. Elev (ft)	749.03	Reach Len. (ft)	32.00	32.00	32.00
Crit W.S. (ft)	745.56	Flow Area (sq ft)		331.21	
E.G. Slope (ft/ft)	0.001689	Area (sq ft)		401.84	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	58.42	Top Width (ft)		58.42	
Vel Total (ft/s)	7.05	Avg. Vel. (ft/s)		7.05	
Max Chl Dpth (ft)	8.29	Hydr. Depth (ft)		8.15	
Conv. Total (cfs)	56780.6	Conv. (cfs)		56780.6	
Length Wtd. (ft)	32.00	Wetted Per. (ft)		40.82	
Min Ch El (ft)	740.74	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		6.03	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.53	2.96	0.30
C & E Loss (ft)	0.08	Cum SA (acres)	0.17	0.48	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 444.86 BR D Profile: 100-YR

E.G. Elev (ft)	749.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.55	Wt. n-Val.		0.035	
W.S. Elev (ft)	748.09	Reach Len. (ft)	2.87	2.87	2.87
Crit W.S. (ft)	746.10	Flow Area (sq ft)		233.65	
E.G. Slope (ft/ft)	0.003923	Area (sq ft)	5.67	285.91	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	47.31	Top Width (ft)	3.99	43.32	
Vel Total (ft/s)	9.99	Avg. Vel. (ft/s)		9.99	
Max Chl Dpth (ft)	8.09	Hydr. Depth (ft)		7.67	
Conv. Total (cfs)	37256.2	Conv. (cfs)		37256.2	
Length Wtd. (ft)	2.87	Wetted Per. (ft)		32.10	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.78	
Alpha	1.00	Stream Power (lb/ft s)		17.80	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.53	2.70	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.16	0.44	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 409.99 Profile: 100-YR

E.G. Elev (ft)	749.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.56	Wt. n-Val.		0.035	
W.S. Elev (ft)	748.08	Reach Len. (ft)	36.50	36.50	36.50
Crit W.S. (ft)		Flow Area (sq ft)		233.22	
E.G. Slope (ft/ft)	0.003947	Area (sq ft)	199.47	285.37	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	98.69	Top Width (ft)	55.39	43.30	
Vel Total (ft/s)	10.01	Avg. Vel. (ft/s)		10.01	
Max Chl Dpth (ft)	8.08	Hydr. Depth (ft)		7.66	
Conv. Total (cfs)	37143.2	Conv. (cfs)		37143.2	
Length Wtd. (ft)	36.50	Wetted Per. (ft)		32.10	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.79	
Alpha	1.00	Stream Power (lb/ft s)		17.91	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.52	2.69	0.30
C & E Loss (ft)	0.36	Cum SA (acres)	0.16	0.44	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 373.49 Profile: 100-YR

E.G. Elev (ft)	749.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.84	Reach Len. (ft)	54.34	54.34	54.34
Crit W.S. (ft)		Flow Area (sq ft)	155.78	362.70	
E.G. Slope (ft/ft)	0.001267	Area (sq ft)	155.78	362.70	
Q Total (cfs)	2333.46	Flow (cfs)	449.67	1883.79	
Top Width (ft)	100.48	Top Width (ft)	47.37	53.11	
Vel Total (ft/s)	4.50	Avg. Vel. (ft/s)	2.89	5.19	
Max Chl Dpth (ft)	8.84	Hydr. Depth (ft)	3.29	6.83	
Conv. Total (cfs)	65563.0	Conv. (cfs)	12634.2	52928.8	
Length Wtd. (ft)	54.34	Wetted Per. (ft)	48.29	56.91	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.26	0.50	
Alpha	1.15	Stream Power (lb/ft s)	0.74	2.62	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.37	2.41	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.12	0.40	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 319.15 Profile: 100-YR

E.G. Elev (ft)	749.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.78	Reach Len. (ft)	57.20	57.20	57.20
Crit W.S. (ft)		Flow Area (sq ft)	179.97	340.88	
E.G. Slope (ft/ft)	0.001182	Area (sq ft)	179.97	340.88	
Q Total (cfs)	2333.46	Flow (cfs)	585.14	1748.32	
Top Width (ft)	89.59	Top Width (ft)	42.56	47.02	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)	3.25	5.13	
Max Chl Dpth (ft)	8.78	Hydr. Depth (ft)	4.23	7.25	
Conv. Total (cfs)	67873.8	Conv. (cfs)	17020.2	50853.6	
Length Wtd. (ft)	57.20	Wetted Per. (ft)	44.30	51.75	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.30	0.49	
Alpha	1.11	Stream Power (lb/ft s)	0.97	2.49	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.16	1.97	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.06	0.34	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 261.95 Profile: 100-YR

E.G. Elev (ft)	749.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.37	Reach Len. (ft)	52.31	52.31	52.31
Crit W.S. (ft)		Flow Area (sq ft)	22.05	353.58	
E.G. Slope (ft/ft)	0.002036	Area (sq ft)	22.05	353.58	
Q Total (cfs)	2333.46	Flow (cfs)	49.91	2283.55	
Top Width (ft)	65.80	Top Width (ft)	13.36	52.44	
Vel Total (ft/s)	6.21	Avg. Vel. (ft/s)	2.26	6.46	
Max Chl Dpth (ft)	8.37	Hydr. Depth (ft)	1.65	6.74	
Conv. Total (cfs)	51714.7	Conv. (cfs)	1106.1	50608.6	
Length Wtd. (ft)	52.31	Wetted Per. (ft)	14.04	57.12	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.20	0.79	
Alpha	1.06	Stream Power (lb/ft s)	0.45	5.08	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.03	1.52	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.03	0.27	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 209.64 Profile: 100-YR

E.G. Elev (ft)	748.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.035	
W.S. Elev (ft)	747.92	Reach Len. (ft)	57.93	57.93	57.93
Crit W.S. (ft)		Flow Area (sq ft)		302.90	
E.G. Slope (ft/ft)	0.003354	Area (sq ft)		302.90	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	48.11	Top Width (ft)		48.11	
Vel Total (ft/s)	7.70	Avg. Vel. (ft/s)		7.70	
Max Chl Dpth (ft)	7.92	Hydr. Depth (ft)		6.30	
Conv. Total (cfs)	40294.3	Conv. (cfs)		40294.3	
Length Wtd. (ft)	57.93	Wetted Per. (ft)		54.61	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.16	
Alpha	1.00	Stream Power (lb/ft s)		8.95	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.01	1.12	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	0.21	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 151.71 Profile: 100-YR

E.G. Elev (ft)	748.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.035	
W.S. Elev (ft)	747.64	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		291.79	
E.G. Slope (ft/ft)	0.003728	Area (sq ft)		291.79	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	47.90	Top Width (ft)		47.90	
Vel Total (ft/s)	8.00	Avg. Vel. (ft/s)		8.00	
Max Chl Dpth (ft)	7.64	Hydr. Depth (ft)		6.09	
Conv. Total (cfs)	38215.6	Conv. (cfs)		38215.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		53.85	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.26	
Alpha	1.00	Stream Power (lb/ft s)		10.09	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.01	0.73	0.30
C & E Loss (ft)	0.07	Cum SA (acres)	0.02	0.15	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 101.71 Profile: 100-YR

E.G. Elev (ft)	748.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.65	Wt. n-Val.		0.035	
W.S. Elev (ft)	746.66	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	745.69	Flow Area (sq ft)		226.57	
E.G. Slope (ft/ft)	0.007302	Area (sq ft)		226.57	199.11
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	175.57	Top Width (ft)		41.53	134.03
Vel Total (ft/s)	10.30	Avg. Vel. (ft/s)		10.30	
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		5.46	
Conv. Total (cfs)	27307.4	Conv. (cfs)		27307.4	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		47.37	
Min Ch El (ft)	739.82	Shear (lb/sq ft)		2.18	
Alpha	1.00	Stream Power (lb/ft s)		22.46	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.43	0.19
C & E Loss (ft)		Cum SA (acres)	0.02	0.10	0.22

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 91.71 BR U Profile: 100-YR

E.G. Elev (ft)	748.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.39	Wt. n-Val.		0.035	
W.S. Elev (ft)	745.84	Reach Len. (ft)	35.00	35.00	35.00
Crit W.S. (ft)	745.84	Flow Area (sq ft)		188.02	
E.G. Slope (ft/ft)	0.012201	Area (sq ft)		188.02	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	39.36	Top Width (ft)		39.36	
Vel Total (ft/s)	12.41	Avg. Vel. (ft/s)		12.41	
Max Chl Dpth (ft)	6.02	Hydr. Depth (ft)		4.78	
Conv. Total (cfs)	21125.7	Conv. (cfs)		21125.7	
Length Wtd. (ft)	35.00	Wetted Per. (ft)		43.67	
Min Ch El (ft)	739.82	Shear (lb/sq ft)		3.28	
Alpha	1.00	Stream Power (lb/ft s)		40.70	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.38	0.17
C & E Loss (ft)		Cum SA (acres)	0.02	0.09	0.21

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 91.71 BR D Profile: 100-YR

E.G. Elev (ft)	747.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.26	Wt. n-Val.		0.035	
W.S. Elev (ft)	745.20	Reach Len. (ft)	37.37	37.37	37.37
Crit W.S. (ft)	745.20	Flow Area (sq ft)		193.64	
E.G. Slope (ft/ft)	0.012018	Area (sq ft)		193.64	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	42.84	Top Width (ft)		42.84	
Vel Total (ft/s)	12.05	Avg. Vel. (ft/s)		12.05	
Max Chl Dpth (ft)	5.79	Hydr. Depth (ft)		4.52	
Conv. Total (cfs)	21285.1	Conv. (cfs)		21285.1	
Length Wtd. (ft)	37.37	Wetted Per. (ft)		46.48	
Min Ch El (ft)	739.41	Shear (lb/sq ft)		3.13	
Alpha	1.00	Stream Power (lb/ft s)		37.67	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.23	0.17
C & E Loss (ft)		Cum SA (acres)	0.02	0.06	0.21

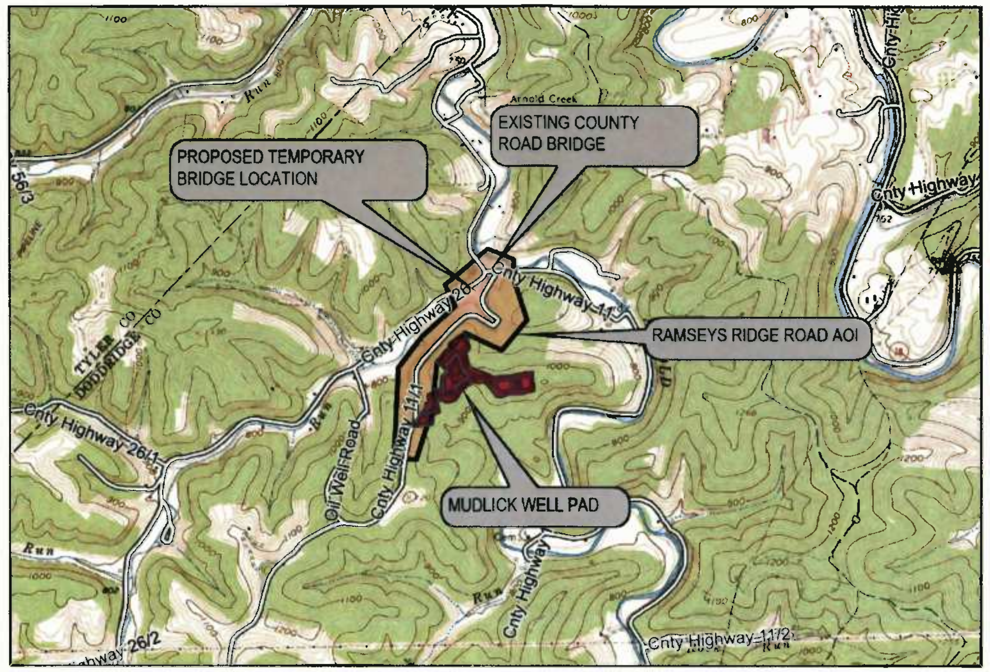
Plan: PG-1 LONG RUN MAIN CHANNEL RS: 19.34 Profile: 100-YR

E.G. Elev (ft)	746.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.31	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	744.64	Reach Len. (ft)	19.34	19.34	19.34
Crit W.S. (ft)	744.88	Flow Area (sq ft)	2.30	190.14	
E.G. Slope (ft/ft)	0.013661	Area (sq ft)	21.62	190.14	203.01
Q Total (cfs)	2333.46	Flow (cfs)	11.27	2322.19	
Top Width (ft)	313.18	Top Width (ft)	23.27	47.05	242.86
Vel Total (ft/s)	12.13	Avg. Vel. (ft/s)	4.90	12.21	
Max Chl Dpth (ft)	5.23	Hydr. Depth (ft)	1.20	4.04	
Conv. Total (cfs)	19964.6	Conv. (cfs)	96.5	19868.1	
Length Wtd. (ft)	19.34	Wetted Per. (ft)	1.92	49.24	
Min Ch El (ft)	739.41	Shear (lb/sq ft)	1.02	3.29	
Alpha	1.01	Stream Power (lb/ft s)	5.01	40.22	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	0.01	0.07	0.08
C & E Loss (ft)	0.02	Cum SA (acres)	0.01	0.02	0.10

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 0 Profile: 100-YR

E.G. Elev (ft)	746.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.48	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	744.10	Reach Len. (ft)			
Crit W.S. (ft)	744.88	Flow Area (sq ft)	2.48	107.28	157.93
E.G. Slope (ft/ft)	0.024168	Area (sq ft)	2.48	107.28	157.93
Q Total (cfs)	2333.46	Flow (cfs)	4.05	1602.61	726.79
Top Width (ft)	267.45	Top Width (ft)	16.48	29.66	221.32
Vel Total (ft/s)	8.72	Avg. Vel. (ft/s)	1.63	14.94	4.60
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)	0.15	3.62	0.71
Conv. Total (cfs)	15009.9	Conv. (cfs)	26.1	10308.7	4675.1
Length Wtd. (ft)		Wetted Per. (ft)	16.48	31.50	222.57
Min Ch El (ft)	739.59	Shear (lb/sq ft)	0.23	5.14	1.07
Alpha	2.10	Stream Power (lb/ft s)	0.37	76.75	4.93
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

RAMSEY'S RIDGE ROAD PHASE II
COUNTY ROAD 11/1 ROAD IMPROVEMENT
ACCESSING THE MUDLICK PAD
ROAD RECONSTRUCTION PLANS,
EROSION & SEDIMENT CONTROL PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA
ANTERO RESOURCE CORPORATION
USGS WEST UNION, WV QUAD MAP



WEST VIRGINIA STATE PLANE COORDINATE SYSTEM
NORTH ZONE, NAD83
ELEVATIONS BASED ON NAVD88
ESTABLISHED BY SURVEY GRADE GPS & OPUS
POST-PROCESSING

N

WEST VIRGINIA COUNTY MAP
CENTRAL DISTRICT, DODDRIDGE COUNTY,
WEST VIRGINIA
SCALE: N.T.S.

PROJECT CONTACTS

ANTERO RESOURCES
Bryan Radabaugh - Senior Design Manager
740-760-1062

Eric Stewart - Construction Coordinator
304-842-4716

Jeff McCauley PE-Engineering
304-859-4209

ENGINEER & SURVEYOR

Anthony Baumgard, PE
Triple H Enterprises
304-873-3260

Darrell Boice, PS
Triple H Enterprises
304-873-3260

WETLAND DELINEATOR
Ryan Environmental, LLC.
5793 W. Veterans Memorial Highway
Bridgeport, West Virginia
Toll Free- 1-800-649-5578
Phone 304-842-5578

FINAL

ANTHONY BAUMGARD, P.E. NO. WV 14049

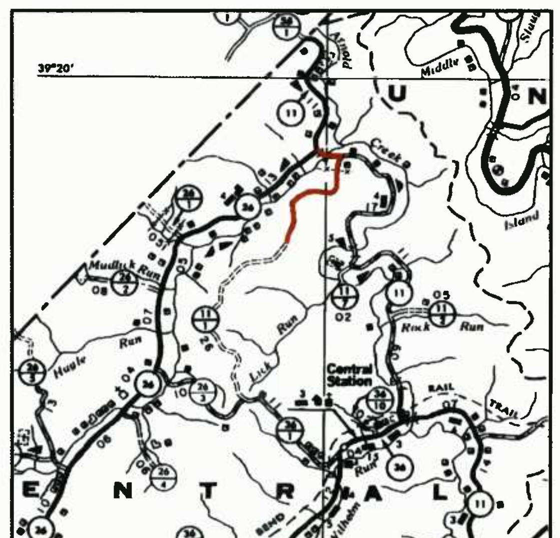
PROJECT

DATE

DRAWING INDEX

MISS Utility of West Virginia
1-800-245-4848
West Virginia State Law
(Section XXV: Chapter 24-C)
Requires that you call two business days before you dig in the state of West Virginia
IT'S THE LAW!!!

811. Know what's below. Call before you dig.



WVDOH COUNTY ROAD MAP
CENTRAL DISTRICT, DODDRIDGE COUNTY,
WEST VIRGINIA
PROJECT LOCATION
SCALE: N.T.S.

STREAMS
(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH WITHIN LIMITS OF DISTURBANCE (LOD)	FILL IMPACT
STREAM 1	STA 1+04	PER	85	0
STREAM 2	STA 1+53	INT	0	0
STREAM 3	STA 7+95 TO 8+20	INT	110	110
STREAM 4	STA 8+42	INT	0	0
STREAM 5	STA 8+82	INT	0	0
STREAM 6	STA 17+13	EPH	0	0
STREAM 7	STA 21+12	EPH	19	9
STREAM 8	STA 23+24	EPH	18	10
STREAM 9	STA 23+67	INT	105	81
STREAM 10	STA 25+82	EPH	14	10
STREAM 11	STA 0+83	INT	13	5
STREAM 12	STA 0+70	EPH	0	0
STREAM 14	STA 8+61	EPH	0	0
STREAM 15	STA 29+18	INT	51	30
STREAM 16	STA 30+15	INT	0	0
STREAM 17	STA 30+29	INT/EPH	81	60
STREAM 18	STA 31+31	INT	0	0
STREAM 19	STA 33+14	INT	54	32
STREAM 20	STA 33+98	EPH	0	0
STREAM 21	STA 35+70	INT/EPH	7	0

EPH = EPHEREMAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

WETLANDS
(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)
WETLAND #1	STA 0+89 TO 1+46		925	0.02	0
WETLAND #2A	STA 4+40 TO 5+15		1229	0.03	0
WETLAND #2B	STA 4+16 TO 4+41		64	0.00	0
WETLAND #2C	STA 3+53 TO 3+73		73	0.00	0
WETLAND #2D	STA 2+46 TO 2+59		19	0.00	0
WETLAND #3	STA 8+61 TO 8+74		124	0.00	0
WETLAND #4	STA 23+42 TO 23+74		471	0.01	0

NEW ROAD TOTAL AREA (INCLUDES PROP. BRDGE AND WIDENING)	0.532 Ac
EXISTING ROAD AREA (INCLUDES ALL EXISTING ROW CR 11/1)	2.709 Ac
ROAD DISTURBANCE	2.886 Ac
STAGING AREA DISTURBANCE	0 Ac
TOTAL DISTURBANCE	0.177 Ac

FLOODPLAIN CONDITIONS

DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	YES
PERMIT NEEDED FOR FLOODPLAIN COORDINATOR	YES
HEC-RAS STUDY COMPLETED	N/A
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	YES
FIRM MAP NUMBER(S) FOR SITE	54017C105C
ACREAGE OF CONSTRUCTION IN FLOODPLAIN	0.41 AC.

SITE LOCATIONS (NAD83)

BEGIN ROAD IMPROVEMENT	N 303115.16	E 1591205.98
END ROAD IMPROVEMENT	N 300606.28	E 1590062.98
BEGIN ACCESS ROAD	N 300842.11	E 1590211.09
	LATITUDE	LONGITUDE
BEGIN ROAD	39.3245°	-80.8338°
BEGIN ACCESS ROAD	39.3182°	-80.8372°

TripleH enterprises

REVISION

DATE

ANTERO RESOURCES
THIS PLAN PREPARED FOR: ANTERO RESOURCES APPALACHIAN GROUP

COVER SHEET

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 1 OF 26

DWG

CLEARING & GRUBBING; EROSION & SEDIMENT CONTROLS

RAMSEY'S RIDGE ROAD UPGRADE

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
MOBILIZATION	1.0	EA		$0.00
CONSTRUCTION ENTRANCE	1.0	EA		$0.00
CLEARING AND GRUBBING (TREE REMOVAL = 0.98 ACRES)	1.00	AC		$0.00
COMPOST FILTER SOCK	3,700.0	LF		$0.00
SUPER SILT FENCE	0.0	LF		$0.00
9" STRAW WATTLES	0.0	LF		$0.00
TOTAL				**$0.00**

ROADWAY

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
WV COUNTY ROAD (CUT)	3,000.0	CY		$0.00
WASTE AMOUNT	3,000.0	CY		$0.00
TOE KEY/BONDING BENCH/ COLLUVIUM MATERIAL EXCAVATION	0.0	CY		$0.00
TOTAL				**$0.00**

BRIDGE

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
BRIDGE ABUTMENTS	2.0	EA		$0.00
TEMPORARY ADM BRIDGE 80 FT	1.0	EA		$0.00

AGGREGATE SURFACING-SPREADING, COMPACTION, AND/OR INSTALLATION

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
WV COUNTY ROAD (FILL)	3,080.0	CY		$0.00
12" FDR (INCLUDES CONCRETE)	7,376.0	SY		$0.00
ASPHALT ROAD SURFACE (2" WEARING) @ 1.5 TON/CY	615.0	TON		$0.00

ROAD CULVERTS

8" HDPE	0.0	LF		$0.00
15" HDPE	0.0	LF		$0.00
18" HDPE	192.0	LF		$0.00
24" HDPE	0.0	LF		$0.00
30" HDPE	90.0	EA		$0.00
FLOWABLE FILL (LSM)	86.0	CY		$0.00
DITCH LINING SYNTHETIC MATTING (TRM)	33.0	SY		$0.00
R4 RIP RAP (INLETS/OUTLETS)	16.0	TON		$0.00
AASHTO #1 STONE (DITCH CHECKS)	0.0	TON		$0.00
TOTAL				**$0.00**

SEEDING

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
SITE SEEDING (HYDRO SEEDING - INCLUDES HALL'S PASTURE SEED MIX, LIME, & FERTILIZER) WITH HAY MULCH w/TACK	1.00	AC		$0.00
TOTAL				**$0.00**

UNFORESEEN SITE CONDITIONS

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
*FRENCH DRAINS	1.0	FT		$0.00
*PHASE 1 FENCING - STEEL CORRUGATED PANELS w/"T" POST (10 FT CENTERS) - WETLAND PROTECTION	1.0	LF		$0.00
*PHASE 2 FENCING - SILT FENCE AND OR FILTER SOCK OUTSIDE OF PHASE 3 FENCING - WETLAND PROTECTION	1.0	LF		$0.00
*PHASE 3 FENCING - ORANGE SAFETY FENCE w/"T" POST (10FT CENTERS) - WETLAND PROTECTION	1.0	LF		$0.00
*SILT FENCE	1.0	LF		$0.00
*TEMPORARY SEEDING	1.0	AC		$0.00
*CONSTRUCTION STAKEOUT	1.0	HOUR		$0.00
* 4 FT FARM FENCE (WOOD CORNER AND PULL POST & "T" POST - 10 FT SPACING)	1.0	LF		$0.00
* 5 STRAND BARBED WIRE FENCE (WOOD CORNER AND PULL POST & "T" POST - 10 FT SPACING)	1.0	LF		$0.00
TOTAL				$0.00

GRAND TOTAL

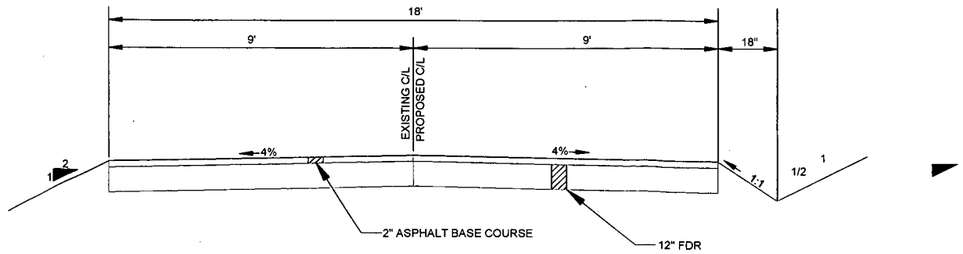
ANTERO RESOURCES WILL PROVIDE THE FOLLOWING:

- GEOTEXTILE FABRIC (US 200) OR EQUIVALENT
- ALL HDPE CULVERT PIPE
- ALL PVC CONNECTIVE PIPE
- ALL SSF, SF, WATTLES
- ALL AGGREGATE

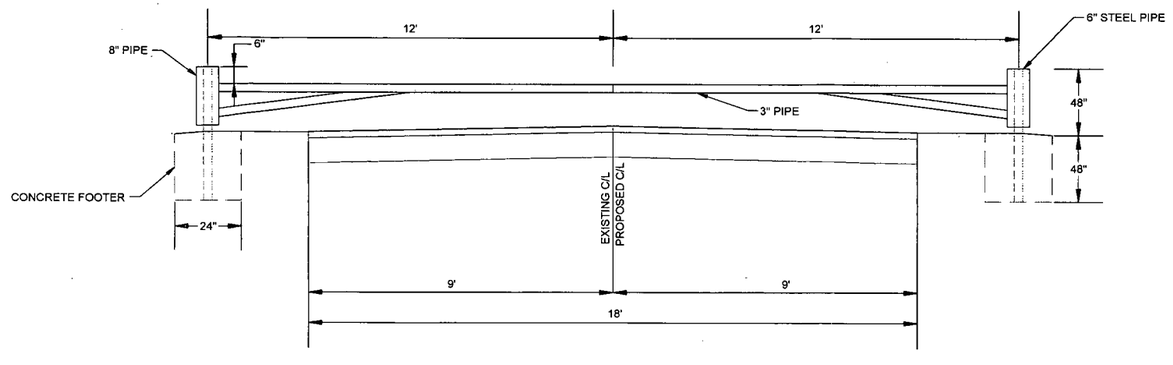
PARCEL LISTING

TM/PCL	OWNER	DB/PG
4/6	LONNIE C JAMES	181/5
4/7	CARLIE & KAREN M JAMES	197/358
4/7.1	CARLIE JAMES	0188/090
4/11.1	MICHAEL SHEPHERD	232/152
4/11.2	BRIAN MICHAEL JAMES	AB 41/347

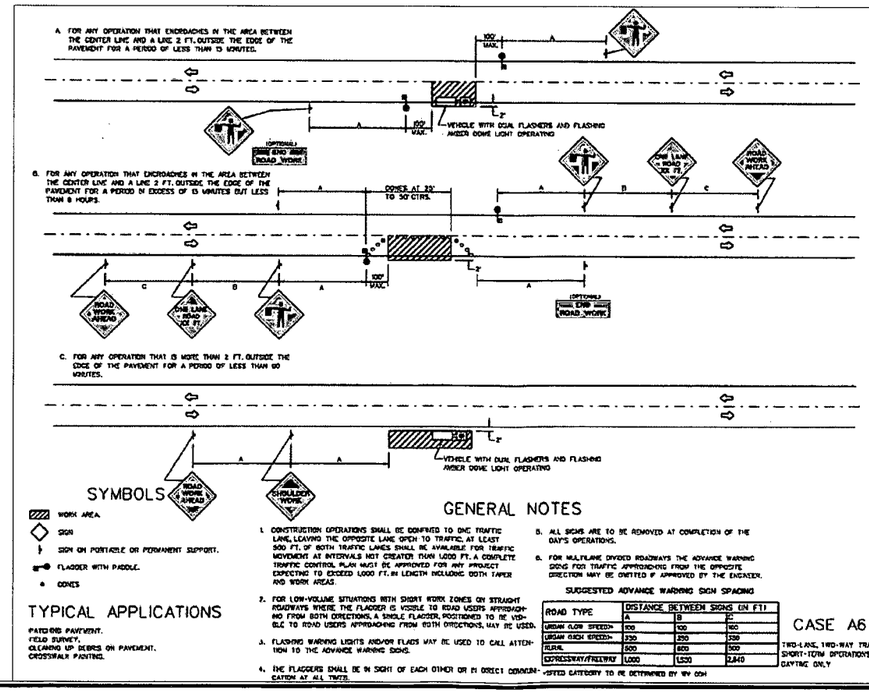
RAMSEY RIDGE
COUNTY ROAD 11/1
SUMMARY OF ESTIMATED QUANTITIES
ANTERO RESOURCES CORPORATION



TYPICAL ROAD DETAIL
0+09 TO 36+96 N.T.S.



TYPICAL GATE DETAIL
N.T.S.



TripleH enterprises

REVISION

DATE

ANTERO RESOURCES
ANTERO RESOURCES CORPORATION
APPALACHIAN GROUP

SCHEDULE OF QUANTITIES

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 2 OF 26

DWG:

CONSTRUCTION SPECIFICATIONS

1. WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST EDITION OF THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS (2017) AND THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, WATER AND WASTE E&S CONTROL BMP MANUAL (2006). IN THE EVENT OF CONFLICT BETWEEN THE DESIGN, SPECIFICATIONS OR PLANS, THE MOST STRINGENT WILL GOVERN.

2. THE CONSTRUCTION DOCUMENTS SHOW THE EXISTING AND NEW UPGRADES, ETC. THAT ALL CUT AND FILL ESTIMATES ARE BASED UPON,THE ENGINEERS ESTIMATES OF THE QUANTITIES ARE ONLY ESTIMATES AND MAY CHANGE BASED ON ACTUAL FIELD CONDITIONS.

3. THE GRADES, BERMS, DEPTHS, AND DIMENSIONS MAY CHANGE BASED ON ACTUAL FIELD CONDITIONS. THE ENGINEER RESERVES THE RIGHT TO CHANGE GRADES, DEPTHS, AND DIMENSIONS AS NECESSARY TO MEET FIELD CONDITIONS.

4. THE CONTRACTOR SHALL PROVIDE THE ENGINEER ALL REASONABLE FACILITIES AND PROVIDE INFORMATION AND SAMPLES AS REQUIRED BY THE ENGINEER FOR PROPER MONITORING AND TESTING OF MATERIAL WORKMANSHIP.

5. THE CONTRACTOR SHALL HAVE ON SITE AT ALL TIMES WHEN CONSTRUCTION IS IN PROGRESS, A COMPETENT SUPERINTENDENT THOROUGHLY FAMILIAR WITH THE CONSTRUCTION OF ROADS, EMBANKMENTS AND THE COMPACTION OF SOILS AND STONE.

6. CLEARING AND GRUBBING SHALL REMOVE ALL BRUSH, TRESS, ROOTS, STUMPS, FENCES, SIGNS OR ANY OTHER MATERIALS THAT IS NOT TO BE REUSED FOR THE CONSTRUCTION. SOME STUMPS MAY REMAIN AT THE APPROVAL OF THE ENGINEER. NO CLEANING DEBRIS SHALL BE BURIED ON-SITE.

7. TOP SOIL SHALL BE STRIPPED AND STOCKPILE WITH APPROPRIATE STABILIZATION AND SILT FENCE TO PREVENT EROSION. THE TOP SOIL SHALL BE REUSED DURING THE RECLAMATION PROCESS.

8. PRIOR TO PLACING ANY FILL ON UNPAVED ROAD SURFACES, ROAD SURFACE SHALL BE SACRIFICED TO A MINIMUM DEPTH OF 12 INCHES. THE SCARIFIED MATERIAL SHALL BE GRADED TO A MINIMUM 2% CROWN AND COMPACTED WITH STEEL DRUM ROLLER. PLACE GEO-TEXTILE STABILIZATION FABRIC OVER COMPACTED SUBGRADE AND PLACE COMPACTED LIFTS OF CITED GRADATIONS OF LIMESTONE. GEOGRID MAY BE SUBSTITUTED FOR GEOTEXTILE FABRIC. LIFTS SHALL BE A MINIMUM OF 12 INCHES OF AASHTO NO. 1 LIMESTONE (3 INCH) WITH 3 INCHES OF 1.5 INCHES OF CRUSHER RUN OR WASHED LIMESTONE. IN AREAS WHERE NO FILL IS SHOWN, 11 INCHES MINIMUM OF ROAD SURFACE SHALL BE SCARIFIED AND REMOVED. SUCH AREAS SHALL BE BACKFILLED AND COMPACTED WITH THE 8 INCHES OF AASHTO NO.1 (3 INCH LIMESTONE) AND 3 INCHES OF CLASS 1 (1.5 INCH CRUSHER RUN OR WASHED LIMESTONE) ALL ON GEOTEXTILE FABRIC OR GEOGRID. ALL REMOVED MATERIAL SHALL BE STOCKPILED FOR USE ON THE JOB OR PROPERLY DISPOSED OF OFF SITE.

9. ALL FILL SHALL BE UNIFORMLY GRADED, SOIL FREE FROM AGGREGATE EXCEEDING 6". THE FILL SHALL BE FREE OF ALL ORGANIC MATERIAL, STUMPS, BRUSH, OR OTHER DELETERIOUS MATTER.

10. ALL FILL SHALL BE PLACED IN LIFTS AT A MAXIMUM UNCOMPACTED DEPTH OF 12" OR 8" MAXIMUM OF COMPACTED LIFTS AND SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST METHOD (ASTM D-698).THE MOISTURE CONTENT SHALL BE CONTROLLED TO FACILITATE COMPACTION. IN-PLACE DENSITY TESTS SHALL BE PERFORMED ON EACH LIFT OF SOIL. RECORDS OF FIELD DENSITY TESTS SHALL BE MAINTAINED OF TEST LOCATION WITH RESULTS AND COPIES KEPT ON SITE BY THE CONTRACTOR AND PROVIDED DAILY TO THE ENGINEER BY THE COMPACTION TECHNICIAN. AREAS THAT FAIL COMPACTION TESTING SHALL BE REMOVED AND/OR RECOMPACTED AND RETESTED FOR COMPLIANCE. COMPACTION OF SOIL SHALL BE ACHIEVED BY USE OF A SHEEPSFOOT OR TAMPING FOOT ROLLER.

11. ON SITE MATERIAL SHALL BE USED TO THE MAXIMUM EXTENT POSSIBLE. ANY IMPORTED FILL SHALL BE CERTIFIED BY THE CONTRACTOR TO BE CLEAR OF ALL HAZARDOUS SUBSTANCES OR MATERIALS. IF MATERIAL IS ENCOUNTERED THAT CANNOT BE RIPPED BY A CAT D-6 WITH A SINGLE TOOTH RIPPER, THEN THE CONTRACTOR SHALL CONTACT THE ENGINEER WHO WILL VISIT THE SITE AND DETERMINE IF THE MATERIAL MAY BE USED AS IS OR MUST BE REMOVED BY OTHER MEANS. IF UNSUITABLE SOILS IN THE SUBGRADE ARE FOUND THEY SHALL BE REMOVED AND REPLACED WITH THE APPROPRIATE FILL AT THE ENGINEER'S DIRECTION.

12. IF SPRINGS OR SEEPS ARE ENCOUNTERED, SUBSURFACE DRAINAGE FEATURES SHALL BE INSTALLED PRIOR TO FILL PLACEMENT. CONTACT ENGINEER FOR ELEVATION AND RECOMMENDATION OF CORRECTIVE MEASURES.

13. ANY SOFT AREAS SHALL BE OVER-EXCAVATED TO A FIRM MATERIAL AND BACKFILLED WITH AASHTO NO. 1(3") STONE.

14. FILL REQUIRED TO OBTAIN DESIGN GRADES SHALL BE PLACED AS CONTROLLED, COMPACTED FILL. THE FILL SHALL BE FREE OF TRASH, WOOD, TOPSOIL, ORGANICS, COAL, COAL MINE REFUSE, FROZEN MATERIAL, AND PIECES OF ROCK GREATER THAN 6" IN ANY DIMENSION.

15. DURING PLACEMENT OF MATERIAL, FILL SHOULD NOT BE PLACED ON SURFACES THAT ARE MUDDY OR FROZEN, OR HAVE NOT BEEN APPROVED PRIOR PROOF-ROLLING. FREE WATER SHALL BE PREVENTED FROM APPEARING ON THE SURFACE DURING OR SUBSEQUENT TO COMPACTION OPERATIONS.

16. SOIL MATERIAL WHICH IS REMOVED BECAUSE IT IS TOO WET TO PERMIT PROPER COMPACTION MAY BE SPREAD AND ALLOWED TO DRY. DRYING CAN BE FACILITATED BY DISCING, HARROWING OR BLENDING UNTIL THE MOISTURE CONTENT IS REDUCED TO AN ACCEPTABLE LEVEL. WHEN THE SOIL IS TOO DRY, WATER MAY BE UNIFORMLY APPLIED TO THE LAYER TO BE COMPACTED.

17. THE FILL OUTSLOPES SHALL BE OVERBUILT AND TRIMMED BACK TO DESIGN CONFIGURATIONS TO VERIFY PROPER COMPACTION.

18. GRANULAR MATERIALS, SUCH AS AASHTO NO. 57 STONE SHALL BE COMPACTED TO 95% OF ITS RELATIVE DENSITY, AS DETERMINED BY ASTM D-4253 AND D-4254 TEST METHODS.

19. PHOTOGRAPHIC DOCUMENTATION SHALL BE TAKEN BY THE CONTRACTOR AND PROVIDED TO THE ENGINEER OF THE FOLLOWING ACTIVITIES: 1. SITE AFTER CLEARING AND GRUBBING. 2. DAILY PHOTOS OF CUT AND FILL OPERATIONS.

20. ALL WOOD WASTE SHALL BE CHIPPED, LEGALLY HAULED OFF OR LEGALLY BURNED ON SITE.

21. SUPER SILT FENCE MAY BE SUBSTITUTED FOR SILT SOCKS LARGER THAN 24" IN DIAMETER.

GENERAL NOTES

1. ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN DRAWINGS OR SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER, IN WRITING, WHO SHALL PROMPTLY ADDRESS SUCH PROBLEMS. WORK DONE BY THE CONTRACTOR AFTER THE DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES, OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTORS RISK.
2. WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST EDITIONS OF THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION WATER AND WASTE E&S CONTROL BMP MANUAL (2006). IN THE EVENT OF CONFLICT BETWEEN THE DESIGN, SPECIFICATIONS, OR PLANS, THE MOST STRINGENT WILL GOVERN.
3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED DAILY, RELOCATED WHEN NECESSARY AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDED AREAS SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED, RESEEDED AND MULCHED AS NECESSARY TO OBTAIN A DENSE STAND OF GRASS.
4. THE DRAIN INLETS SHALL BE PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE MEANS OF CLEANING.
5. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL PUBLIC OR PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR, AT HIS OR HER EXPENSE, OF ALL EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION THE CONTRACTOR SHALL CALL MISS UTILITY AT (800)245-4848.
6. INSTALLATION OF CONCRETE, CORRUGATED METAL, STEEL CASING PIPE OR HDPE PIPE SHALL BE IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS.
7. ALL MATERIAL S USED FOR FILL OR BACK FILL SHALL BE FREE OF WOOD, ROOTS, ROCKS, BOULDERS, OR ANY OTHER NON-COMPACTABLE SOIL TYPE MATERIALS. UNSATISFACTORY MATERIALS ALSO INCLUDE MAN MADE FILLS AND REFUSE DEBRIS DERIVED FROM ANY SOURCE.
8. MATERIALS USED TO FILL AROUND DRAINAGE STRUCTURE, IN UTILITY TRENCHES OR ANY OTHER DEPRESSION REQUIRING FILL OR BACK FILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AS SET FORTH IN ASTM STANDARD D-698. FLOWABLE FILL/LEAN CONCRETE SHALL BE USED ON ROAD CROSSING AROUND CULVERTS AS SHOWN IN DETAILS.
9. FILL SHALL BE PLACED IN LIFTS AT A MAXIMUM UNCOMPACTED DEPTH OF 12 INCHES OR 8 INCHES MAXIMUM COMPACTED LIFTS WITH SOIL FREE AGGREGATES EXCEEDING 6". AFTER COMPACTION, EACH LIFT MUST PASS A 95% COMPACTION BASED ON TEST RESULTS FROM A STANDARD PROCTOR DENSITY TEST OF THE ACTUAL SOILS USED IN SPECIFIC ENGINEERED FILL SITES. EACH LIFT SHALL BE TESTED FOR COMPACTION, WITH A MINIMUM OF TWO TESTS PER LIFT PER ACRE OF FILL. ALL TEST RESULTS SHALL BE MAINTAINED ON SITE AND AVAILABLE FOR REVIEW.
10. ALL TEST RESULTS SHALL BE SUBMITTED DAILY TO THE ENGINEER BY THE COMPACTION TECHNICIAN. FAILURE TO CONDUCT DENSITY TESTS SHALL BE CAUSE FOR NON -ACCEPTANCE OF THE FACILITY.
11. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION.
12. CONTRACTOR SHALL SUBMIT AND ADHERE TO A GENERAL GROUNDWATER PROTECTION PLAN.

EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL ARRANGE FOR A PRE-CONSTRUCTION CONFERENCE WITH THE APPROPRIATE EROSION AND SEDIMENT CONTROL INSPECTOR 48 HOURS PRIOR TO BEGINNING WORK.
2. ALL EROSION CONTROL DEVICES AS SHOWN OR AS REQUIRED, ARE TO BE CONSTRUCTED TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WEST VIRGINIA AND WATER E&S CONTROL BMP MANUAL (2006) AND ARE TO BE PLACED PRIOR TO ALL CONSTRUCTION.
3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED CONTINUOUSLY, RELOCATED WHEN AND AS NECESSARY AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDED AREA SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED, RESEEDED AND MULCHED AS NECESSARY TO OBTAIN AND MAINTAIN A DENSE STAND OF GRASS.
4. ALL DISTURBED AREA NOT PAVED OR BUILT UPON ARE TO BE FERTILIZED AND HYDRO-SEEDED WITH STRAW AND COTTON PRODUCT WITH TACK AGENTS BY THE CONTRACTOR IN ACCORDANCE WITH THE CURRENT WEST VIRGINIA WATER AND WASTE E&S CONTROL BMP MANUAL (2006).
5. ALL DRAIN AND CULVERT INLETS SHALL BE PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE IMMEDIATELY REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE METHOD OF CLEANING.
6. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREA WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT NE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE LEFT DORMANT FOR MORE THAN SIX MONTHS.
7. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES.
8. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCES TAKES PLACE.
9. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS WATER CONTAINMENT PADS IMMEDIATELY AFTER INSTALLATION.
10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
11. ALL DISTURBED AREAS NOT PAVED OR BUILT UPON SHALL BE HYDRO-SEEDED AND FERTILIZED. PERFORM PERMANENT TOP SOILING, SEEDING AND FERTILIZING AS SOON AFTER FINISH GRADING AS POSSIBLE. SEEDING SHALL COMPLY WITH THE FOLLOWING.

A. TOPSOIL-4 INCH MINIMUM FOR PERMANENT TURF. TOPSOIL SHALL NOT BE REQUIRED ON CUT SLOPES STEEPER THAN 1:1.

B. FERTILIZER- 500 POUNDS PER ACRES OF 12-20-20 FERTILIZER OR EQUIVALENT POUNDAGE OF DIFFERENT ANALYSIS. WORK INTO SOIL PRIOR TO SEEDING.

C. LIME (PERMANENT SEEDING) - AGRICULTURAL LIME SPREAD AT RATE OF 4 TONS/ACRE. WORK INTO SOIL PRIOR TO SEEDING.

D. MULCH-WOOD FIBER OR CHOPPED STRAW AT RATE OF 2 TONES PER ACRE. HYDRO-MULCH RATE OF 30 BALES PER ACRE.

E. SEED-45 LBS PER ACRE TALL FESCUE AND 20 LBS PER ACRE PERENNIAL RYE GRASS. TO BE SEEDED BY HYDRO-SEEDER.

THE ABOVE NOTES ARE A MINIMUM TO ADDRESS CONTROL OF EROSION AND SEDIMENTATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ADDITIONAL CONTROL MEASURES IN ACCORDANCE WITH BMP'S AS NECESSARY TO STABILIZE CONSTRUCTION AREA AND ELIMINATE ALL SEDIMENT FROM LEAVING OR BEING DISCHARGED OFF SITE.

EROSION AND SEDIMENT CONTROL NARRATIVE

1. PROJECT DESCRIPTION: THE PURPOSE OF THIS PROJECT IS TO RECONSTRUCT APPROXIMATELY 3,500 LF OF THE EXISTING RAMSEY RIDGE ROAD AND 200 LF OF TEMPORARY ROAD WITH A TEMPORARY BRIDGE. THE RECONSTRUCTION SHALL CONSISTS OF THE CLEANING, REPAIR, OR REPLACEMENT OF EXISTING ROAD AND DRIVEWAY CULVERTS. THE CLEANING AND GRADING OF EXISTING DITCH LINES. THE WIDENING AND IMPROVEMENT OF THE ROAD, ITS VERTICAL AND HORIZONTAL ALIGNMENT, AS WELL AS THE ROAD SIDE SLOPES, FOR THE PURPOSE OF PROVIDING IMPROVED AND SAFER ACCESS TO PLANNED WELL SITES.
2. EXISTING SITE CONDITIONS: THE EXISTING SITE IS UPLAND HARDWOODS WITH MODERATE TO STEEP TOPOGRAPHY WITH 5% TO 50% SLOPES. NO EROSION IS NOTICED ON SITE, OR ANY NATURAL DRAINAGE WAYS.
3. ADJACENT PROPERTY: THE SITE IS BORDERED BY UPLAND HARDWOODS, RESIDENCES AND FIELDS.
4. SOILS: NO SOIL STUDY AND WAS PERFORMED FOR THIS PROJECT.
5. OFF SITE AREAS: THERE SHALL BE NO BORROW AREA OUTSIDE OF THE PROPOSED GRADING AND CONSTRUCTION AREA.
6. CRITICAL EROSION AREAS-CONTROL MAINTENANCE: ALL 3:1 SLOPES AND STEEPER, DITCHES AND OTHER CONTROLS SHALL BE CONSIDERED CRITICAL EROSION AREAS. THESE AREAS SHALL BE MONITORED AND MAINTAINED DAILY DURING CONSTRUCTION AND AFTER EACH RAIN FALL OF 0.5 INCHES OR GREATER. THE LOCAL GOVERNING AUTHORITY WILL HAVE THE AUTHORITY TO RECOMMEND THE PLACEMENT OF ADDITIONAL EROSION CONTROL MEASURES IN THESE AREAS IF IT BECOMES EVIDENT DURING CONSTRUCTION THAT THE ONES IN PLACE ARE NOT FUNCTIONING SUFFICIENTLY.
7. EROSION AND SEDIMENT CONTROL MEASURES: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE CURRENT WEST VIRGINIA WATER AND WASTE E&S CONTROL BMP MANUAL (2006). THE CONTRACTOR SHALL OBTAIN A COPY OF THIS MANUAL FROM WVDEP WEBSITE AND CONSTRUCT ALL DEVICES BASED ON THIS MANUAL OR A HANDBOOK THAT IS COMPARABLE OR EXCEEDS THE SPECIFICATIONS OF THE WEST VIRGINIA MANUAL. THE MINIMUM STANDARDS OF THIS MANUAL SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE. SEE PLANS FOR ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES.
8. STRUCTURAL PRACTICES:

   -OUTLET PROTECTION: WILL BE CONSTRUCTED AS SHOWN ON THE PLANS.

   -SILT SOCK/SILT FENCE/SUPER SILT FENCE: WILL BE CONSTRUCTED AS SHOWN ON THE PLANS.
9. VEGETATIVE PRACTICE TOPSOILING: TOPSOIL WILL BE STRIPPED FROM THE SITE AND STOCKPILED IN AN AREA AS SHOWN BY THE PLANS. UPON THE COMPLETION OF THE PROJECT TOPSOIL WILL BE PLACED ON ALL DISTURBED AREAS AT A MINIMUM DEPTH OF 4 INCHES. TEMPORARY SEEDING: ALL DENUDED AREAS LEFT DORMANT FOR MORE THAN 14 DAYS SHALL BE SEEDED WITH A FAST GERMINATING SEED. THE TIME OF YEAR WILL BE THE BASIS FOR THE SEED MIXTURE. PERMANENT SEEDING: ALL SEEDED AREAS WILL BE RESEEDED, MULCHED AND FERTILIZED AS NEEDED TO OBTAIN AN ADEQUATE STAND OF GRASS. PERMANENT SEEDING SHALL BE PLACED WITHIN SEVEN DAYS UPON ACHIEVING FINAL GRADE. WATER, MULCH, AND RESEED AS NECESSARY TO OBTAIN AN ADEQUATE STAND OF VEGETATION, IN THE OPINION OF THE ENGINEER.
10. MANAGEMENT STRATEGIES: CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS WILL BEGIN AND END AS SOON AS POSSIBLE. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES. AFTER ACHIEVING ADEQUATE STABILIZATION THE TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED AND ANY AREAS DISTURBED DURING THIS PROCESS SHALL BE STABILIZED.
11. SEQUENCE OF EVENTS:

    A. A PRE-CONSTRUCTION CONFERENCE WILL BE HELD ON SITE WITH CONTRACTOR TO REVIEW THE CONSTRUCTION DRAWINGS AND PROVIDE ANY REQUESTED GUIDANCE.

    B. CONSTRUCT ALL PROPOSED SEDIMENT CONTROL DEVICES AS SOON AS CLEARING AND GRUBBING OPERATIONS ALLOW. DIVERSIONS AND SEDIMENT BASINS SHALL BE SEEDED AND MULCHED IMMEDIATELY.

    C. CLEAR AND GRUB, REMOVE TOPSOIL AND PLACE AT AN AREA WHERE EROSION WILL NOT TAKE PLACE. TOPSOIL STOCKPILES TO BE SEEDED AND MULCHED. SEDIMENT CONTROL SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES.

    D. GRADING OPERATION AS REQUIRED. CUT SLOOPS SHALL BE TOPSOILED AS NEEDED. DITCH LINES SHALL BE CONSTRUCTED. ALL DITCHES WILL HAVE AT LEAST GRASS LINING PROTECTION OR GREATER.

    E. CULVERT INLET AND OUTLET PROTECTION SHALL BE CONSTRUCTED IMMEDIATELY UPON PLACEMENT OF CULVERTS. INSTALLATION OF MATTING AND/OR RIPRAP TO OCCUR ONCE DITCHES ARE CONSTRUCTED.

    F. WHEN FINAL GRADE IS ACHIEVED, TOPSOIL IS TO BE PLACED ON ALL DISTURBED AREAS NOT LINED. HYDROOSEED ALL DISTURBED AREAS AS REQUIRED. A SOIL SAMPLE SHOULD BE TAKEN AND TESTED TO DETERMINE RECOMMENDED RATES. IF NO SOIL SAMPLES IS TAKEN, THE FOLLOWING RATES SHOULD BE APPLIED AS A MINIMUM: LIME AT A RATE OF 4 TONS PER ACRE, FERTILIZE AT A RATE OF 500 LBS OF 12-20-20 PER ACRE, SEED WITH 45 LBS PER ACRE OF TALL FESCUE AND 20 LBS PER ACRE OF PERENNIAL RYE GRASS.

    G. LIME, FERTILIZER, AND SEED WILL BE APPLIED BY USING A HYDRO-SEEDER. HYDRO-MULCH PRODUCTS SHALL BE MIXED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

    H. FINAL SEEDING MUST OCCUR WITH 7 DAYS OF FINAL GRADING.

    I. WHEN SITE IS STABILIZED, ALL EROSION AND SEDIMENT CONTROL MEASURE CAN BE REMOVED AND REPAIR/STABILIZE THOSE AREAS IN ACCORDANCE WITH STATE STANDARDS.

    J. MAKE MODIFICATION FOR PERMANENT STORM WATER MANAGEMENT.

    K. FINAL SITE INSPECTION.
12. PERMANENT STABILIZATION: ALL AREAS LEFT UNCOVERED BY EITHER BUILDINGS OR PAVEMENT SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING AND WITHIN 7 DAYS. AT NO TIME SHALL LAND LAY DORMANT LONGER THAN 14 DAYS.
13. MAINTENANCE AND OTHER CONSIDERATION AND GROUND WATER PROTECTION: ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED BI-WEEKLY AND AFTER EACH RAINFALL OF 0.5 INCH OR MORE. THEY WILL BE INSPECTED FOR UNDERMINING, DETERIORATION, EROSION AND EXCESS DEPOSITED MATERIAL. ALL DEFICIENCIES WILL BE CORRECTED IMMEDIATELY. EXCESS MATERIAL WILL BE SPREAD ON THE SITE IN A MANNER WHERE IT IS NOT LIKELY TO ERODE IN THE FUTURE. CLEANING PROCEDURES WILL BE COMPLETED AT REGULAR INTERVALS AND AT LEAST WHEN SEDIMENT REACHES 33% OF CAPACITY, OR AS SHOWN ON APPLICABLE DETAILS. RECORDS OF CLEANING AND CORRECTIONS WILL BE MAINTAINED BY THE CONTRACTOR. THE :GENERIC GROUNDWATER PROTECTION PLAN FOR CONSTRUCTION SITES" WILL BE USED AND AVAILABLE ON SITES AT ALL TIMES. AN AREA WILL BE PROVIDED FOR VEHICLE AND EQUIPMENT MAINTENANCE. MOBIL FUEL TRUCKS WITH APPROVED TANKS WILL BE USED ON THE SITE. PORTABLE SANITARY FACILITIES WILL BE AVAILABLE FOR EMPLOYEES. IF CONCRETE IS USED, EXCESS CONCRETE WILL BE DISPOSED OF PROPERLY AND NOT ALLOWED TO REMAIN ON THIS SITE. MACHINERY WILL NOT BE ALLOWED IN LIVE STREAMS. FLUIDS SUCH AS FUEL, GAS, OIL OR ANTIFREEZE WILL BE KEPT IN PROPER CONTAINERS AND ANY SPILLAGE WILL BE CLEANED AND TAKEN OFF SITE TO A PROPER FACILITY. SOLID OR HAZARDOUS WASTES WILL BE DISPOSED IN ACCORDANCE WITH APPROPRIATE STATE AND FEDERAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY MAKE CHANGES AND NOTIFY WVDEP OF ANY CHANGES TO GPP. A FINAL INSPECTION WILL BE MADE AT THE CONCLUSION OF THE PROJECT AND ALL CORRECTIONS MADE BEFORE SIGN-OFF OF THE PROJECT SITE.

Triple H enterprises

REVISION

DATE

ANTERO RESOURCES
TITLE PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

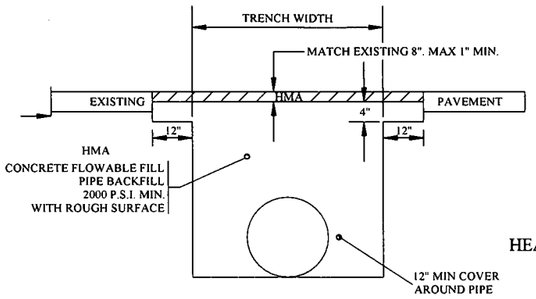
GENERAL NOTES

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 3 OF 26

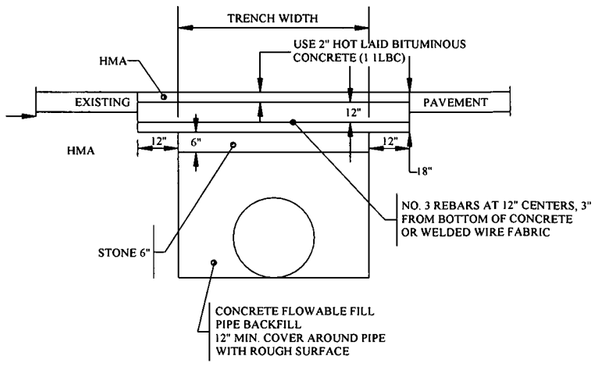
DWG:

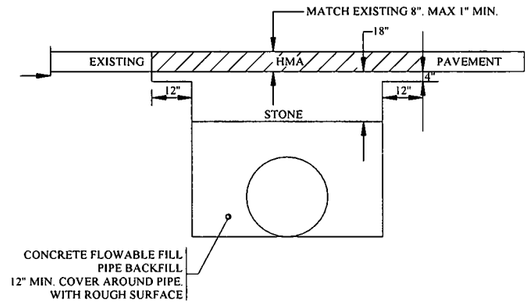
(NOTE: CONCRETE FLOW AS FILL TO BE ROUGH FOR BONDING OF ROAD SURFACE)



TYPE A TRENCH

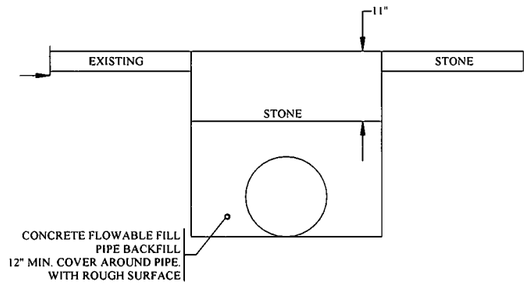
MIX PAVEMENT
PRESENT ADT OVER 2000 OR
LOWER-VOLUME ROADS WITH
HEAVY TRUCK TRAFFIC (20 PER DAY)





TYPE B TRENCH

HMA PAVEMENT
PRESENT ADT UNDER 2000
UNLESS HEAVY TRUCK TRAFFIC,
DEFINED AS 20 TANDEM AXLE
TRUCKS PER DAY IS EVIDENT.



TYPE C TRENCH

STONE ROADWAY

NOTES:

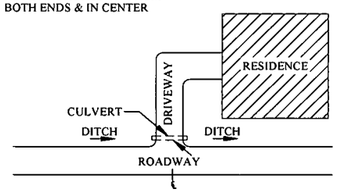
1. Where type A trenches are wider than 7' in existing bituminous pavement, concrete may be deleted if existing HMA thickness and 18" stone are restored.

2. Traffic is to be maintained at all times by the use of appropriate traffic control devices. Use of metal plates, having sufficient rigidity to span Type A trench, is required to prevent wheel loads from being to be transmitted to the concrete flowable fill. The plates securely anchored to prevent movement caused by traffic. The plates are to be left in place until Concrete Flowable Fill has attained 50% of it's compressive strength.

3. Anchor pipe 18" from ends, at center, and with maximum 10' intervals prior to placement of flowable fill.

4. Class 1 or #57 Stone may be substituted for concrete flowable fill in Type A, B, & C Trenches.

SIZED TO FIT DITCH
HDPE ANCHORED 18" FROM
BOTH ENDS & IN CENTER



DRIVEWAY REPLACEMENT CULVERT

N.T.S.

REVISION

DATE

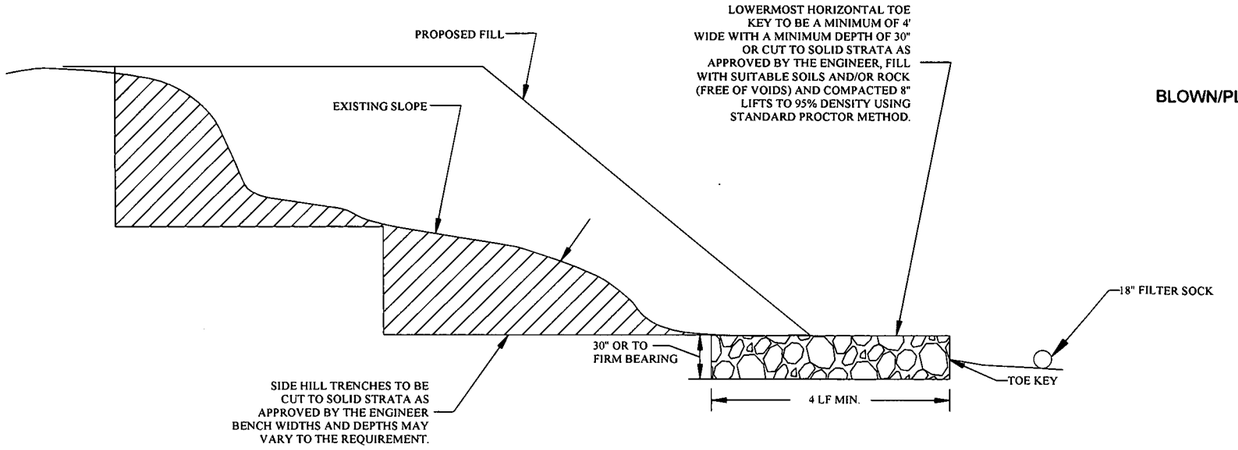
ANTERO RESOURCES

DETAILS SHEET 1

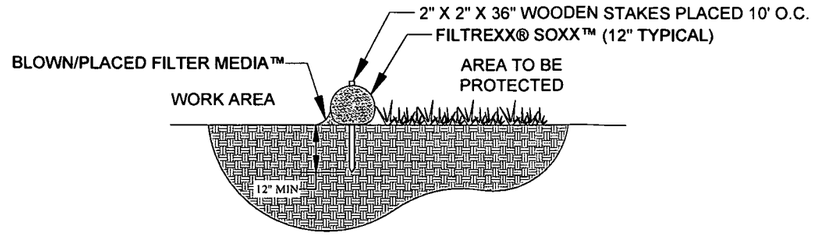
COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 4 OF 26

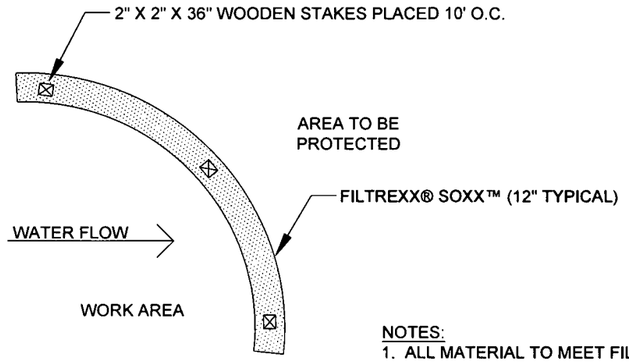
DWG.



ROAD FILL DETAIL (TYP.)
N.T.S.



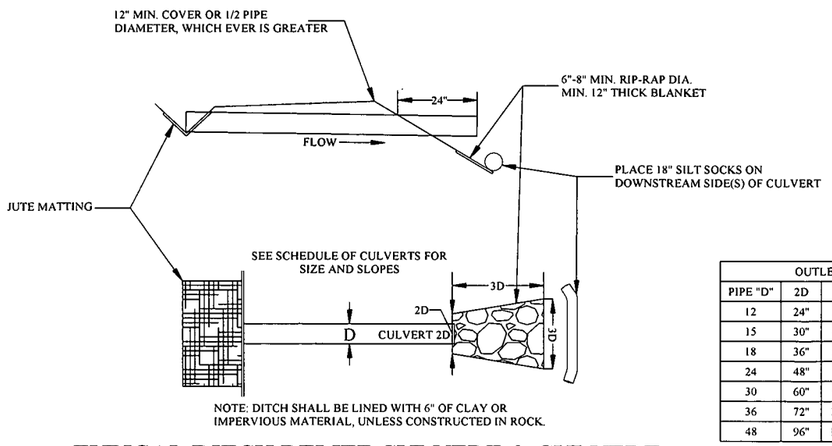
SECTION
NTS



PLAN
NTS

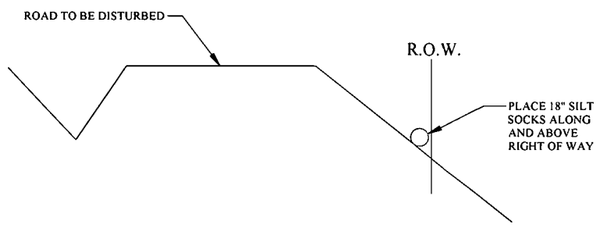
NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

FILTER SOCK DETAIL
N.T.S.
(SEE PLANS FOR SIZES)



TYPICAL DITCH RELIEF CULVERT & CULVERT INLET/OUTLET PROTECTION DETAIL
N.T.S.

OUTLET PROTECTION CHART				
PIPE "D"	2D	3D	CY ROCK	18" SILT SOCK (5D)
12	24"	36"	0.278	60"
15	30"	45"	0.434	75"
18	36"	54"	0.625	90"
24	48"	72"	1.111	120"
30	60"	90"	1.736	150"
36	72"	108"	2.499	180"
48	96"	144"	4.444	240"



TYPICAL FILTER SOCK ROAD INSTALLATION DETAIL
N.T.S.

Triple H enterprises

REVISION

DATE

ANTERO RESOURCES
TITLE PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DETAILS SHEET 2

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 5 OF 26

DWG:

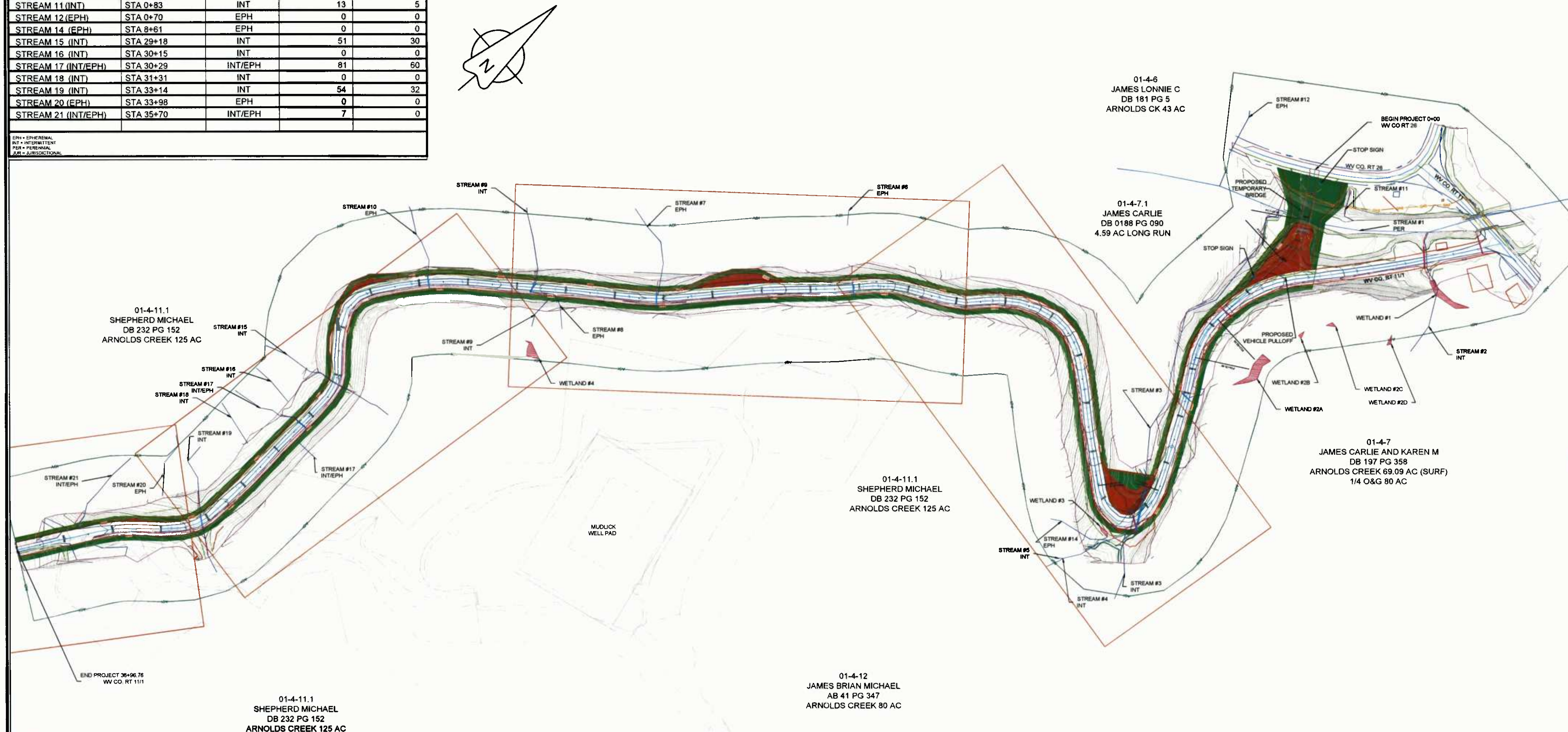
STREAMS
(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH WITHIN LIMITS OF DISTURBANCE (LOD)	FILL IMPACT
STREAM 1 (PER)	STA 1+04	PER	85	0
STREAM 2 (INT)	STA 1+53	INT	0	0
STREAM 3 (INT)	STA 7+95 TO 8+20	INT	110	110
STREAM 4 (INT)	STA 8+42	INT	0	0
STREAM 5 (INT)	STA 8+82	INT	0	0
STREAM 6 (EPH)	STA 17+13	EPH	0	0
STREAM 7 (EPH)	STA 21+12	EPH	19	9
STREAM 8 (EPH)	STA 23+24	EPH	18	10
STREAM 9 (INT)	STA 23+67	INT	105	81
STREAM 10 (EPH)	STA 25+82	EPH	14	10
STREAM 11 (INT)	STA 0+83	INT	13	5
STREAM 12 (EPH)	STA 0+70	EPH	0	0
STREAM 14 (EPH)	STA 8+61	EPH	0	0
STREAM 15 (INT)	STA 29+18	INT	51	30
STREAM 16 (INT)	STA 30+15	INT	0	0
STREAM 17 (INT/EPH)	STA 30+29	INT/EPH	81	60
STREAM 18 (INT)	STA 31+31	INT	0	0
STREAM 19 (INT)	STA 33+14	INT	54	32
STREAM 20 (EPH)	STA 33+98	EPH	0	0
STREAM 21 (INT/EPH)	STA 35+70	INT/EPH	7	0

EPH = EPHEREMAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

WETLANDS
(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)
WETLAND #1	STA 0+89 TO 1+46		925	0.02	0
WETLAND #2A	STA 4+40 TO 5+15		1229	0.03	0
WETLAND #2B	STA 4+16 TO 4+41		64	0.00	0
WETLAND #2C	STA 3+53 TO 3+73		73	0.00	0
WETLAND #2D	STA 2+46 TO 2+59		19	0.00	0
WETLAND #3	STA 8+61 TO 8+74		124	0.00	0
WETLAND #4	STA 23+42 TO 23+74		471	0.01	0



LEGEND

- R/W — EXISTING RIGHT OF WAY
- EXISTING CENTERLINE WV CO. RT 11/1
- PROPOSED CENTERLINE WV CO. RT. 11/1
- GAS — GAS LINE
- STREAM
- AOI — AREA OF INTEREST
- LOD — LIMITS OF DISTURBANCE
- LIMITS OF DISTURBANCE AREA
- EDGE OF GRAVEL
- EDGE OF PAVEMENT
- STREAM-EPHEMERAL
- STREAM-INTERMITTENT
- STREAM-PERENNIAL
- WETLANDS
- EOD — EDGE OF DISTURBANCE
- EDGE OF DISTURBANCE AREA

TripleH enterprises

REVISION

DATE

ANTERO RESOURCES
THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN GROUP

ENVIRONMENTAL

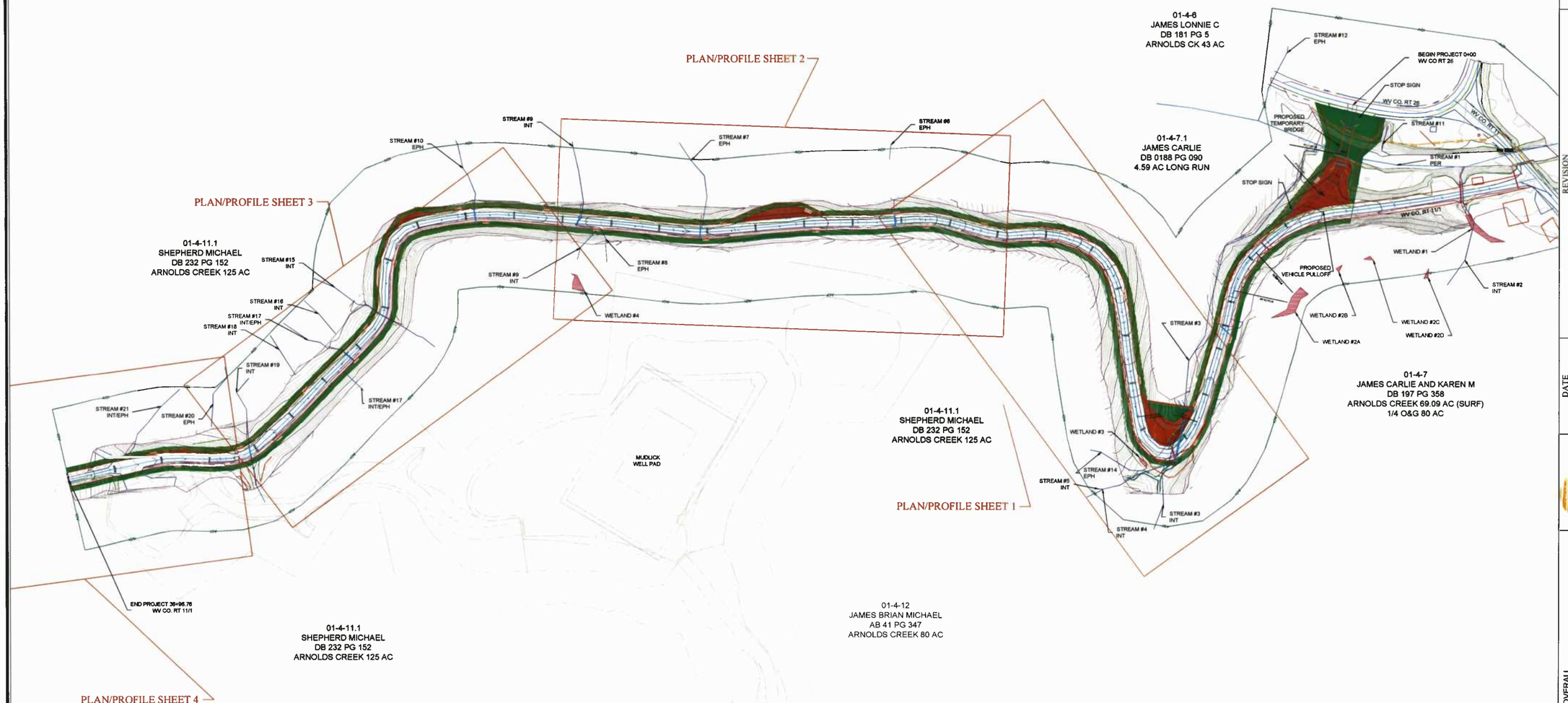
COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY RIDGE
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 7 OF 26

DWG.

EXISTING CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES
C1	18"	CMP	5+82	777.84	771.69	34.5'	REMOVE AND DO NOT REPLACE
C2	15"	CMP	5+59	793.96	793.46	21'	REMOVE AND REPLACE
C3	24"	CMP	8+40	796.63	795.62	30'	REMOVE AND REPLACE
C4	15"	CMP	17+45	918.90	917.35	20'	REMOVE AND REPLACE
C5	15"	RCP	21+47	928.56	927.67	16'	REMOVE AND REPLACE
C6	24"	STEEL	24+01	926.57	926.06	18'	REMOVE AND REPLACE
C7	15"	CMP	26+13	929.55	928.28	20'	REMOVE AND REPLACE
C8	8"	STEEL	30+60	933.82	932.07	17.5'	REMOVE AND REPLACE



LEGEND

RAW — EXISTING RIGHT OF WAY	EDGE OF GRAVEL
℄ — EXISTING CENTERLINE WV CO. RT 11/1	EDGE OF PAVEMENT
℄ — PROPOSED CENTERLINE WV CO. RT. 11/1	STREAM-EPHEMERAL
GAS — GAS LINE	STREAM-INTERMITTENT
STREAM	STREAM-PERENNIAL
AOI — AREA OF INTEREST	WETLANDS
LOD — LIMITS OF DISTURBANCE	EOD — EDGE OF DISTURBANCE
LIMITS OF DISTURBANCE AREA	EDGE OF DISTURBANCE AREA

TripleH enterprises

REVISION | DATE

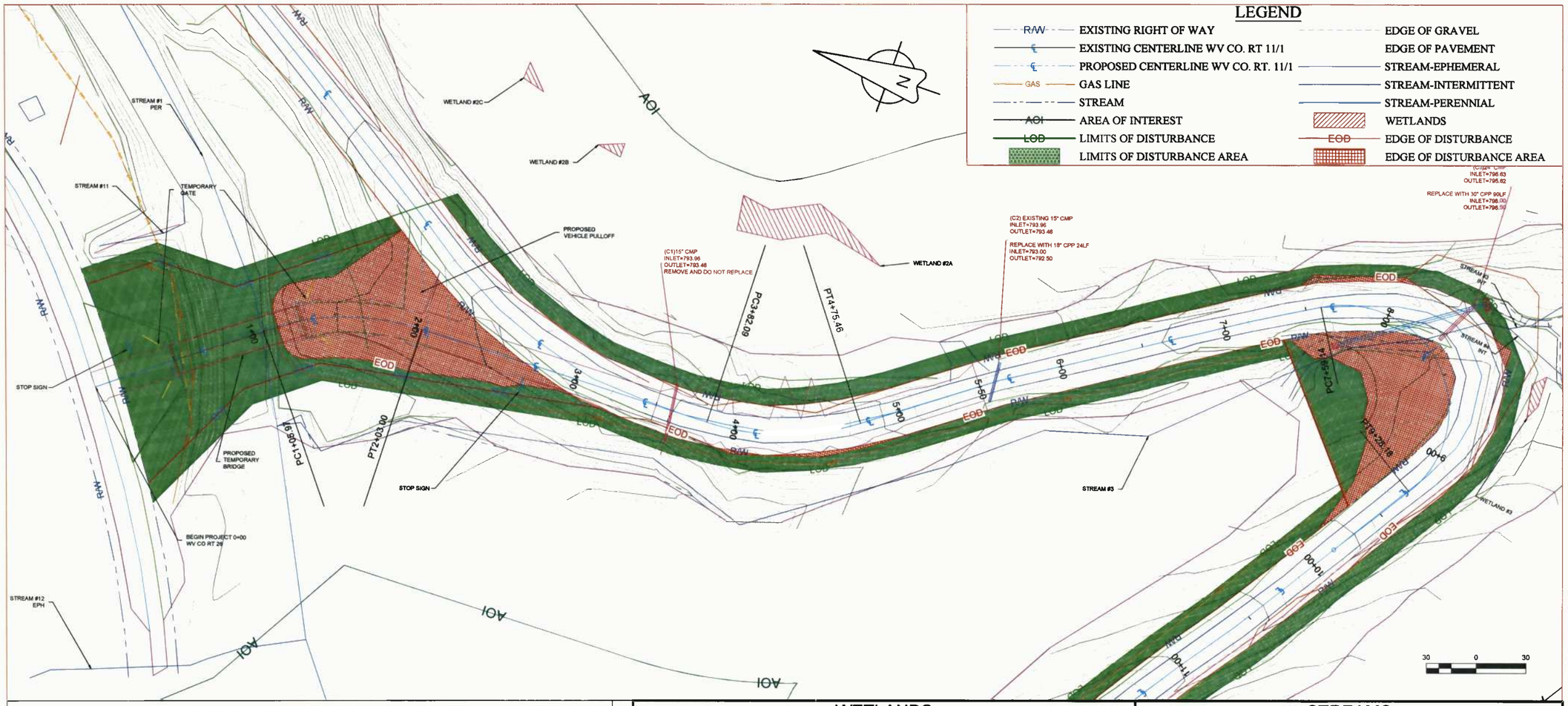
ANTERO RESOURCES
TITLE PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

OVERALL

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 8 OF 26

DWG



PROPOSED CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES
C1	18"	CMP	5+82	777.84	771.69	34.5'	REMOVE AND DO NOT REPLACE

WETLANDS

(SQUARE FEET)

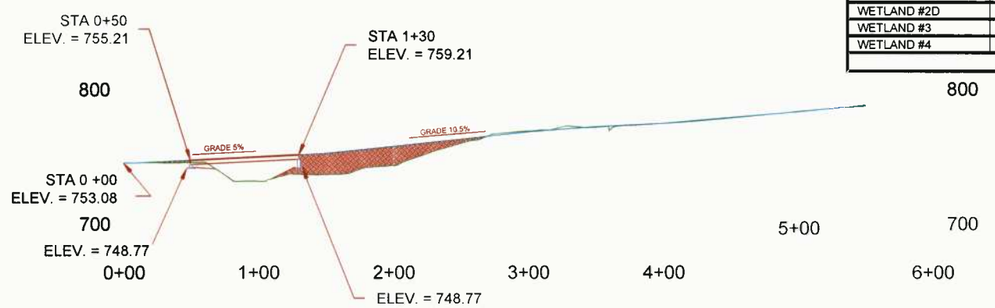
WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)
WETLAND #1	STA 0+89 TO 1+46		925	0.02	0
WETLAND #2A	STA 4+40 TO 5+15		1229	0.03	0
WETLAND #2B	STA 4+16 TO 4+41		64	0.00	0
WETLAND #2C	STA 3+53 TO 3+73		73	0.00	0
WETLAND #2D	STA 2+46 TO 2+59		19	0.00	0
WETLAND #3	STA 8+61 TO 8+74		124	0.00	0
WETLAND #4	STA 23+42 TO 23+74		471	0.01	0

STREAMS

(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH WITHIN LIMITS OF DISTURBANCE (LOD)	FILL IMPACT
STREAM 1	STA 1+04	PER	85	0
STREAM 2	STA 1+53	INT	0	0
STREAM 3	STA 7+95 TO 8+20	INT	110	110
STREAM 4	STA 8+42	INT	0	0
STREAM 5	STA 8+82	INT	0	0
STREAM 6	STA 17+13	EPH	0	0
STREAM 7	STA 21+12	EPH	19	9
STREAM 8	STA 23+24	EPH	18	10
STREAM 9	STA 23+67	INT	105	81
STREAM 10	STA 25+82	EPH	14	10
STREAM 11	STA 0+83	INT	13	5
STREAM 12	STA 0+70	EPH	0	0
STREAM 14	STA 8+61	EPH	0	0
STREAM 15	STA 29+18	INT	51	30
STREAM 16	STA 30+15	INT	0	0
STREAM 17	STA 30+29	INT/EPH	81	60
STREAM 18	STA 31+31	INT	0	0
STREAM 19	STA 33+14	INT	54	32
STREAM 20	STA 33+98	EPH	0	0
STREAM 21	STA 35+70	INT/EPH	7	0

EPH = EPHEREMAL
INT = INTERMITTENT
PER = PERENNIAL
AOI = AREA OF INTEREST



TripleH enterprises

REVISION

DATE

ANTERO RESOURCES

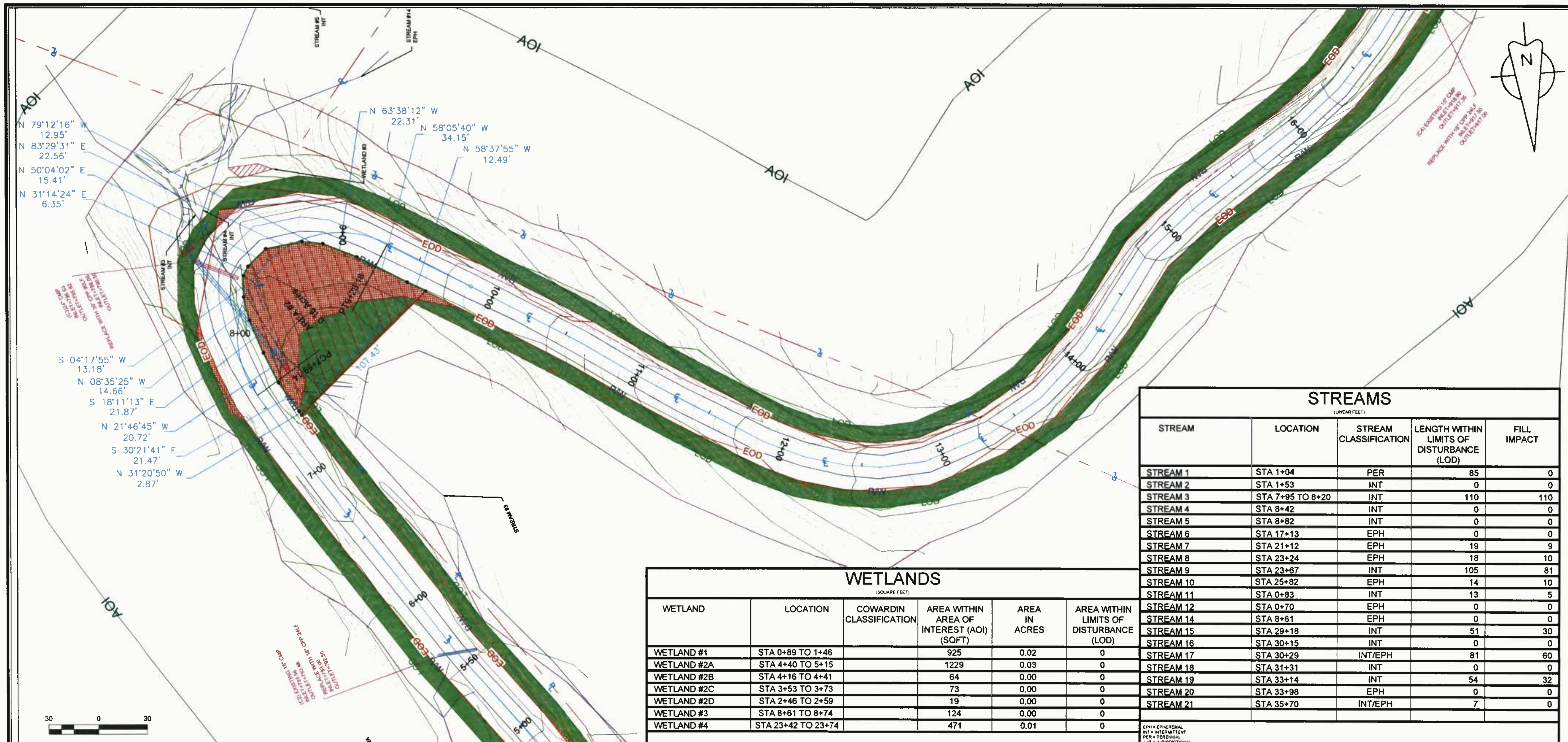
THESE PLANS PREPARED FOR: ANTERO RESOURCES APPALACHIAN CORP.

PROPOSED BRIDGE PROFILE

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 9 OF 26

DWG



WETLANDS

(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)
WETLAND #1	STA 0+89 TO 1+46		925	0.02	0
WETLAND #2A	STA 4+40 TO 5+15		1229	0.03	0
WETLAND #2B	STA 4+16 TO 4+41		64	0.00	0
WETLAND #2C	STA 3+53 TO 3+73		73	0.00	0
WETLAND #2D	STA 2+46 TO 2+59		19	0.00	0
WETLAND #3	STA 8+61 TO 8+74		124	0.00	0
WETLAND #4	STA 23+42 TO 23+74		471	0.01	0

STREAMS

(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH WITHIN LIMITS OF DISTURBANCE (LOD)	FILL IMPACT
STREAM 1	STA 1+04	PER	85	0
STREAM 2	STA 1+53	INT	0	0
STREAM 3	STA 7+95 TO 8+20	INT	110	110
STREAM 4	STA 8+42	INT	0	0
STREAM 5	STA 8+82	INT	0	0
STREAM 6	STA 17+13	EPH	0	0
STREAM 7	STA 21+12	EPH	19	9
STREAM 8	STA 23+24	EPH	18	10
STREAM 9	STA 23+67	INT	105	81
STREAM 10	STA 25+82	EPH	14	10
STREAM 11	STA 0+83	INT	13	5
STREAM 12	STA 0+70	EPH	0	0
STREAM 14	STA 8+61	EPH	0	0
STREAM 15	STA 29+18	INT	51	30
STREAM 16	STA 30+15	INT	0	0
STREAM 17	STA 30+29	INT/EPH	81	60
STREAM 18	STA 31+31	INT	0	0
STREAM 19	STA 33+14	INT	54	32
STREAM 20	STA 33+98	EPH	0	0
STREAM 21	STA 35+70	INT/EPH	7	0

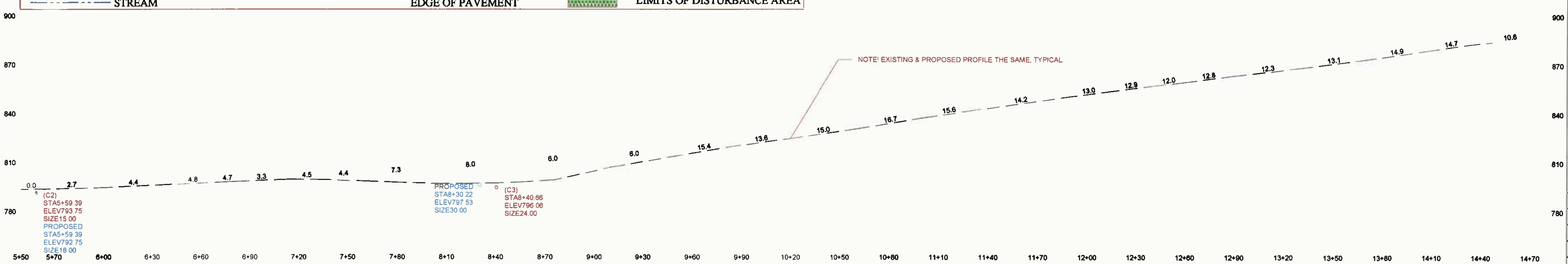
EPH = EPHEREMAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

PROPOSED CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES
C2	18"	CPP	5+59	793.00	792.50	24'	REMOVE AND REPLACE
C3	30"	CPP	8+40	798.00	796.50	90'	REMOVE AND REPLACE

LEGEND

- R/W — EXISTING RIGHT OF WAY
- EXISTING CENTERLINE WV CO. RT 11/1
- PROPOSED CENTERLINE WV CO. RT. 11/1
- GAS — GAS LINE
- STREAM
- AOI — AREA OF INTEREST
- LOD — LIMITS OF DISTURBANCE
- EOD — EDGE OF DISTURBANCE
- EDGE OF GRAVEL
- EDGE OF PAVEMENT
- STREAM-EPHEMERAL
- STREAM-INTERMITTENT
- STREAM-PERENNIAL
- WETLANDS
- EDGE OF DISTURBANCE AREA
- LIMITS OF DISTURBANCE AREA



TripleH enterprises

ANTERO RESOURCES

THIS PLAN PREPARED FOR: ANTERO RESOURCES APPALACHIAN GROUP

REVISION | DATE

PROFILE SHEET 1

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 10 OF 26

DWG

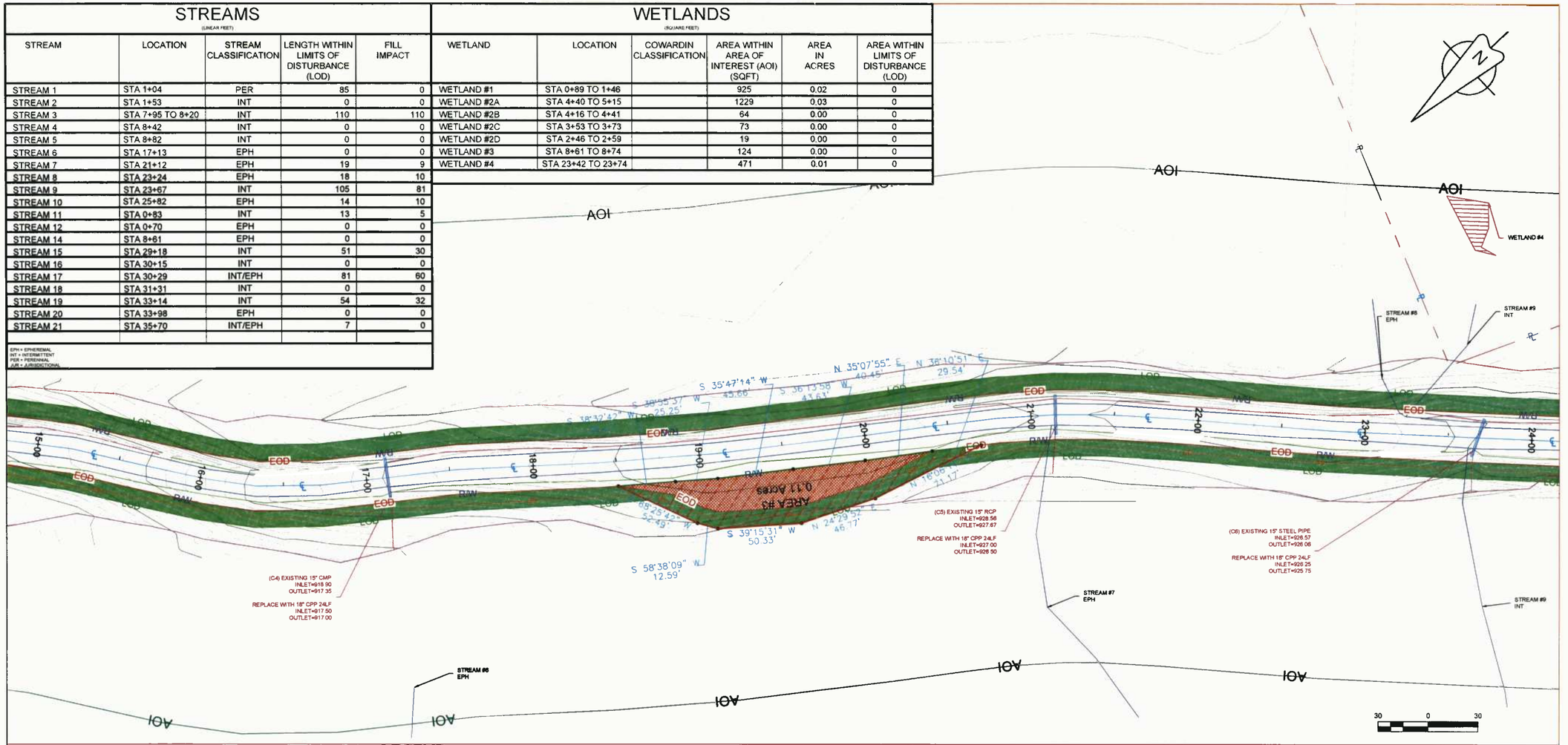
STREAMS
(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH WITHIN LIMITS OF DISTURBANCE (LOD)	FILL IMPACT
STREAM 1	STA 1+04	PER	85	0
STREAM 2	STA 1+53	INT	0	0
STREAM 3	STA 7+95 TO 8+20	INT	110	110
STREAM 4	STA 8+42	INT	0	0
STREAM 5	STA 8+82	INT	0	0
STREAM 6	STA 17+13	EPH	0	0
STREAM 7	STA 21+12	EPH	19	9
STREAM 8	STA 23+24	EPH	18	10
STREAM 9	STA 23+67	INT	105	81
STREAM 10	STA 25+82	EPH	14	10
STREAM 11	STA 0+83	INT	13	5
STREAM 12	STA 0+70	EPH	0	0
STREAM 14	STA 8+61	EPH	0	0
STREAM 15	STA 29+18	INT	51	30
STREAM 16	STA 30+15	INT	0	0
STREAM 17	STA 30+29	INT/EPH	81	60
STREAM 18	STA 31+31	INT	0	0
STREAM 19	STA 33+14	INT	54	32
STREAM 20	STA 33+98	EPH	0	0
STREAM 21	STA 35+70	INT/EPH	7	0

EPH = EPHEREMAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

WETLANDS
(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)
WETLAND #1	STA 0+89 TO 1+46		925	0.02	0
WETLAND #2A	STA 4+40 TO 5+15		1229	0.03	0
WETLAND #2B	STA 4+16 TO 4+41		64	0.00	0
WETLAND #2C	STA 3+53 TO 3+73		73	0.00	0
WETLAND #2D	STA 2+46 TO 2+59		19	0.00	0
WETLAND #3	STA 8+61 TO 8+74		124	0.00	0
WETLAND #4	STA 23+42 TO 23+74		471	0.01	0

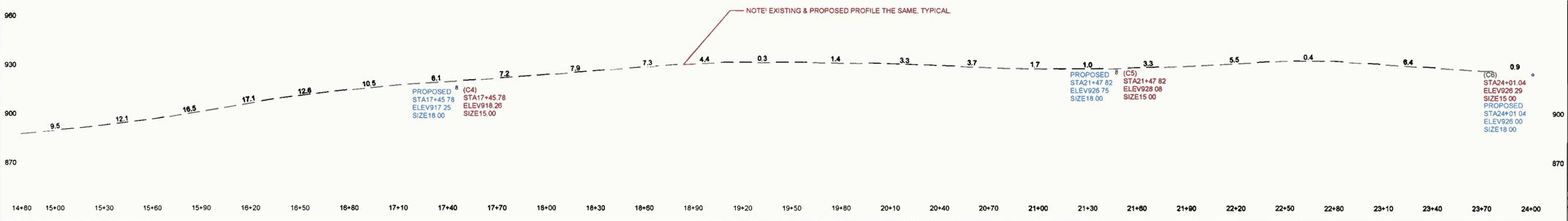


LEGEND

- R/W — EXISTING RIGHT OF WAY
- EXISTING CENTERLINE WV CO. RT 11/1
- PROPOSED CENTERLINE WV CO. RT. 11/1
- GAS — GAS LINE
- STREAM
- AOI — AREA OF INTEREST
- LOD — LIMITS OF DISTURBANCE
- EOD — EDGE OF DISTURBANCE
- EDGE OF GRAVEL
- EDGE OF PAVEMENT
- STREAM-EPHEMERAL
- STREAM-INTERMITTENT
- STREAM-PERENNIAL
- WETLANDS
- EDGE OF DISTURBANCE AREA
- LIMITS OF DISTURBANCE AREA

PROPOSED CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES
C4	18"	CPP	17+45	917.50	917.00	24'	REMOVE AND REPLACE
C5	18"	CPP	21+47	927.50	926.50	24'	REMOVE AND REPLACE
C6	18"	CPP	24+01	926.25	925.75	24'	REMOVE AND REPLACE



TripleH enterprises

REVISION

DATE

ANTERO RESOURCES
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN BASIN GROUP

PROFILE SHEET 2

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB:	RAMSEY
DATE:	6/7/2016
DRAWN BY:	ADS
SCALE:	AS SHOWN
SHEET:	11 OF 26

DWG:

STREAMS

(LINEAR FEET)

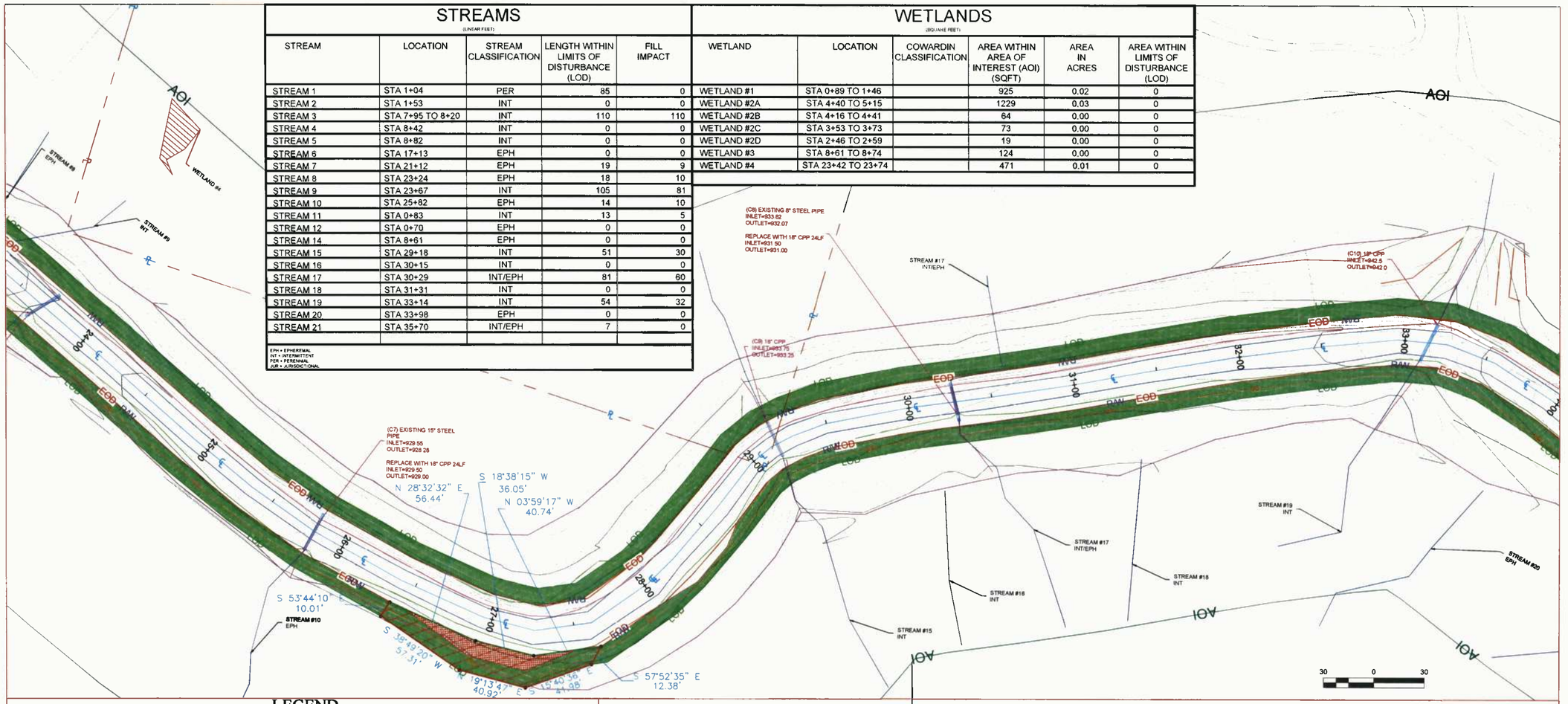
STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH WITHIN LIMITS OF DISTURBANCE (LOD)	FILL IMPACT
STREAM 1	STA 1+04	PER	85	0
STREAM 2	STA 1+53	INT	0	0
STREAM 3	STA 7+95 TO 8+20	INT	110	110
STREAM 4	STA 8+42	INT	0	0
STREAM 5	STA 8+82	INT	0	0
STREAM 6	STA 17+13	EPH	0	0
STREAM 7	STA 21+12	EPH	19	9
STREAM 8	STA 23+24	EPH	18	10
STREAM 9	STA 23+67	INT	105	81
STREAM 10	STA 25+82	EPH	14	10
STREAM 11	STA 0+83	INT	13	5
STREAM 12	STA 0+70	EPH	0	0
STREAM 14	STA 8+61	EPH	0	0
STREAM 15	STA 29+18	INT	51	30
STREAM 16	STA 30+15	INT	0	0
STREAM 17	STA 30+29	INT/EPH	81	60
STREAM 18	STA 31+31	INT	0	0
STREAM 19	STA 33+14	INT	54	32
STREAM 20	STA 33+98	EPH	0	0
STREAM 21	STA 35+70	INT/EPH	7	0

EPH = EPHEMERAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

WETLANDS

(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)
WETLAND #1	STA 0+89 TO 1+46		925	0.02	0
WETLAND #2A	STA 4+40 TO 5+15		1229	0.03	0
WETLAND #2B	STA 4+16 TO 4+41		64	0.00	0
WETLAND #2C	STA 3+53 TO 3+73		73	0.00	0
WETLAND #2D	STA 2+46 TO 2+59		19	0.00	0
WETLAND #3	STA 8+61 TO 8+74		124	0.00	0
WETLAND #4	STA 23+42 TO 23+74		471	0.01	0



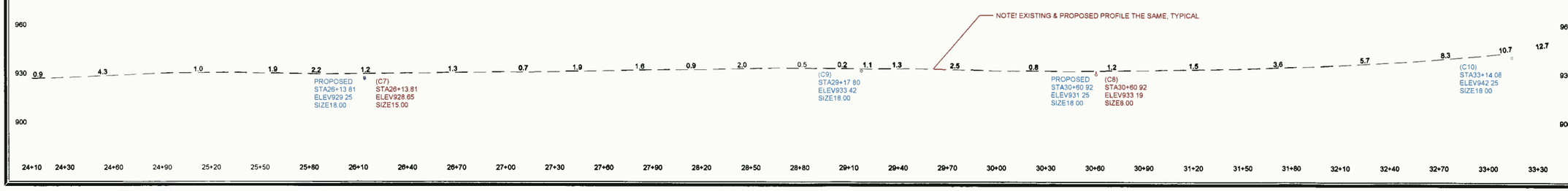
LEGEND

RAW — EXISTING RIGHT OF WAY	EDGE OF GRAVEL
℄ — EXISTING CENTERLINE WV CO. RT 11/1	EDGE OF PAVEMENT
℄ — PROPOSED CENTERLINE WV CO. RT. 11/1	STREAM-EPHEMERAL
GAS — GAS LINE	STREAM-INTERMITTENT
STREAM	STREAM-PERENNIAL
AOI — AREA OF INTEREST	WETLANDS
LOD — LIMITS OF DISTURBANCE	EOD — EDGE OF DISTURBANCE
LIMITS OF DISTURBANCE AREA	EDGE OF DISTURBANCE AREA

N

PROPOSED CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES
C7	18"	CPP	26+13	929.50	929.00	24'	REMOVE AND REPLACE
C8	18"	CPP	30+60	931.50	931.00	24'	REMOVE AND REPLACE
C9	18"	CPP	29+17	933.75	933.25	24'	NEW ADDITION
C10	18"	CPP	33+14	942.50	942.00	24'	NEW ADDITION



TripleH enterprises

REVISION

DATE

ANTERO RESOURCES

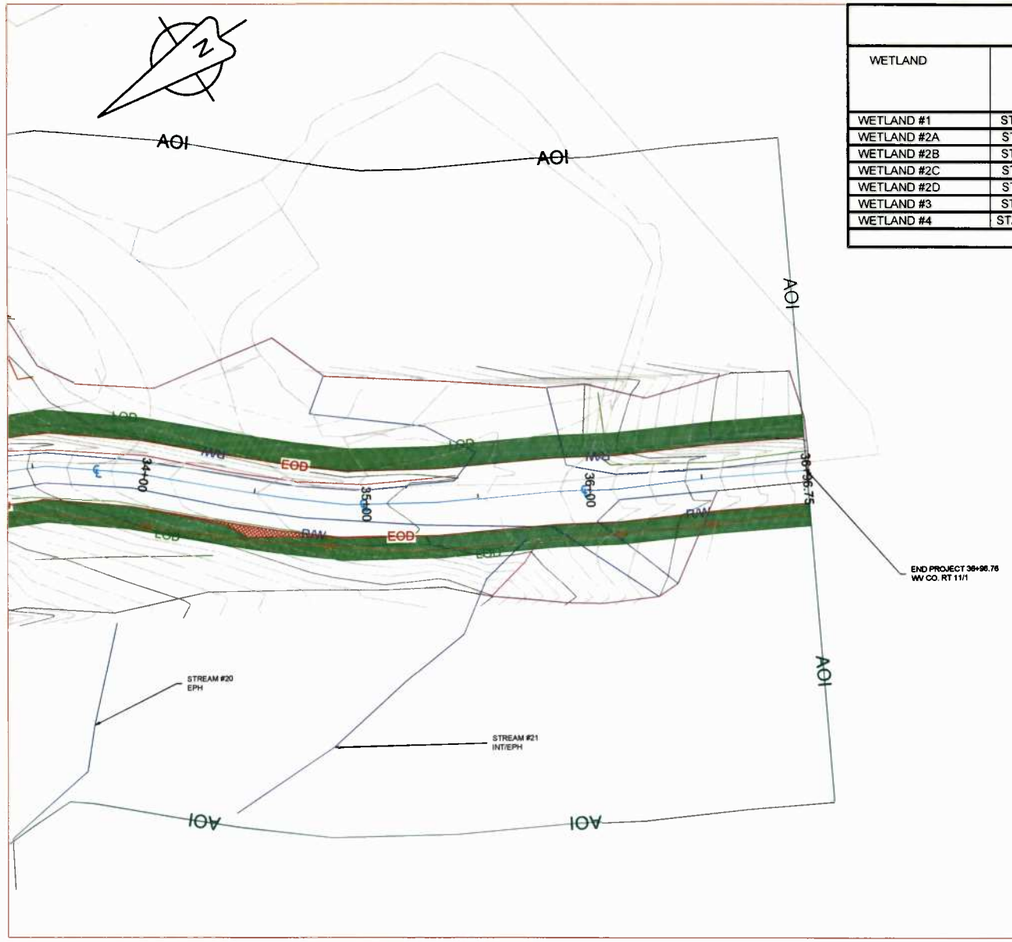
THIS PLAN PREPARED FOR: ANTERO RESOURCES APPALACHIAN GROUP

PROFILE SHEET 3

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 12 OF 26

DWG



WETLANDS
(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)
WETLAND #1	STA 0+89 TO 1+46		925	0.02	0
WETLAND #2A	STA 4+40 TO 5+15		1229	0.03	0
WETLAND #2B	STA 4+16 TO 4+41		64	0.00	0
WETLAND #2C	STA 3+53 TO 3+73		73	0.00	0
WETLAND #2D	STA 2+46 TO 2+59		19	0.00	0
WETLAND #3	STA 8+61 TO 8+74		124	0.00	0
WETLAND #4	STA 23+42 TO 23+74		471	0.01	0

STREAMS
(LINEAR FEET)

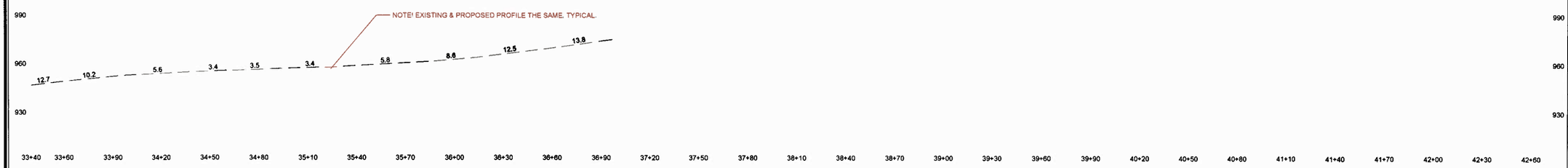
STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH WITHIN LIMITS OF DISTURBANCE (LOD)	FILL IMPACT
STREAM 1	STA 1+04	PER	85	0
STREAM 2	STA 1+53	INT	0	0
STREAM 3	STA 7+95 TO 8+20	INT	110	110
STREAM 4	STA 8+42	INT	0	0
STREAM 5	STA 8+82	INT	0	0
STREAM 6	STA 17+13	EPH	0	0
STREAM 7	STA 21+12	EPH	19	9
STREAM 8	STA 23+24	EPH	18	10
STREAM 9	STA 23+67	INT	105	81
STREAM 10	STA 25+82	EPH	14	10
STREAM 11	STA 0+83	INT	13	5
STREAM 12	STA 0+70	EPH	0	0
STREAM 14	STA 8+61	EPH	0	0
STREAM 15	STA 29+18	INT	51	30
STREAM 16	STA 30+15	INT	0	0
STREAM 17	STA 30+29	INT/EPH	81	60
STREAM 18	STA 31+31	INT	0	0
STREAM 19	STA 33+14	INT	54	32
STREAM 20	STA 33+98	EPH	0	0
STREAM 21	STA 35+70	INT/EPH	7	0

EPH = EPHEREMAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

30 0 30

LEGEND

R/W EXISTING RIGHT OF WAY	EDGE OF GRAVEL
℄ EXISTING CENTERLINE WV CO. RT 11/1	EDGE OF PAVEMENT
℄ PROPOSED CENTERLINE WV CO. RT. 11/1	STREAM-EPHEMERAL
GAS GAS LINE	STREAM-INTERMITTENT
STREAM	STREAM-PERENNIAL
AOI AREA OF INTEREST	WETLANDS
LOD LIMITS OF DISTURBANCE	EOD EDGE OF DISTURBANCE
LIMITS OF DISTURBANCE AREA	EDGE OF DISTURBANCE AREA



TripleH enterprises

REVISION

DATE

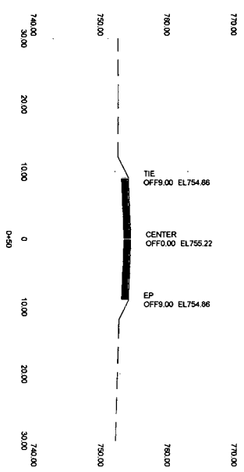
ANTERO RESOURCES

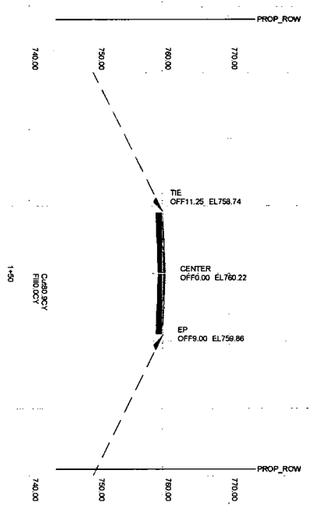
PROFILE SHEET 4

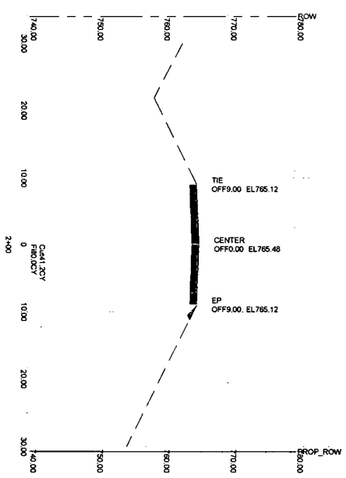
COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

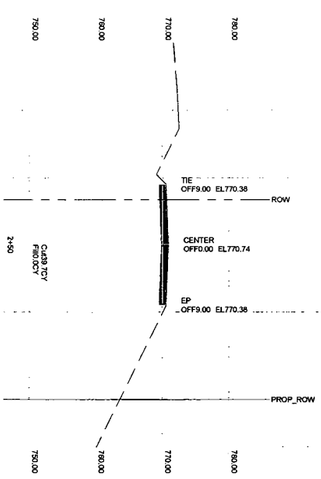
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 13 OF 26

DWG









CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

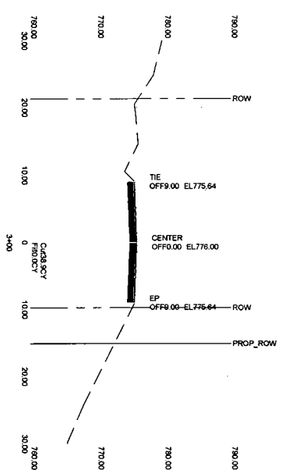
ANTERO RESOURCES
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

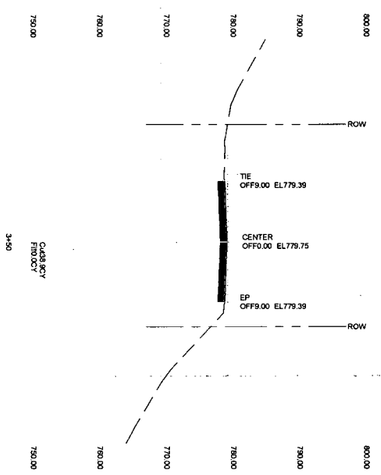
DATE	REVISION

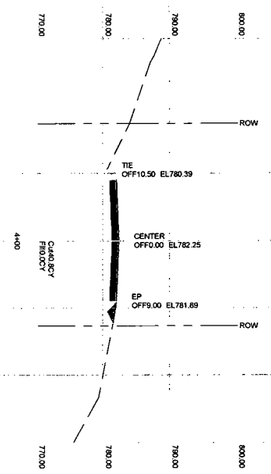
TripleH enterprises

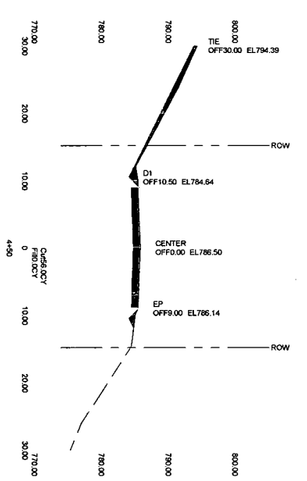
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 14 OF 26

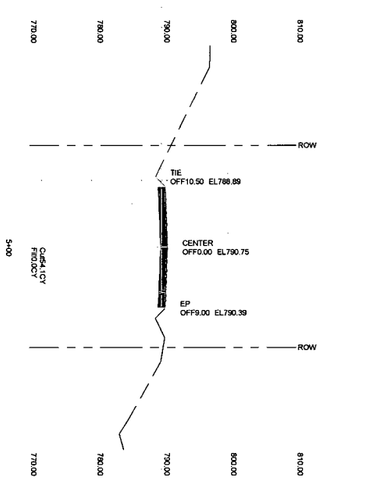
DWG:

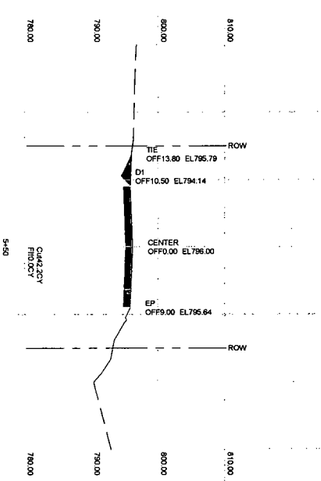












CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

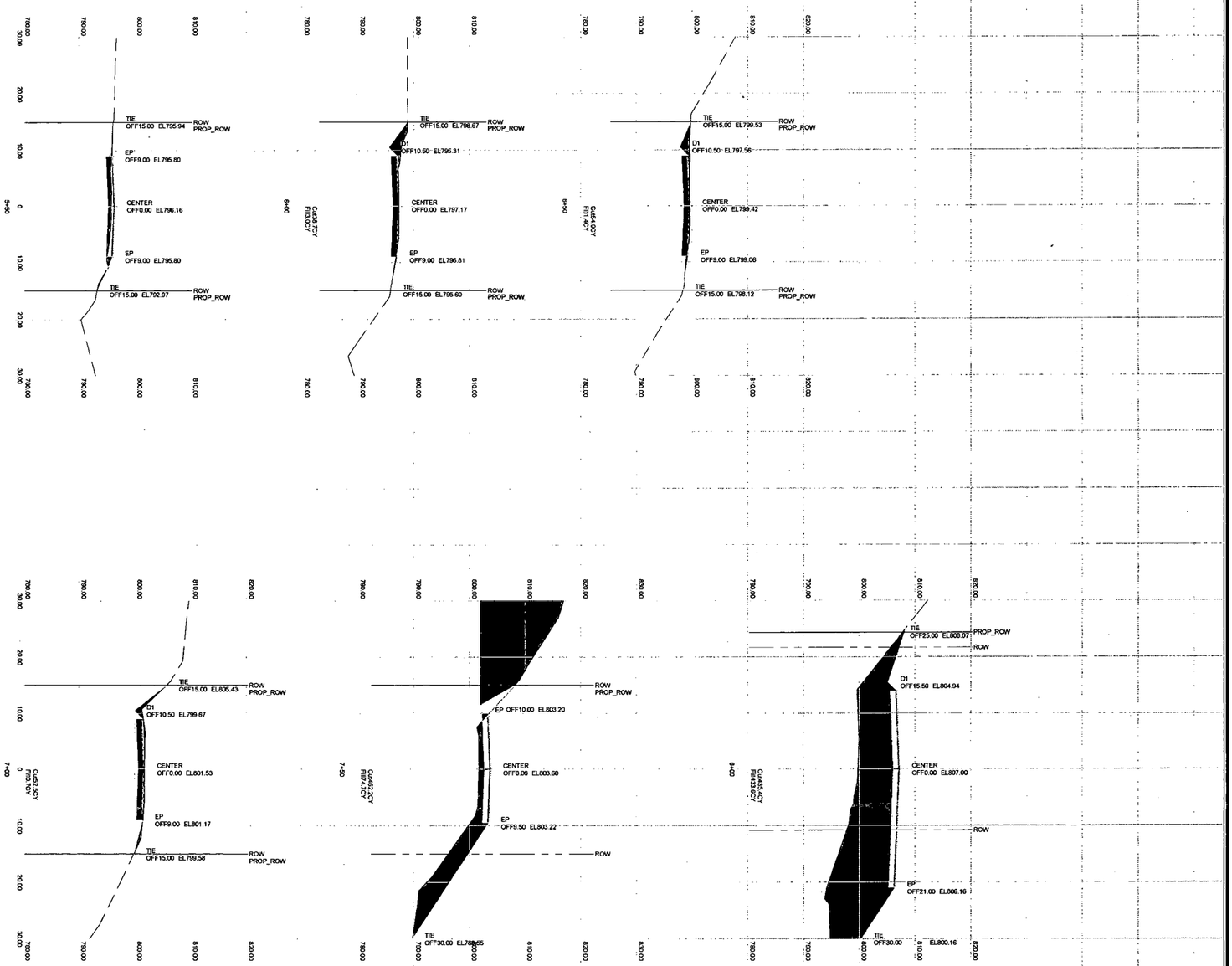
ANTERO RESOURCES
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

TripleH enterprises

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 15 OF 28

DWG:



CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

ANTERO RESOURCES

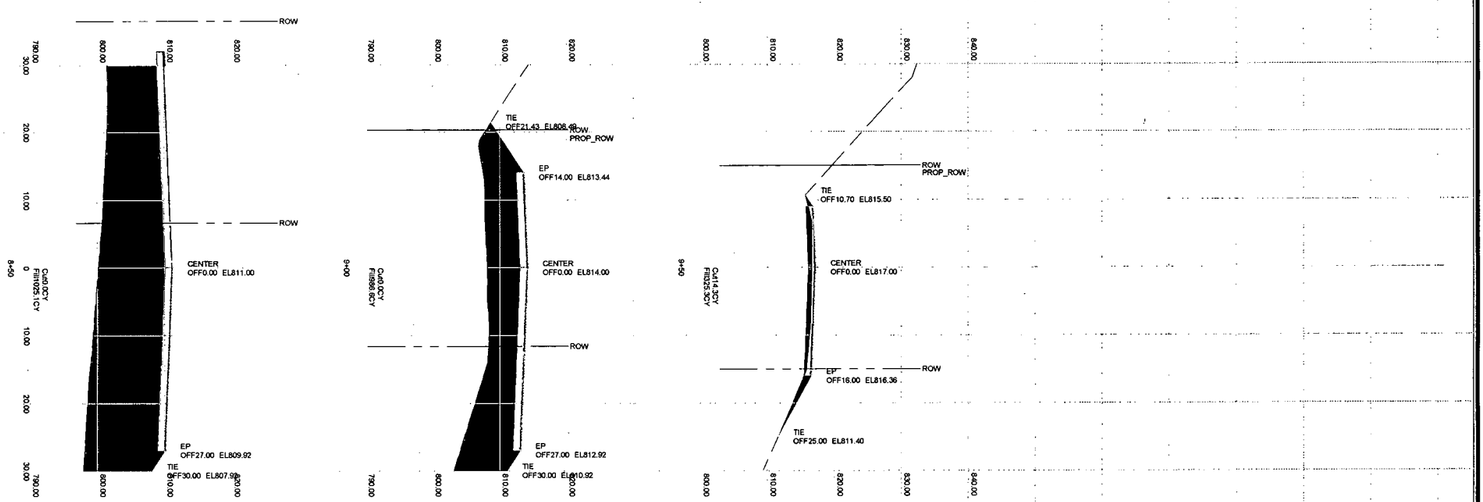
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

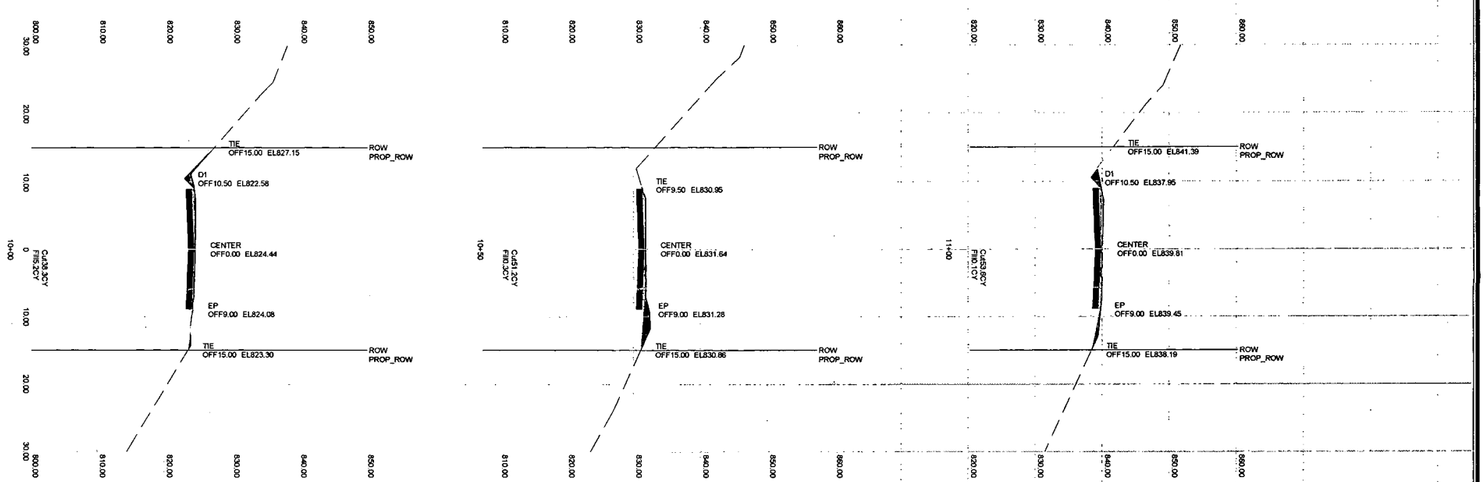
DATE	REVISION

Triple H enterprises

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 16 OF 26

DWG:





CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

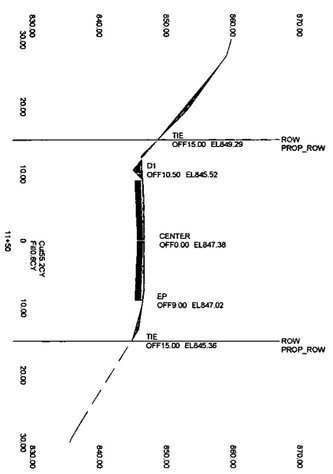
ANTERO RESOURCES
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

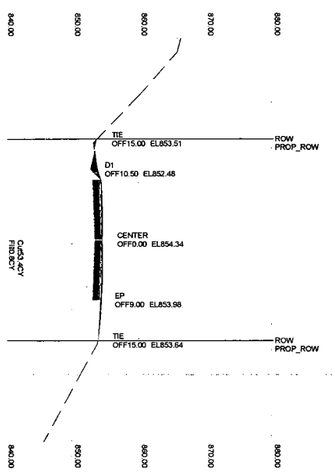
DATE	REVISION

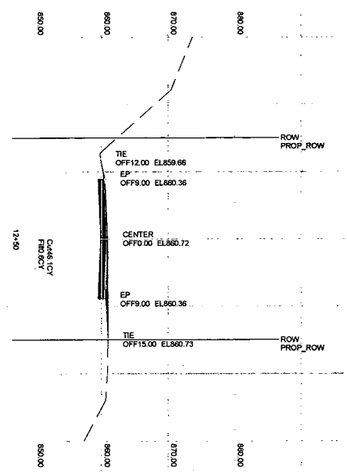
TripleH enterprises

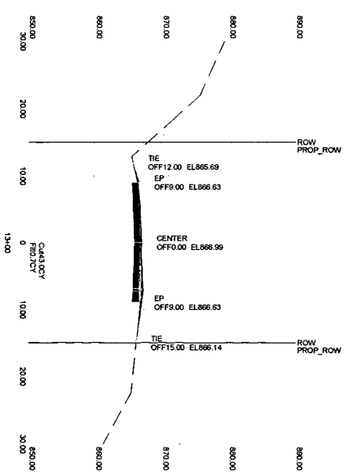
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 17 OF 26

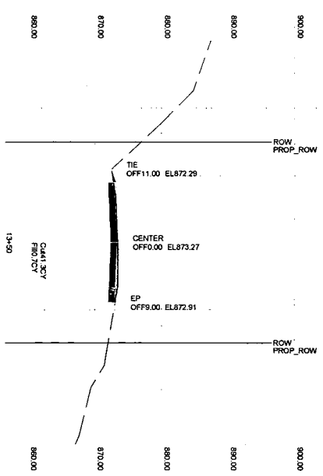
DWG:

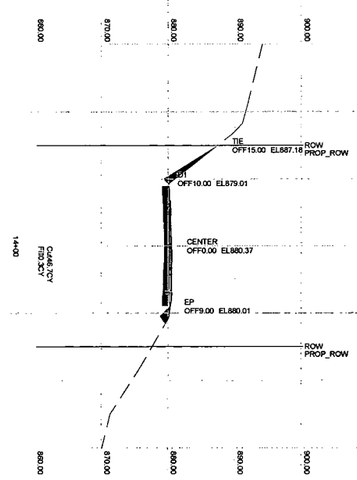












CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

ANTERO RESOURCES

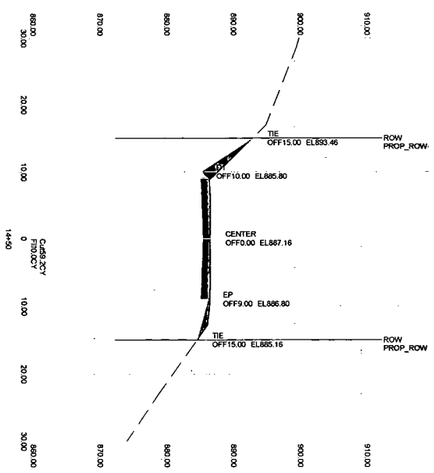
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

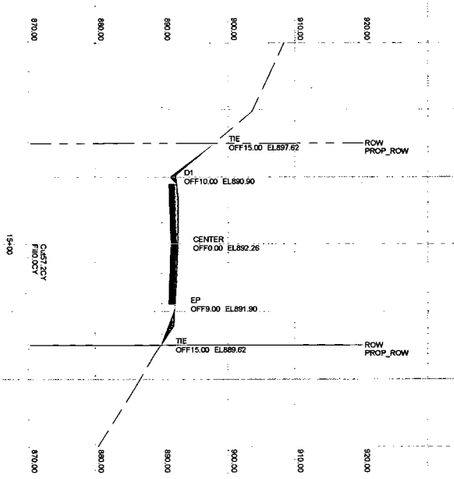
DATE	REVISION

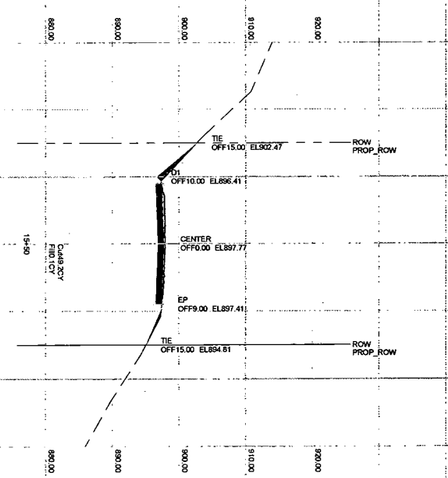
TripleH enterprises

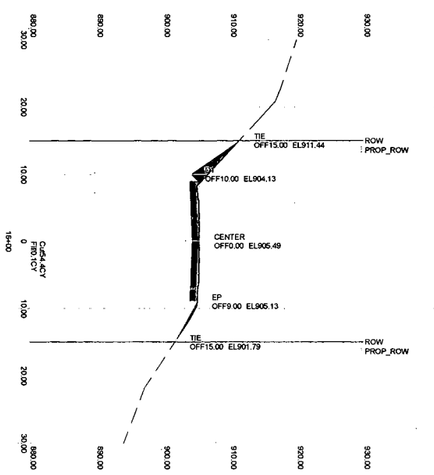
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET 18 OF 26

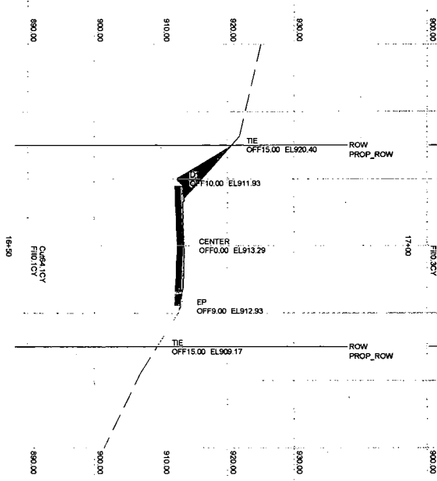
DWG:

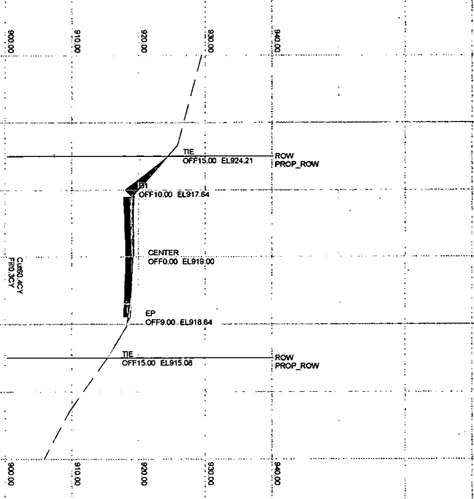












CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

ANTERO RESOURCES

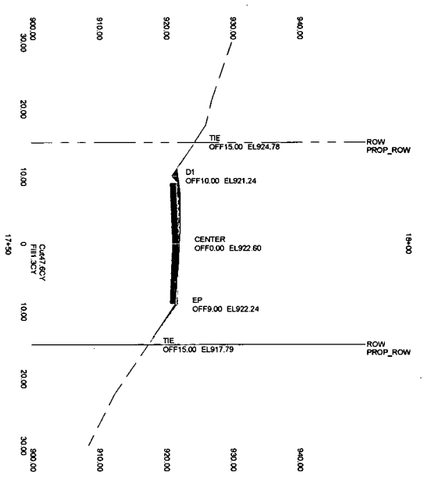
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

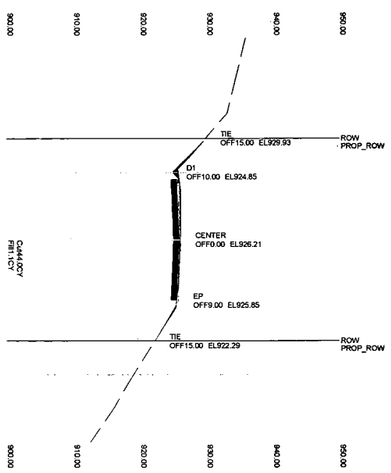
DATE	REVISION

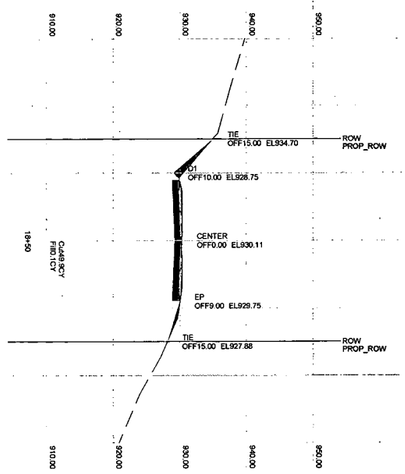
TripleH enterprises

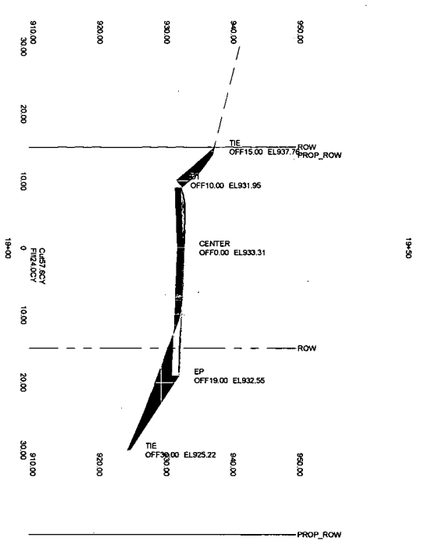
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 19 OF 26

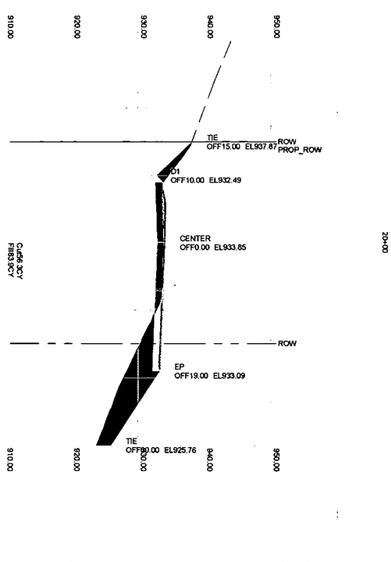
DWG:

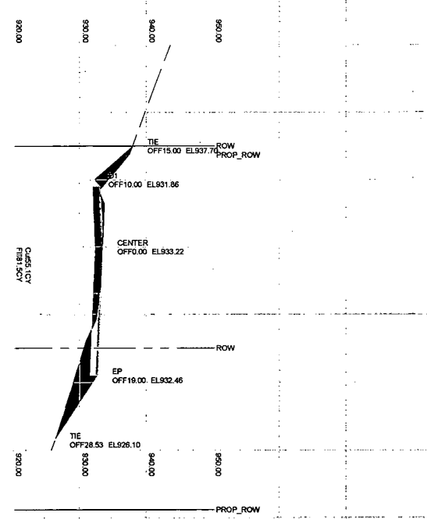












CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

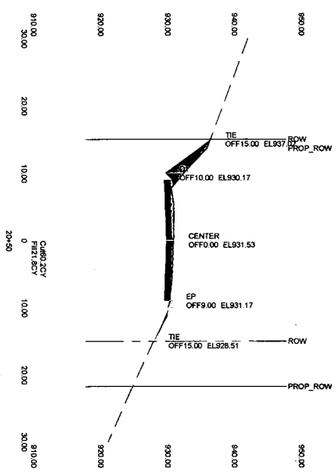
ANTERO RESOURCES
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

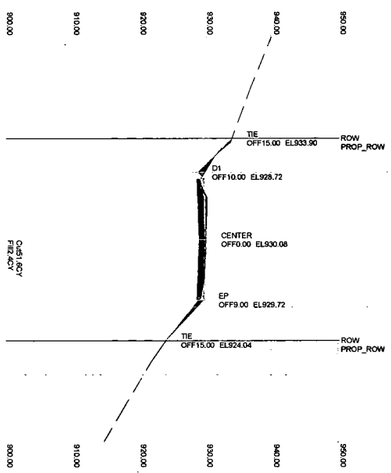
DATE	REVISION

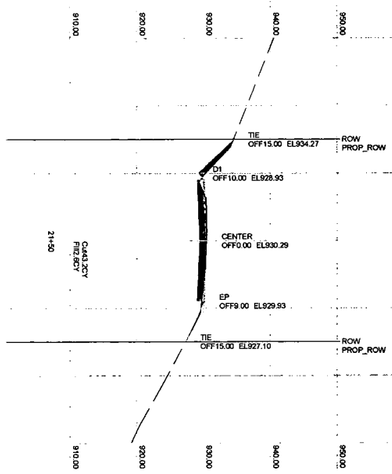
TripleH enterprises

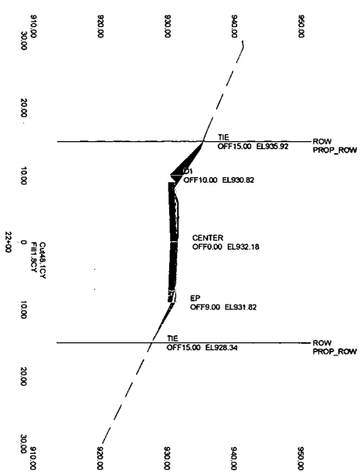
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 20 OF 26

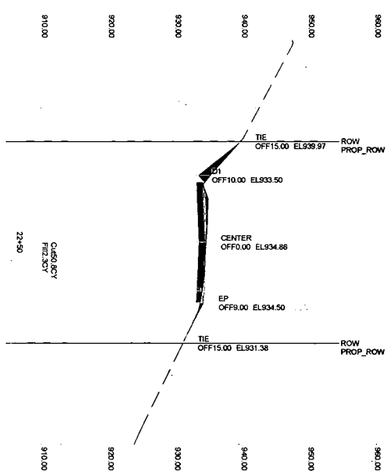
DWG:

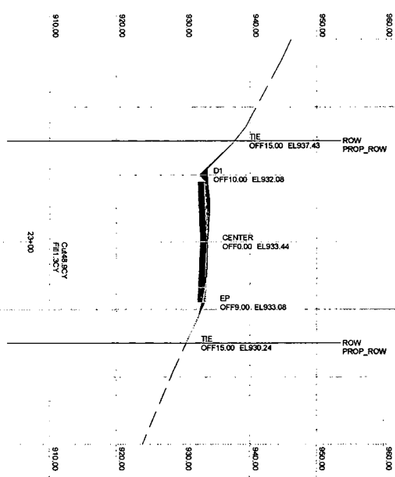












CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

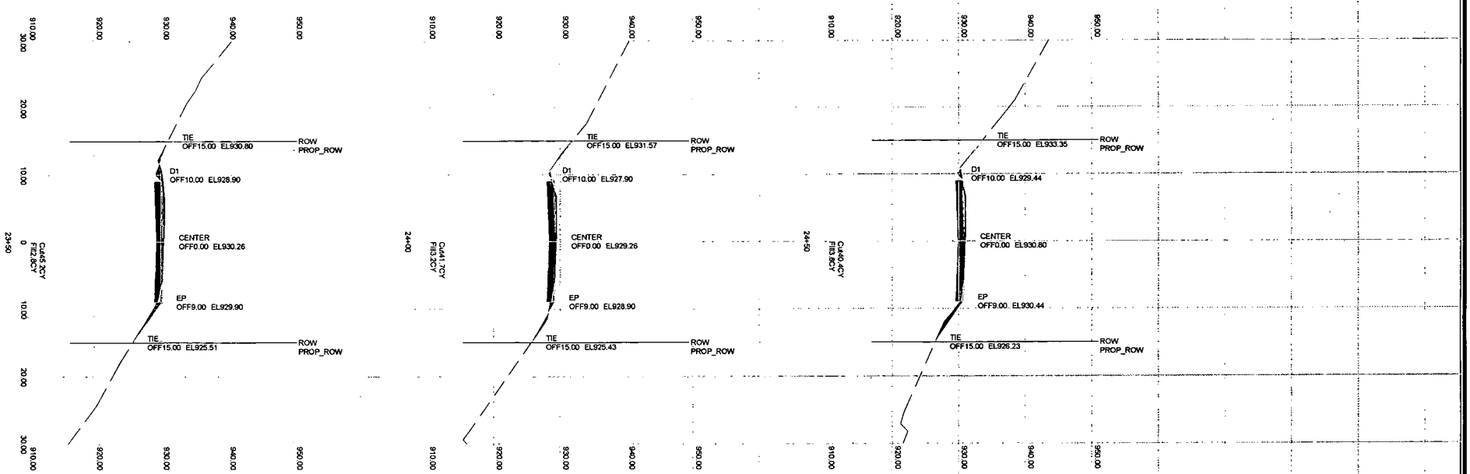
ANTERO RESOURCES
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

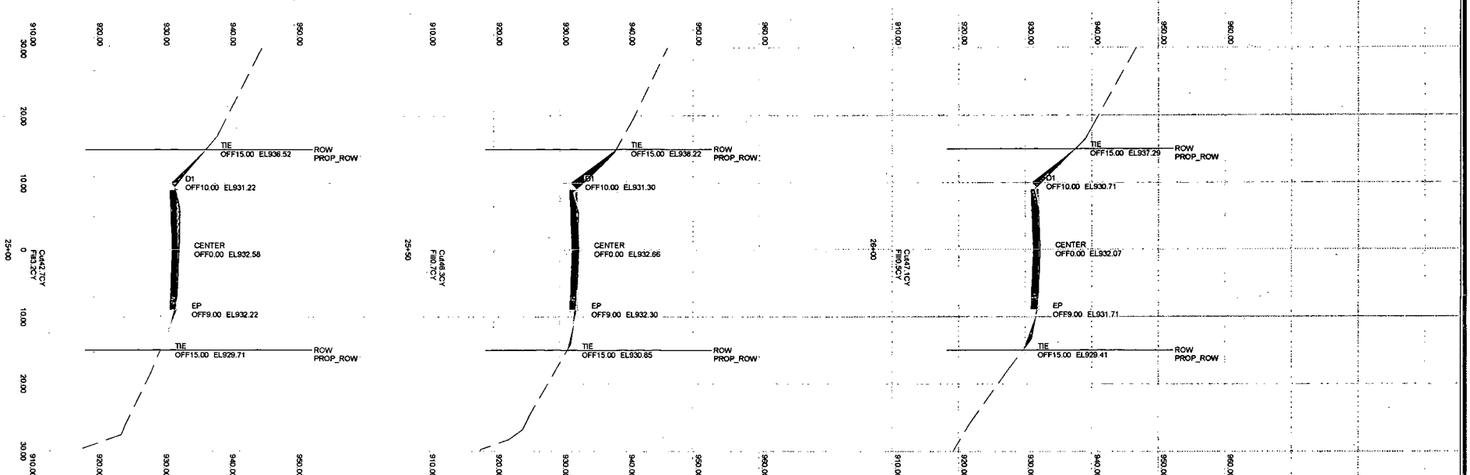
DATE	REVISION

TripleH enterprises

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 21 OF 26

DWG: .





CROSS SECTION

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

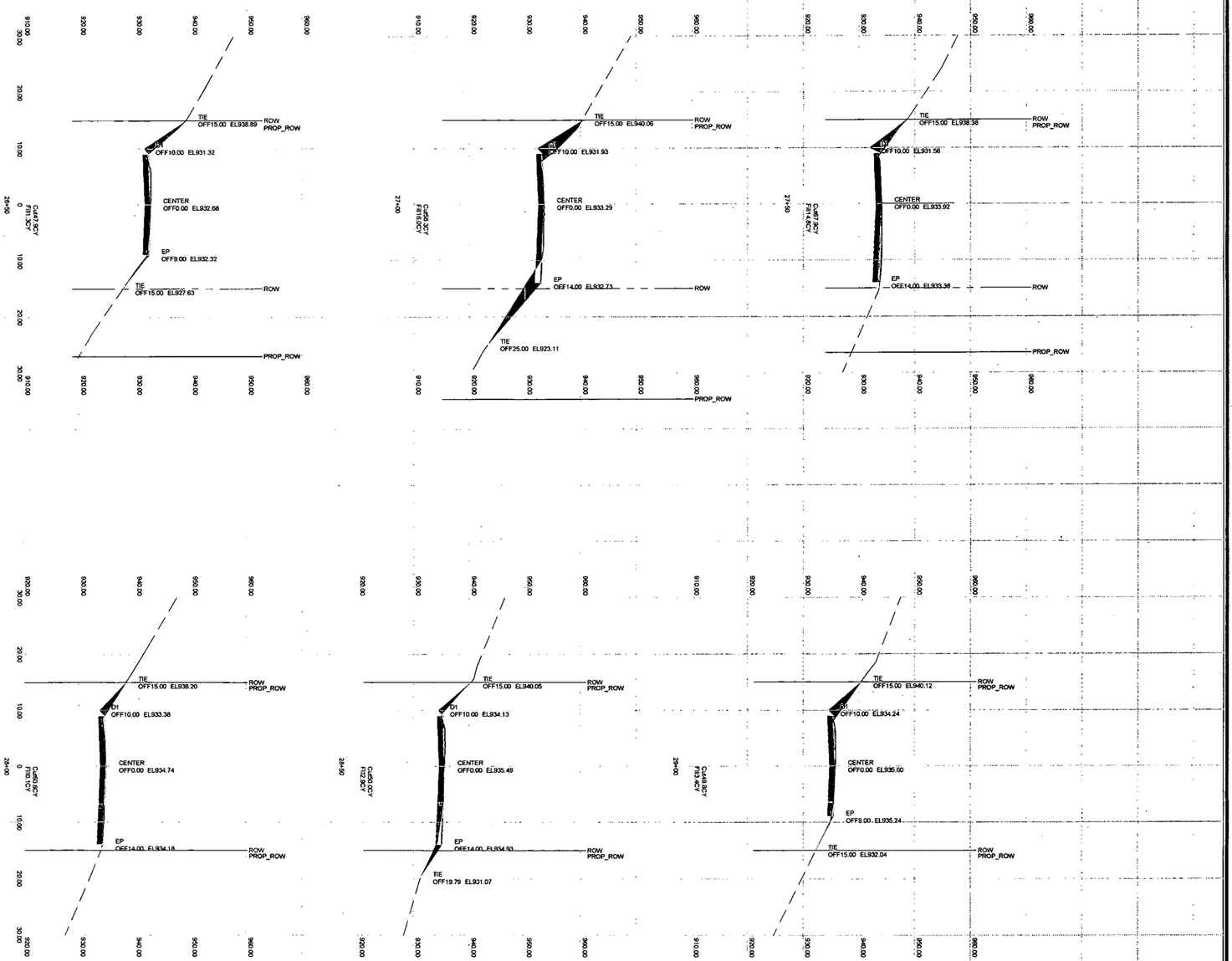
ANTERO RESOURCES
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

TripleH enterprises

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 22 OF 26

DWG:



CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

ANTERO RESOURCES

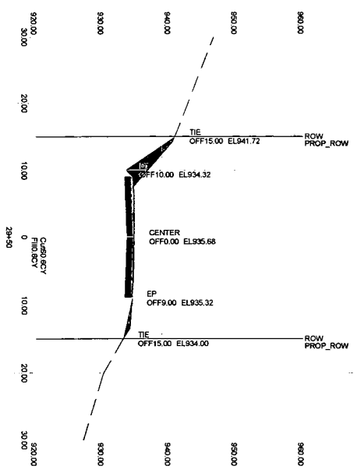
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

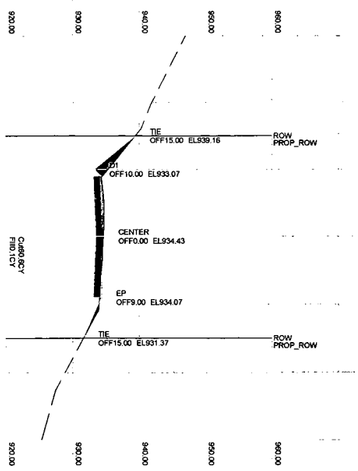
DATE	REVISION

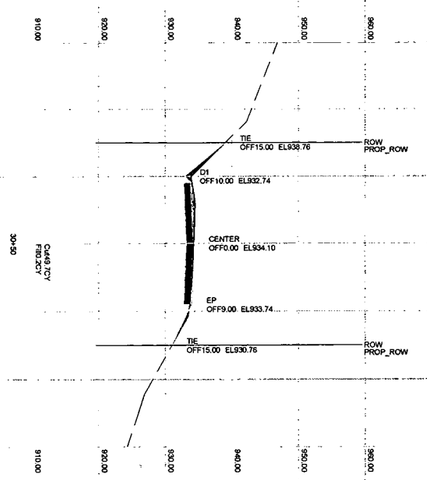
TripleH enterprises

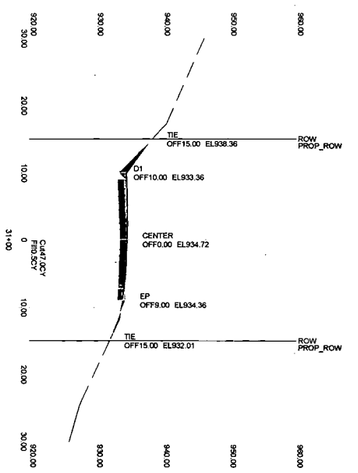
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 23 OF 26

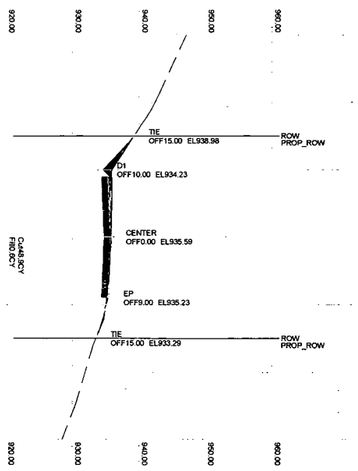
DWG:

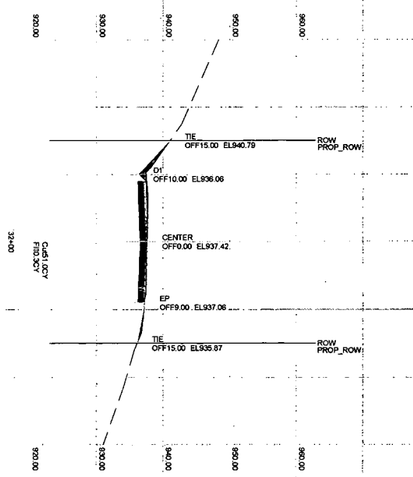












CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

ANTERO RESOURCES

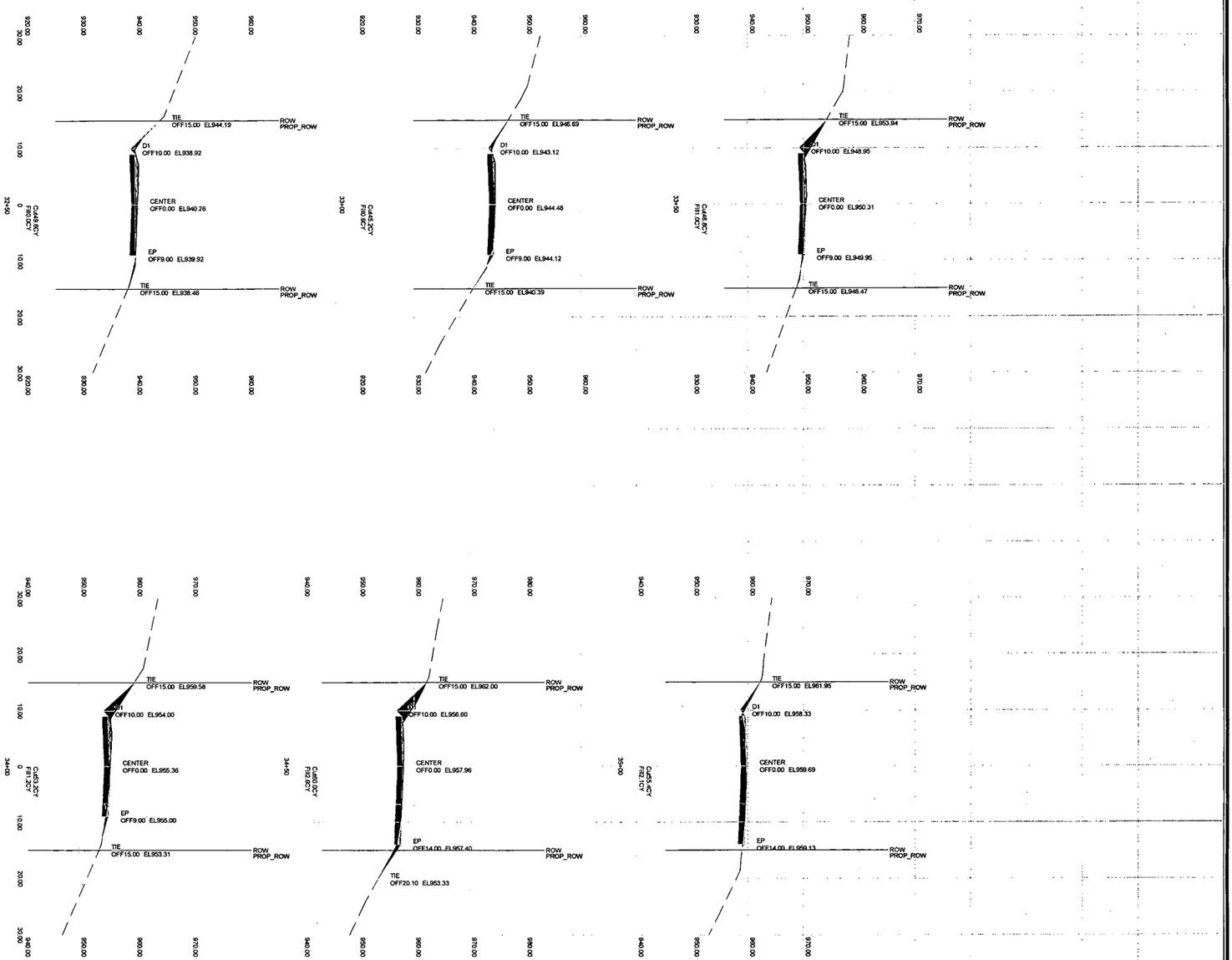
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

TripleH enterprises

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 24 OF 26

DWG:



CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

ANTERO RESOURCES

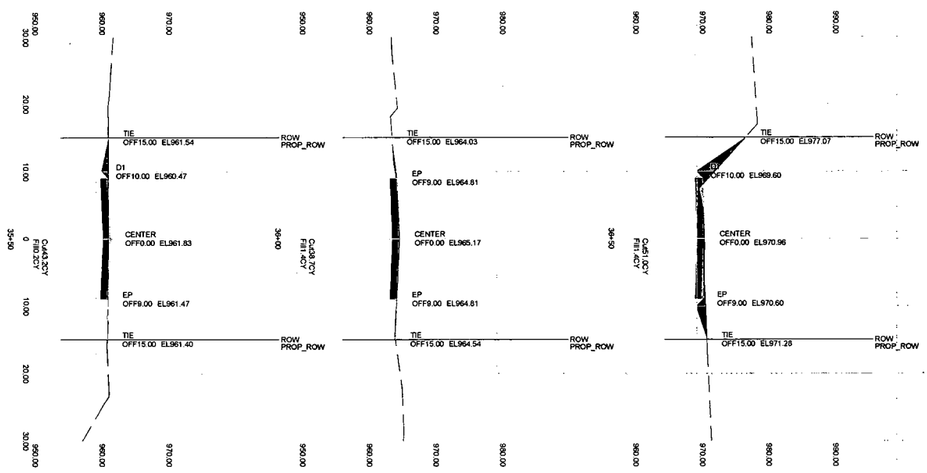
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

TripleH enterprises

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 25 OF 26

DWG:



CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

ANTERO RESOURCES

THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

TripleH enterprises

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 28 OF 28

DWG: