



# 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: #22-608**

**Date Approved: March 7, 2022**

**Expires: March 7, 2023**

**Issued to: Antero Resources**

**POC: Luz Falcon-Martinez**

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

**Project Address: Morgans Run Road West Union, WV 26456**

**Firm: 54017C0140C**

**Lat/Long: 39.286667N, -80.687822W**

**Purpose of Development: Construction of Early Childhood Academy**

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

**Date: March 7, 2022**

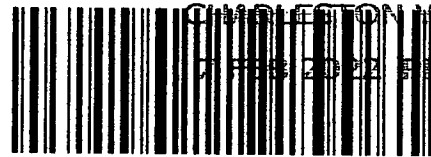
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For additional information regarding this permit, please contact  
Doddridge County Floodplain Manager at 304.873.2631, or via email at  
doddridgecountyfpm@gmail.com  
118 East Court Street; West Union, WV 26456

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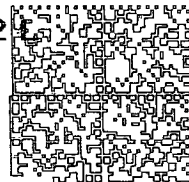
**CERTIFIED MAIL®**

Doddridge County Office of Emergency Management  
George Eidel, Floodplain Manager  
101 Church Street, Suite 102  
West Union, WV 26456



CHARLESTON WV 250

FEB 20 2022 PM 4 20



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\$007.33<sup>00</sup>

02/07/2022 ZIP 26456  
042L14835518

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US POSTAGE

2/9  
2-17  
2-24

# 22-608

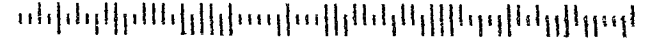
Donna Leatherman  
627 Morgans Run Road  
West Uni

NIXIE 250 DE 1 0002/27/22

RETURN TO SENDER  
UNCLAIMED  
UNABLE TO FORWARD

26456-0180NS  
26456>1194

BC: 26456119427 \*1171-00412-07-42



PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT  
OF THE RETURN ADDRESS. FOLD ALONG DOTTED LINE  
ENTIRELY TO OPEN. SEE INSTRUCTIONS ON THE BACK

**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.

1. Article Addressed to:

**Donna Leatherman  
627 Morgans Run Road  
West Union, WV 26456**



9590 9402 4868 9032 9569 98

2. Article Number (Transfer from service label)

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  Agent  
 Addressee  
**X**

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
- |  |   |
|--|---|
| <input type="checkbox"/> Adult Signature                               | <input type="checkbox"/> Priority Mail Express®                     |
| <input type="checkbox"/> Adult Signature Restricted Delivery           | <input type="checkbox"/> Registered Mail™                           |
| <input type="checkbox"/> Certified Mail®                               | <input type="checkbox"/> Registered Mail Restricted Delivery        |
| <input type="checkbox"/> Certified Mail Restricted Delivery            | <input type="checkbox"/> Return Receipt for Merchandise             |
| <input type="checkbox"/> Collect on Delivery                           | <input type="checkbox"/> Signature Confirmation™                    |
| <input type="checkbox"/> Collect on Delivery Restricted Delivery       | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> Insured Mail                                  |   |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) |   |

178363

**CIVIL & ENVIRONMENTAL CONSULTANTS, INC.**

333 BALDWIN ROAD  
PITTSBURGH, PA 15205  
(412) 429-2324

PNC Bank, N.A.  
Pittsburgh, PA

8-9/430

CHECK DATE 2/14/2022

PAY One Thousand Seventy Five and 00/100 Dollars

TO The Doddridge County Commission  
118 East Court Street  
West Union, WV 26456

AMOUNT 1,075.00

*[Handwritten Signature]*  
AUTHORIZED SIGNATURE

⑈ 178363⑈ ⑆043000096⑆ 0002272405⑈

**CIVIL & ENVIRONMENTAL CONSULTANTS, INC.**

178363

Check Date: 2/14/2022

Invoice Number	Date	Voucher	Amount	Discounts	Previous Pay	Net Amount
CR1535	2/11/2022	000000393134	1,075.00			1,075.00
The Doddridge County Commission			TOTAL	1,075.00		1,075.00
- Operating Account	1	11261				

FP # 22-608

FEB 19 22 11:13 AM



## FLOODPLAIN PERMIT #22-608

Antero Resources, Slip Repair, Morgans Run Road, 39.286667, -80.687822

TASK	COMPLETE (DATE)	NOTES
CHECK RECEIVED	2/18/2022	
US ARMY CORP. ENGINEERS (USACE)		
US FISH & WILDLIFE SERVICES (USFWS)		
WV DEPT. NATURAL RESOURCES (WVDNR)		
WV DEPT. ENVIROMENTAL PROTECTION (WVDEP)		
STATE HISTORIC & PRESERVATION OFFICE (SHPO)		
OFFICE of LAND & STREAM (OLS)		
WVDOH		
Elevation Certificate		
DATE OF COMMISSION READING	2/15/2022	
DATE AVAILABLE TO BE GRANTED	3/7/2022	
PERMIT GRANTED		
COMPLETE		

7020 2450 0002 3081 7490

7019 2280 0000 5315 7985

7019 2280 0000 5315 7978

7019 2280 0000 5315 7992

Doddridge County Office of  
Emergency Management/Floodplain Management  
105 Court Street, Suite 3  
304-873-1343  
doddridgecountyfpm@gmail.com



Dear Sir or Ma'am,

February 7, 2022

You are receiving this letter because you have been identified as a land surface and/or mineral rights owner for property or adjacent property related to the proposed development/project identified by the following page.

No action is required of you. This letter is simply to inform you of the proposed development.

If you would like to comment on this proposed project, or would like additional information, you may contact the Doddridge County Floodplain Manager at the above address.

Respectfully yours,

A handwritten signature in cursive script, appearing to read 'George Eidel'.

George Eidel, CFM, OEM Director/Floodplain Manager

**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.

1. Article Addressed to:

**Rover Pipeline, LLC**  
**6051 Wallace Road, Suite 300**  
**Wexford, PA 15090**



9590 9402 4868 9032 9569 74

2. Article Number (Transfer from service label)

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

 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

- |  |   |
|--|---|
| <input type="checkbox"/> Adult Signature                               | <input type="checkbox"/> Priority Mail Express®                     |
| <input type="checkbox"/> Adult Signature Restricted Delivery           | <input type="checkbox"/> Registered Mail™                           |
| <input type="checkbox"/> Certified Mail®                               | <input type="checkbox"/> Registered Mail Restricted Delivery        |
| <input type="checkbox"/> Certified Mail Restricted Delivery            | <input type="checkbox"/> Return Receipt for Merchandise             |
| <input type="checkbox"/> Collect on Delivery                           | <input type="checkbox"/> Signature Confirmation™                    |
| <input type="checkbox"/> Collect on Delivery Restricted Delivery       | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> Insured Mail                                  |   |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) |   |

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.

1. Article Addressed to:

**Delbert E. Leatherman**  
**3009 Dogwood Road**  
**Bridgeport, WV 26330**



9590 9402 4868 9032 9570 01

2. Article Number (Transfer from service label)

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

 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

- |  |   |
|--|---|
| <input type="checkbox"/> Adult Signature                               | <input type="checkbox"/> Priority Mail Express®                     |
| <input type="checkbox"/> Adult Signature Restricted Delivery           | <input type="checkbox"/> Registered Mail™                           |
| <input type="checkbox"/> Certified Mail®                               | <input type="checkbox"/> Registered Mail Restricted Delivery        |
| <input type="checkbox"/> Certified Mail Restricted Delivery            | <input type="checkbox"/> Return Receipt for Merchandise             |
| <input type="checkbox"/> Collect on Delivery                           | <input type="checkbox"/> Signature Confirmation™                    |
| <input type="checkbox"/> Collect on Delivery Restricted Delivery       | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> Insured Mail                                  |   |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) |   |

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

Domestic Return Receipt



## Doddridge County Floodplain Permits

(Week of February 7, 2022)

Please take notice that on the (31<sup>st</sup>) of (January), 2022, (Antero Resources) filed an application for a Floodplain Permit (#22-608) to develop land located at or about (Morgans Run Road); Coordinates: 39.286667, -80.687822. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by (March 7, 2022) (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. This project is a slip repair

A handwritten signature in black ink, appearing to read "George C. Eidel", is written over the printed name.

GEORGE C. EIDEL, CFM

Doddridge County Floodplain Manager



**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.

1. Article Addressed to:

**Ronald M. & Jamie M. Hass**  
**130 L C Lane**  
**West Union, WV 26456**



9590 9402 4868 9032 9569 81

2. Article Number (Transfer from service label)

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

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

*Jamie M. Hass*  Agent  
 Addressee

B. Received by (Printed Name) *Jamie M. Hass* C. Date of Delivery *2/19/2022*

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

Domestic Return Receipt

7019 2280 0000 5315 7992

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

For delivery information, visit our website at [www.usps.com](http://www.usps.com)®.

**OFFICIAL USE**

Certified Mail Fee \$ **3.75**

- Extra Services & Fees (check box, add fees as appropriate)
- Return Receipt (hardcopy) \$ **3.85**
  - Return Receipt (electronic) \$
  - Certified Mail Restricted Delivery \$
  - Adult Signature Required \$
  - Adult Signature Restricted Delivery \$

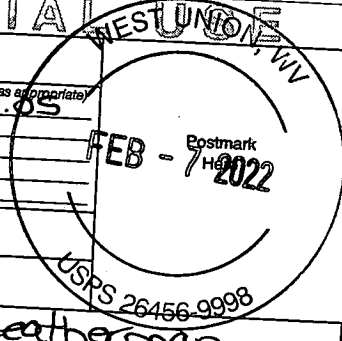
Postage \$ **.53**

Total Postage and Fees \$ **7.33**

Sent To **Delbert E. Leatherman**

Street and Apt. No., or PO Box No. **3009 Dogwood Rd.**  
 City, State, ZIP+4® **Bridgeport, WV 26330 22-608**

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



7019 2280 0000 5315 7985

**U.S. Postal Service™**  
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**OFFICIAL USE**

Certified Mail Fee \$ **3.75**

- Extra Services & Fees (check box, add fees as appropriate)
- Return Receipt (hardcopy) \$ **3.85**
  - Return Receipt (electronic) \$
  - Certified Mail Restricted Delivery \$
  - Adult Signature Required \$
  - Adult Signature Restricted Delivery \$

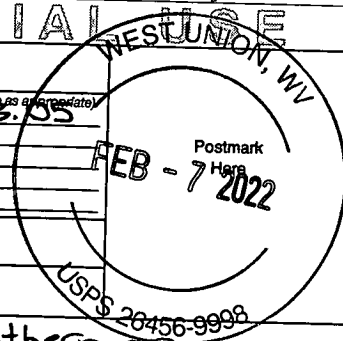
Postage \$ **.53**

Total Postage and Fees \$ **7.33**

Sent To **Donna Leatherman**

Street and Apt. No., or PO Box No. **627 Morgans Run Rd.**  
 City, State, ZIP+4® **West Union, WV 26456 22-608**

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





## Doddridge County Floodplain Permits

(Week of February 7, 2022)

Please take notice that on the (31<sup>st</sup>) of (January), 2022, (Antero Resources) filed an application for a Floodplain Permit (#22-608) to develop land located at or about (Morgans Run Road); Coordinates: 39.286667, -80.687822. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by (March 7, 2022) (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. **This project is**

a slip repair

A handwritten signature in black ink, appearing to read "George C. Eidel", written in a cursive style.

GEORGE C. EIDEL, CFM

Doddridge County Floodplain Manager

7019 2280 0000 5315 7978

U.S. Postal Service™  
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For delivery information, visit our website at [www.usps.com](http://www.usps.com)

**OFFICIAL USE**

Certified Mail Fee \$ 3.75

Extra Services & Fees (check box, add fees as appropriate)

Return Receipt (hardcopy) \$ 3.65

Return Receipt (electronic) \$ \_\_\_\_\_

Certified Mail Restricted Delivery \$ \_\_\_\_\_

Adult Signature Required \$ \_\_\_\_\_

Adult Signature Restricted Delivery \$ \_\_\_\_\_

Postage \$ .53

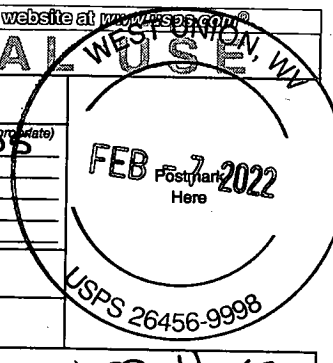
**Total Postage and Fees**  
 \$ 7.33

Sent To Ronald M. & Janniem. Hass

Street and Apt. No., or PO Box No.  
130 LC Lane

City, State, ZIP+4®  
West Union, WV 26456 22-608

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



7020 2450 0002 3081 7490

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

For delivery information, visit our website at [www.usps.com](http://www.usps.com)

**OFFICIAL USE**

Certified Mail Fee \$ 3.75

Extra Services & Fees (check box, add fees as appropriate)

Return Receipt (hardcopy) \$ 3.65

Return Receipt (electronic) \$ \_\_\_\_\_

Certified Mail Restricted Delivery \$ \_\_\_\_\_

Adult Signature Required \$ \_\_\_\_\_

Adult Signature Restricted Delivery \$ \_\_\_\_\_

Postage \$ .53

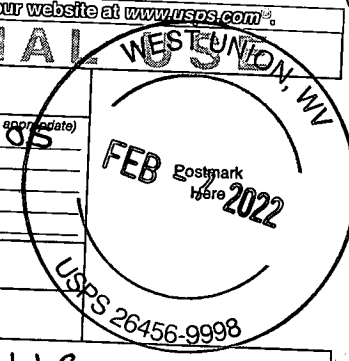
**Total Postage and Fees**  
 \$ 7.33

Sent To Rover Pipeline LLC

Street and Apt. No., or PO Box No.  
6051 Wallace Rd, Suite 300

City, State, ZIP+4®  
Westford, PA 15090 22-608

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





January 26, 2022

Doddridge County Commission  
Attn: George Eidel, Doddridge County Floodplain Manager  
118 East Court Street, Room 102  
West Union, WV 26456

JAN 22 9:06AM

Subject: Antero Resources Corporation  
Morgans Run Slips  
No-Rise Certificate  
Doddridge County, West Virginia  
CEC Project 316-793

Civil & Environmental Consultants, Inc. (CEC) is pleased to evaluate the potential floodplain impacts for the above referenced project on behalf of Antero Resources Corporation, 535 White Oaks Boulevard, Bridgeport, WV 26330. Antero Resources Corporation is proposing to repair a road slip that has formed in Doddridge County Route 20 (Morgan's Run Road). The project site is located within a Zone A Flood Zone as designated on FEMA's Flood Map 54017C0140C with an effective date of October 4, 2011.

The existing road will be repaired 20 feet past the scarp line in each direction for a total length of repair of 126 feet. The repairs will maintain the contours to near existing condition elevations. The road will be stabilized using plug pile wall, installation of guardrail, re-establishing the road with suitable materials, and providing proper drainage. Appropriate erosion control measures will be utilized to minimize the potential for sediment-laden waters leaving the limit of disturbance. As the site is restored to approximate original contours, the proposed slip repair will not result in a decrease of the available floodplain storage area and will not adversely affect the base flood elevation of Morgans Run.

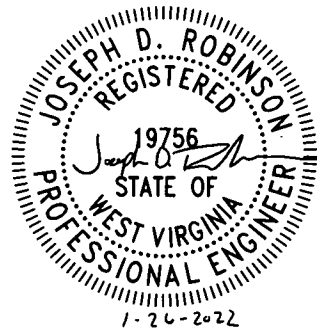
This no-rise certificate is provided in support of the floodplain development permit application. Your time and effort in reviewing this floodplain development permit application is appreciated. Please feel free to contact Joseph D. Robinson at 304-933-3119 or via e-mail at [jrobinson@cecinc.com](mailto:jrobinson@cecinc.com) if you have questions or need additional information.

Respectfully submitted,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Erasmo Rizo  
Senior Project Manager

Joseph D. Robinson, PE  
Vice Presiden



# ATTACHMENT A

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## *Floodplain Development Permit Application*



Permit# 22-608  
Project Name: Morgans Run Rd Slip Repair  
Permittees Name: Antero Resources

FEB 22 11:10 AM

## ***Doddridge County, WV***

# **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. The permit will expire if no work is commenced within six months of issuance.
5. Applicant is hereby informed that other permits may be required to fulfill local, state, and federal requirements.
6. Applicant hereby gives consent to the Floodplain Administrator/Manager or his/her representative to make inspections to verify compliance.
7. 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 *Daniel Bulian*

DATE 01.27.2022

**Doddridge County Commercial/Industrial  
Floodplain Development Permit Application**

**Applicant Information:**

*Please provide all pertinent data.*

<b>Applicant Information</b>		
<b>Responsible Company Name:</b> Antero Resources Corporation		
<b>Corporate Mailing Address:</b> 1615 Wynkoop Street		
<b>City:</b> Denver	<b>State:</b> CO	<b>Zip:</b> 80202
<b>Corporate Point of Contact (POC):</b> Luz Falcon-Martinez		
<b>Corporate POC Title:</b> Environmental & Regulatory Manager		
<b>Corporate POC Primary Phone:</b> (303) 357-6834		
<b>Corporate POC Primary Email:</b> lfalcon@anteroresources.com		
<b>Corporate FEIN:</b> 80-0162034	<b>Corporate DUNS:</b>	
<b>Corporate Website:</b> <a href="https://www.anteroresources.com/">https://www.anteroresources.com/</a>		
<b>Local Mailing Address:</b> 535 White Oaks Boulevard		
<b>City:</b> Bridgeport	<b>State:</b> WV	<b>Zip:</b> 26330
<b>Local Project Manager (PM):</b> Mr. Daniel Bulian		
<b>Local PM Primary Phone:</b> Office: (304) 842-4093		
<b>Local PM Secondary Phone:</b> Cell: (304) 579-3666		
<b>Local PM Primary Email:</b> dbulian@anteroresources.com		
<b>Person Filing Application:</b> Mr. Daniel Bulian		
<b>Applicant Title:</b> Environmental Specialist III		
<b>Applicant Primary Phone:</b> Office: (304) 842-4093		
<b>Applicant Secondary Phone:</b> Cell: (304) 579-3666		
<b>Applicant Primary Email:</b> dbulian@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:**

Antero Resources Corporation is proposing to repair a road slip that has formed in Doddridge County Route 20 (Morgan's Run Road). The limit of disturbance (LOD) is 0.16-acre.

The existing road will be repaired 20 feet past the scarp line in each direction for a total length of repair of 126 LF. The repairs will maintain the contours to near existing condition elevations. The road will be stabilized using plug pile wall, installation of guardrail, re-establishing the road with suitable materials, and providing proper drainage. Appropriate erosion control measures will be utilized to minimize the potential for sediment laden waters leaving the LOD.

The project is located within a Federal Emergency Management Agency mapped flood hazard area, as shown on the mapping in Attachment B (FIRM map 54017C0140C); the Site Plans are included as Attachment C.



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**

<u>ACTIVITY</u>		<u>STRUCTURAL TYPE</u>	
<input type="checkbox"/>	New Structure	<input type="checkbox"/>	Residential (1 – 4 Family)
<input type="checkbox"/>	Addition	<input type="checkbox"/>	Residential (more than 4 Family)
<input type="checkbox"/>	Alteration	<input type="checkbox"/>	Non-residential (floodproofing)
<input type="checkbox"/>	Relocation	<input type="checkbox"/>	Combined Use (res. & com.)
<input type="checkbox"/>	Demolition	<input type="checkbox"/>	Replacement
<input type="checkbox"/>	Manufactured/Mobil Home		

**B. OTHER DEVELOPMENT 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)  
 Road, Street, or Bridge Construction  
 Subdivision (including new expansion)  
 Individual Water or Sewer System  
 Other (please specify)

Slip repair along roadway

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**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 \_\_2\_\_**

<b>Site/Property Information:</b>		
<b>Legal Description: 80 AC Morgans Run</b>		
<b>Physical Address/911 Address: 130 L C LN, West Union, WV 26456</b>		
<b>Decimal Latitude/Longitude: 39.286504, -80.688041</b>		
<b>DMS Latitude/Longitude: 39°17'11.41" N, 80°41'16.95" W</b>		
<b>District: 3</b>	<b>Map: 16</b>	<b>Parcel: 15.2</b>
<b>Land Book Description:</b>		
<b>Deed Book Reference: Deed Book 378 Page 704</b>		
<b>Tax Map Reference: 09-03-0016-0015-0002</b>		
<b>Existing Buildings/Use of Property: Wooded and pastured</b>		

Doddridge County Commercial/Industrial  
Floodplain Development Permit Application

Property Designation:   2   of   2  

<b>Site/Property Information:</b>		
Legal Description: Morgans Run 208.53 AC INT O&G		
Physical Address/911 Address: RT 20 Morgans Run Rd, West Union, WV 26456		
Decimal Latitude/Longitude: 39.286686, -80.688426		
DMS Latitude/Longitude: 39°17'12.07" N, 80°41'18.33" W		
District: 3	Map: 16	Parcel: 15
Land Book Description:		
Deed Book Reference: Deed Book 214 Page 444		
Tax Map Reference: 09-03-0016-0015-0000		
Existing Buildings/Use of Property: Wooded and pastured, roads		

<b>Floodplain Location Data: (to be completed by Floodplain Manager or designee)</b>			
Community:	Number:	Panel:	Suffix:
Location (Lat/Long):		Approximate Elevation:	
		Estimated BFE:	
Is the development in the floodway? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is the development in the floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> 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: <u>  1  </u> of <u>  2  </u>
--

<b>Property Owner Data:</b>		
Name of Primary Owner (PO): Hass Ronald M & Jamie M (Surv.)		
PO Address: 130 L C Ln		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Surface Rights Owner Data:</b>		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Mineral Rights Owner Data: (As Applicable)</b>		
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 Designation: 2 of 2

**Property Owner Data:**

Name of Primary Owner (PO): Leatherman, Delbert E. Et. Al.

PO Address: 3009 Dogwood Rd

City: Bridgeport

State: WV

Zip: 26330

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.*

<b>Property Designation: ___ of ___</b>		
<b>Contractor/Sub-Contractor (C/SC) Information:</b>		
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:		

<b>Engineer Firm Information:</b>		
Engineer Firm Name: Civil & Environmental Consultants, Inc.		
Engineer WV License Number: 0402053304		
Engineer Firm FEIN:	Engineer Firm DUNS:	
Engineer Firm Primary Point of Contact (POC): Joseph D. Robinson		
Engineer Firm Primary POC Title: Vice President		
Engineer Firm Mailing Address: 120 Genesis Boulevard		
City: Bridgeport	State: WV	Zip-Code: 26330
Engineer Firm Office Phone: 304-933-3119		
Engineer Firm Primary POC Phone: 304-848-7134		
Engineer Firm Primary POC E-Mail: jrobinson@cecinc.com		

### 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.*

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Leatherman Donna		
Physical Address: 627 Morgans Run Rd		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Rover Pipeline LLC		
Physical Address: 6051 Wallace Rd Suite 300		
City: Wexford	State: PA	Zip: 15090
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 will be properly attained, are current and valid, and must be presented prior to a Doddridge County Floodplain Permit being 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 or 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. 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.**
- 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 Doddridge County Floodplain Manager and that I must stop all construction immediately until discrepancies of actual work vs. proposed work is resolved.

Applicant Signature: Daniel Bulian Date: 01.27.2022

Applicant Printed Name: Daniel J Bulian

# ATTACHMENT B

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## *Floodplain Mapping*

# National Flood Hazard Layer FIRMette



80°41'37"W 39°17'26"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

<b>SPECIAL FLOOD HAZARD AREAS</b>		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway

<b>OTHER AREAS OF FLOOD HAZARD</b>		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

<b>OTHER AREAS</b>		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
<b>GENERAL STRUCTURES</b>		Area of Undetermined Flood Hazard Zone

<b>GENERAL STRUCTURES</b>		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

<b>OTHER FEATURES</b>		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
<b>OTHER FEATURES</b>		Profile Baseline
		Hydrographic Feature

<b>MAP PANELS</b>		Digital Data Available
		No Digital Data Available
		Unmapped



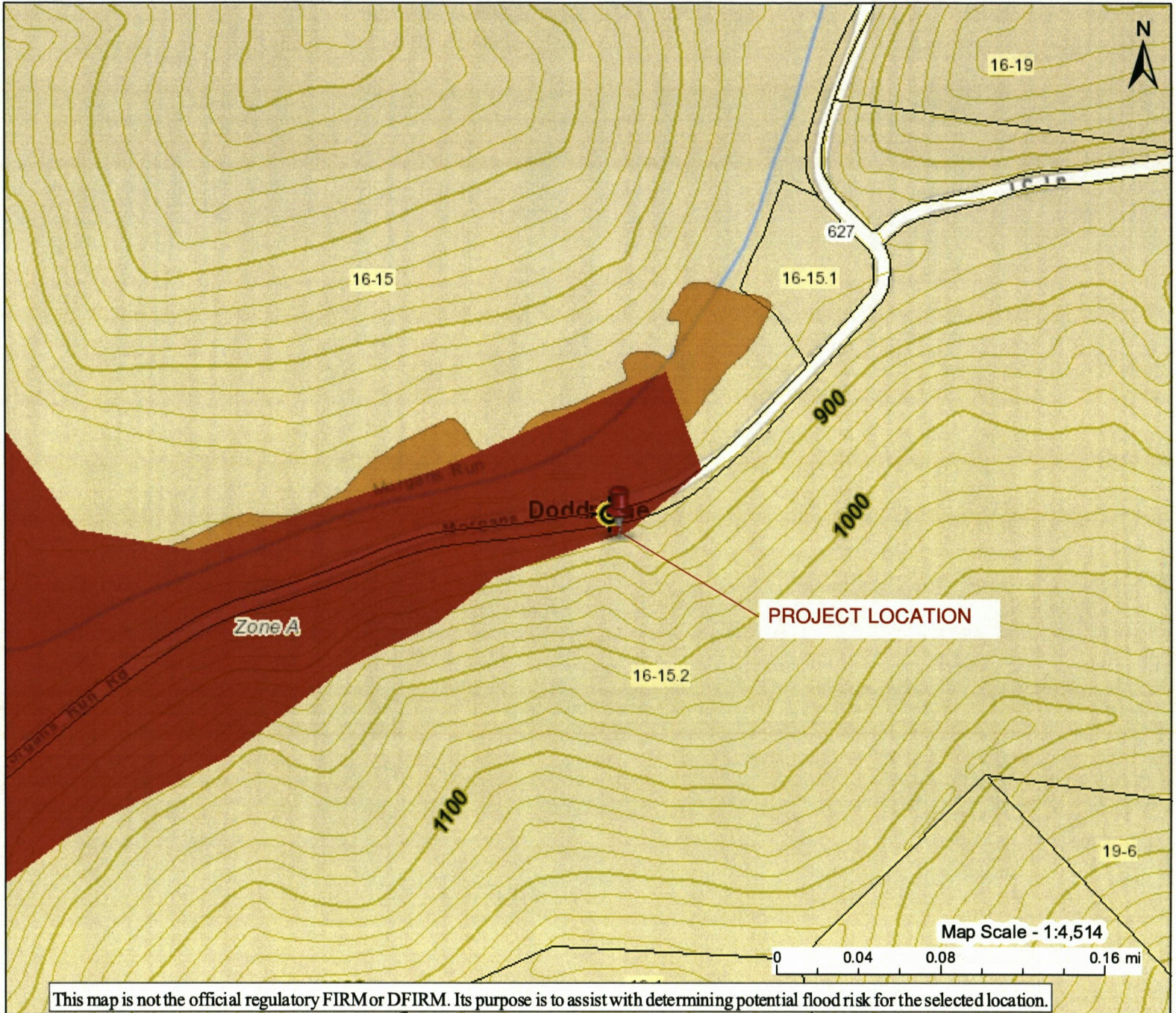
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/24/2022 at 9:10 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# WV Flood Map



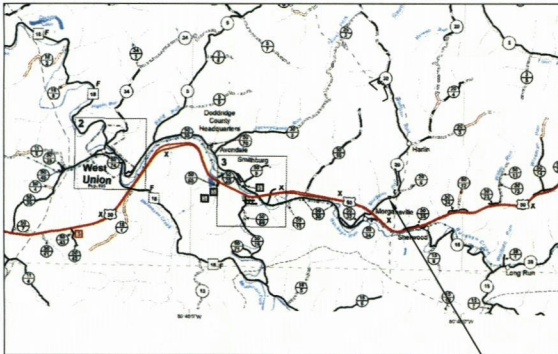
This map is not the official regulatory FIRM or DFIRM. Its purpose is to assist with determining potential flood risk for the selected location.

H I G H  R I S K		Regulatory Floodway	• Flood Info Location <span style="float: right;">Map created on 1/26/2022</span>
	<b>User Notes</b>		
	Zone AE	1-Percent-Annual-Chance Flood Hazard Area With Base Flood Elevation (BFE)	Flood Hazard Area Location is <b>WITHIN</b> the FEMA 100-year floodplain.
	Zone A	1-Percent-Annual-Chance Flood Hazard Area Without BFE (may have Advisory Flood Heights)	Flood Zone A Stream Morgans Run Watershed (HUC8) Little Musringum-Middle Island (5030201)
Advisory	1-Percent-Annual-Chance Future Conditions (High Risk Advisory Flood Zones)	Flood Height Flood Height 6b None Water Depth Elevation 847.1 ft (Source: FEMA 2018-20) (NAVD88) Community & ID Doddridge County (ID: 540024) FEMA Map & Date 54017C0140C; Effective Date: 10/4/2011 Location (lat, long) (39.286667, -80.687822) (WGS84) Parcel ID No Parcel E-911 Address	
Download the Full Legend for all flood tool symbols <a href="https://www.mapwv.gov/flood/map/docs/wv_flood_tool_legend.pdf">https://www.mapwv.gov/flood/map/docs/wv_flood_tool_legend.pdf</a>			
<b>Disclaimer:</b> 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. Refer to the official Flood Insurance Study (FIS) for detailed flood elevation data in flood profiles and data tables. WV Flood Tool ( <a href="https://www.MapWV.gov/flood">https://www.MapWV.gov/flood</a> ) is supported by FEMA, WV NFIP Office, and WV GIS Technical Center.			

# ATTACHMENT C

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*Site Plans*



COUNTY HIGHWAY MAP  
1 INCH = 1 MILE



PROJECT LOCATION

# FINAL DESIGN

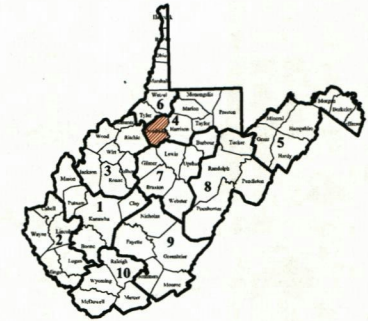


## MORGAN'S RUN ROAD SLIP REPAIR - C.R. 20 MP 0.418

MORGANSVILLE, DODDRIDGE COUNTY, WEST VIRGINIA

NOVEMBER 2021

BEGIN PROJECT - LAT: 39.286583/LONG: -80.688481  
END PROJECT - LAT: 39.286663/LONG: -80.687747

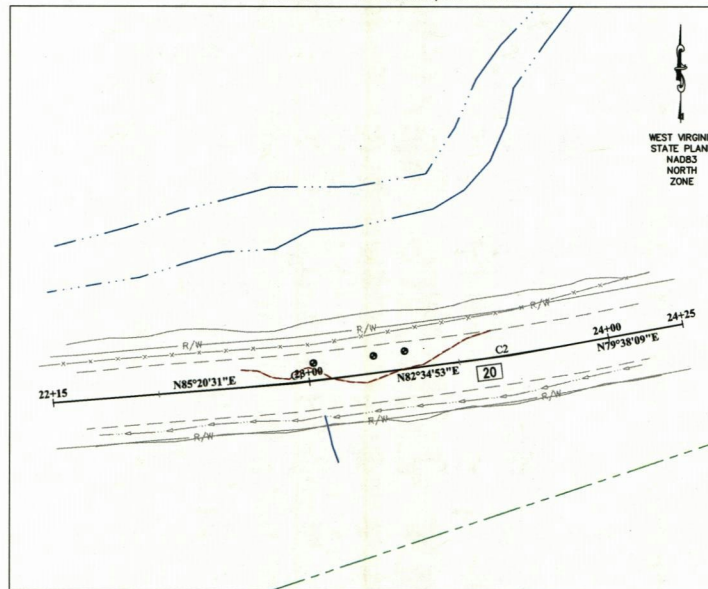


WEST VIRGINIA DOH DISTRICT MAP  
NOT TO SCALE



DISTURBED ACREAGE  
0.157 ACRES

SURFACE EASEMENT OUTSIDE RIGHT-OF-WAY						
DESCRIPTION	OWNER	APN	TYPE OF EASEMENT	TOTAL EASEMENT (SF)	STATION	STATION
	LEATHERMAN		TCE	571	22+52.92	23+78.88



WEST VIRGINIA  
STATE PLANE  
NAD83  
NORTH  
ZONE

SEE SHEET 7

DISTURBANCE AREA OUTSIDE RIGHT-OF-WAY			
DESCRIPTION	TOTAL AREA (SF)	TOTAL AREA (AC)	AREAS STATION/STATION
PROJECT WIDE	571	0.013	22+52.92-23+78.88

FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN A FLOODPLAIN?	YES
PERMIT RECEIVED FROM COUNTY FLOODPLAIN COORDINATOR?	YES
FLOOD HAZARD ZONED?	YES
HEC-RAS STUDY COMPLETED?	NO
FLOODPLAIN SHOWN ON DRAWINGS?	YES
FIRM MAP NUMBER(S) FOR THIS SITE:	54207C0140C
AREA OF RIGHT-OF-WAY IN FLOOD HAZARD AREA:	0.14 ACRES



THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE THAN TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION. WEST VIRGINIA STATE LAW REQUIRES 2 WORKING DAYS NOTICE (B24C-1-1 TO B24C-1-8 OF THE WEST VIRGINIA CODE).

CALL BEFORE YOU DIG IN WEST VIRGINIA  
MISS UTILITY: 811 OR 1-800-245-4848

INDEX OF SHEETS	
COVER SHEET	1
GENERAL NOTES	2
SUMMARY OF ESTIMATED QUANTITIES	3
TYPICAL SECTION AND DETAILS	4
CORE BORING LOGS	5
EXISTING CONDITIONS	6
PLUG PILE WALL PLAN	7
PLUG PILE WALL PROFILE	8
MAINTENANCE OF TRAFFIC PLAN	9
EROSION & SEDIMENT CONTROL NOTES	10-11
EROSION & SEDIMENT CONTROL DETAILS	12
EROSION & SEDIMENT CONTROL PLAN	13
CROSS SECTIONS	14-16

### OWNER/DEVELOPER

ANTERO RESOURCES  
JOHN DEFOY  
ROADWAY ENGINEER MANAGER  
740-768-1887  
jdefoy@anteroresources.com

### ENGINEER/SURVEYOR

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.  
GREG LINDER  
PRINCIPAL  
304-848-7104  
glinder@cecinc.com

**FINAL DESIGN  
ISSUE FOR BID  
2021-12-14**



APPROVED FOR PERMITS: DATE: \_\_\_\_\_  
APPROVED FOR BIDS: DATE: \_\_\_\_\_  
BY: \_\_\_\_\_ FOR CONTRACTED DATE: \_\_\_\_\_  
BY: \_\_\_\_\_

**CEC**  
Civil & Environmental Consultants, Inc.  
1300 Business Center Blvd., Morgantown, WV 26505  
P.O. Box 202121 | 304-848-7104  
www.cecinc.com

NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

ANTERO RESOURCES CORPORATION  
DODDRIDGE COUNTY ROUTE 20  
MORGAN'S RUN SLIP REPAIR  
COVER SHEET



SHEET No.  
**1**

CAD FILE: P:\310-000-018-7931-CADD\DWG\1001-dwg (1/19/2021) SLIP - COVER.dwg  
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# PAGE INTENTIONALLY LEFT BLANK FOR SUMMARY OF ESTIMATED QUANTITIES

TO BE ADDED AFTER BIDDING

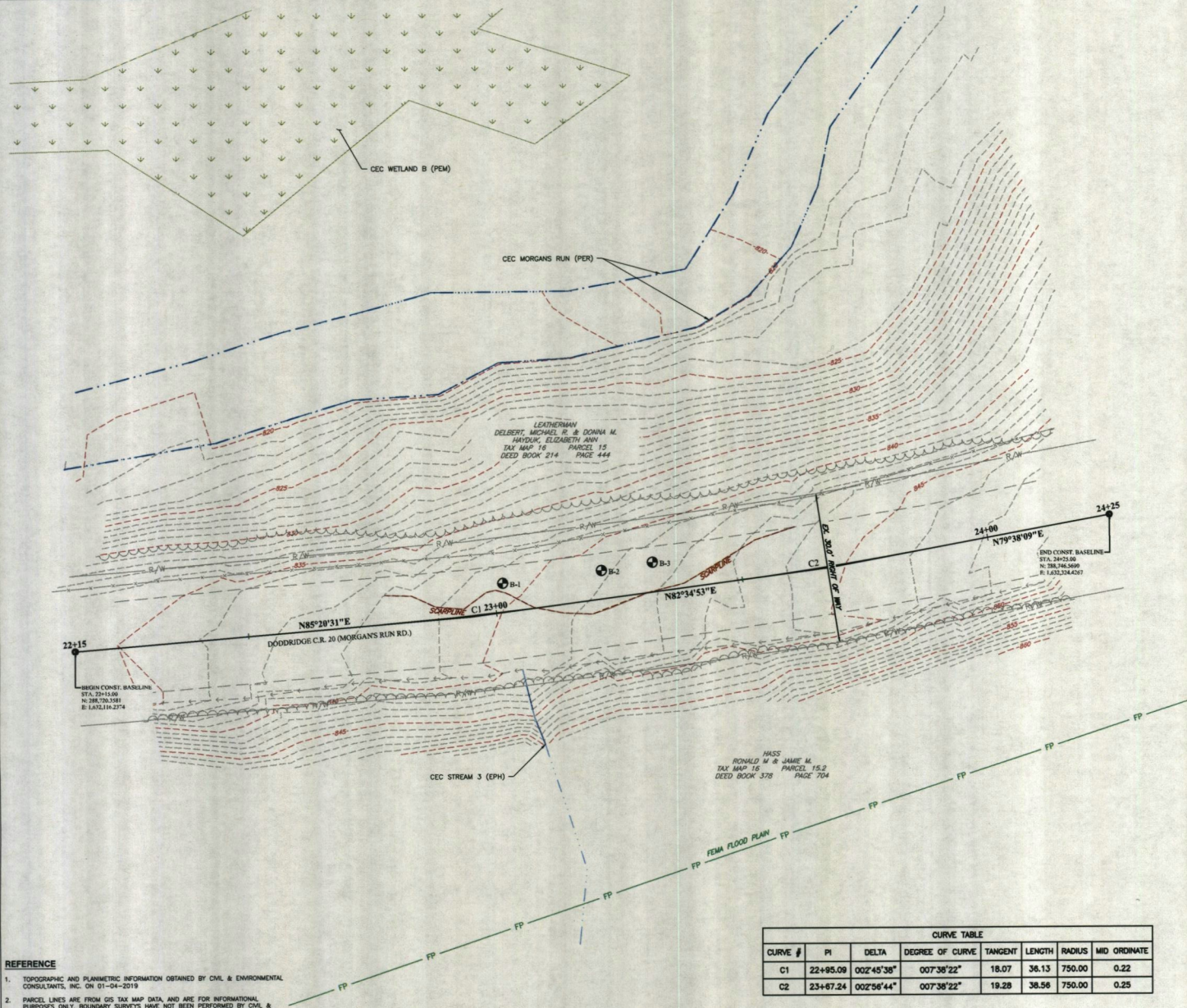
SHEET No.	<b>3</b>		
ANTERO RESOURCES CORPORATION DODDRIDGE COUNTY ROUTE 20 MORGANS RUN SLIP REPAIR SUMMARY OF ESTIMATED QUANTITIES			
	NO.	BY	DATE
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
DESCRIPTION			
 EEB Civil & Environmental Consultants, Inc. 110 South Riverport, Morgans Run 28269 Phone: 843.224.1111 Fax: 843.224.1121 www.eeb.com			
APPROVED FOR PERMITS BY: _____ DATE: _____		APPROVED FOR BIDS BY: _____ DATE: _____	
APPROVED FOR CONSTRUCTION BY: _____ DATE: _____		 Antero Resources	







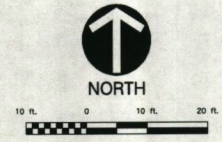
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 PLOT DATE/TIME: 1/29/2023 1:53 PM



PLAN LEGEND	
	PROPERTY LINE
	EXISTING FENCE
	EXISTING RIGHT OF WAY
	EXISTING DELINEATED STREAM - PERMANENT
	EXISTING FEMA FLOODPLAIN
	EXISTING CONTOURS
	EXISTING ROAD EDGE
	EXISTING SCARP LINE
	EXISTING SWALE/TYPICAL
	BORE HOLE

- REFERENCE**
1. TOPOGRAPHIC AND PLANIMETRIC INFORMATION OBTAINED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 01-04-2019
  2. PARCEL LINES ARE FROM GIS TAX MAP DATA AND ARE FOR INFORMATIONAL PURPOSES ONLY. BOUNDARY SURVEYS HAVE NOT BEEN PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
  3. DELINEATION PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 10/28/2021.

CURVE TABLE							
CURVE #	PI	DELTA	DEGREE OF CURVE	TANGENT	LENGTH	RADIUS	MID ORDINATE
C1	22+95.09	002°45'38"	007°38'22"	18.07	36.13	750.00	0.22
C2	23+67.24	002°56'44"	007°38'22"	19.28	38.56	750.00	0.25



APPROVED FOR PERMITS	DATE
BY: _____	DATE: _____

**Civil & Environmental Consultants, Inc.**
  
 10000 W. 10th Street, Suite 100
   
 Denver, CO 80202
   
 Phone: 303.440.1118 Fax: 303.440.1127

NO.	DATE	DESCRIPTION

NO.	DATE	DESCRIPTION

ANTERO RESOURCES CORPORATION  
 DODDRIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 EXISTING CONDITIONS

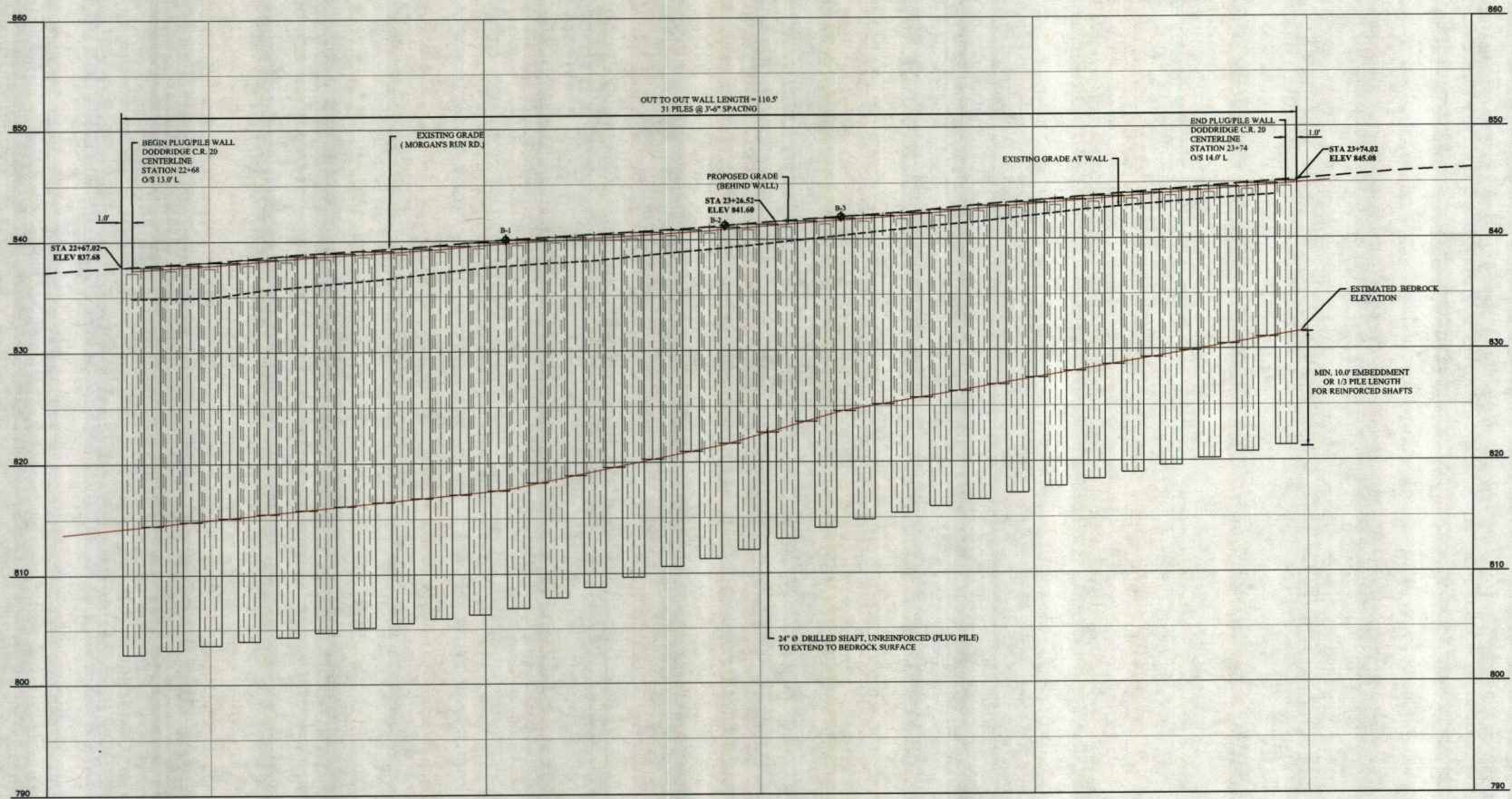
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CADD FILE: P:\310-000\310-203\310-203-CADD\DWG\WALL\310203-1001\_SIP\_1-022022.dwg PLOT DATE/TIME: 1/29/2022 11:54 PM

**PROFILE LEGEND**

- EXISTING GROUND AT CENTERLINE OF ROAD
- - - EXISTING GROUND AT CENTERLINE OF WALL
- BEDROCK ELEVATION
- PROPOSED GRADE



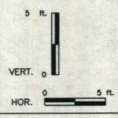
APPROVED FOR PERMITS	DATE
APPROVED FOR BIDS	DATE
APPROVED FOR CONSTRUCTION	DATE

**CEE**  
 Civil & Environmental Consultants, Inc.  
 P.O. BOX 243118 • MOBILE, AL 36624-3118  
 TEL: 251-938-2277

NO.	BY	DATE	DESCRIPTION

ANTERO RESOURCES CORPORATION  
 DODDRIIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 PLUG PILE WALL PROFILE

SHEET No.  
**8**





**EROSION CONTROL NOTES**

- EROSION AND SEDIMENT CONTROL NEEDS-404S (ANTERO INSTALLED EROSION AND SEDIMENT CONTROL S) WILL BE INSTALLED BEFORE ANY WORK IS TO TAKE PLACE. THESE CONTROLS MAY VARY AND CONTRACTOR SHALL CONFIRM WITH ANTERO RESOURCES THAT ALL 404S ARE IN PLACE AND FUNCTIONAL BEFORE THEY COMMENCE WITH CONSTRUCTION.
- ALL PROPERTIES ADJACENT TO THE SITE OF SOIL-DISTURBING ACTIVITY SHALL BE PROTECTED TO THE MAXIMUM EXTENT PRACTICABLE FROM SOIL EROSION AND SEDIMENT RUNOFF AND DRAINAGE, INCLUDING, BUT NOT LIMITED TO PRIVATE PROPERTIES, NATURAL AND ARTIFICIAL WATERWAYS, WETLANDS, STORM SEWERS AND PUBLIC LANDS.
- CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL PRACTICES USED TO SATISFY THIS REQUIREMENT SHALL CONFORM, AS A MINIMUM, TO STATE OF WEST VIRGINIA STANDARDS AS SET FORTH IN THE MOST-CURRENT EDITION OF THE WEST VIRGINIA BEST MANAGEMENT PRACTICES MANUAL, DEFINED BY THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION.
- CIVIL & ENVIRONMENTAL CONSULTANTS INC. ANTICIPATES OBTAINING, WITH A REASONABLE DEGREE OF CERTAINTY EROSION AND SEDIMENT CONTROL PLAN APPROVALS IN ACCORDANCE WITH THESE RULES, AND ALL OTHER NECESSARY PERMITS AND OR APPROVALS FROM FEDERAL STATE, AND/OR COUNTY AGENCIES. IF REQUIREMENTS VARY, THE MOST STRINGENT REQUIREMENTS SHALL BE FOLLOWED.
- EROSION AND SEDIMENT CONTROL PRACTICES AT THE SITE, AND AS IDENTIFIED IN THE ESC PLAN SHALL COMPLY WITH THE FOLLOWING:
  - AN APPROVED EROSION AND SEDIMENT CONTROL PLAN OR APPROVAL LETTER FROM THE WV DEP SHALL BE LOCATED ON SITE FOR REVIEW.
  - LIMITS TO CLEARING AND GRADING SHALL BE SHOWN ON ESC PLANS. LIMITS TO CLEARING AND GRADING SHALL BE CLEARLY MARKED ON SITE WITH SIGNAGE, FLAGGING, AND/OR FENCING ETC.
  - INSTALLING EROSION AND SEDIMENT PERIMETER CONTROLS AS A FIRST ACTION OF CONSTRUCTION AS SPECIFIED BY CONSTRUCTION SEQUENCE. THIS SHALL INCLUDE AND IS NOT LIMITED TO PROTECTIVE BMPs FOR STREAM CORRIDORS AND CROSSINGS, WETLANDS, SITE ENTRANCE, SEDIMENT TRAPS & BASINS, BARRIERS, AND/OR DEFENSIVE DIKES.
  - CONCENTRATED STORM WATER RUNOFF SHALL PASS THROUGH A SEDIMENT CONTROL DEVICE BEFORE EXITING THE SITE BOUNDARIES. CONCENTRATED RUNOFF FROM BARE SOIL AREAS SHALL BE DIVERTED INTO A SETTLING POND OR SEDIMENT CONTROL STRUCTURE, OR OTHER APPROVED SEDIMENT BARRIER BEFORE LEAVING THE SITE.
  - EARTHEN STRUCTURES SUCH AS DAMS, BASINS, STREAM MODIFICATIONS AND WATER DIVERSIONS SHALL BE SEEDED AND MULCHED WITHIN FOUR (4) DAYS OF THE COMPLETION OF INSTALLATION. DAMS SHALL CONFORM TO THE WEST VIRGINIA DAM SAFETY LAWS (WV CODE CHAPTER 22, ARTICLE 14, DAM CONTROL AND SAFETY ACT)
  - STABILIZATION OF CRITICAL AREAS WITHIN 50 FEET OF ANY STREAM OR WETLAND SHALL BE TEMPORARILY STABILIZED WITHIN TWO (2) DAYS OF DISTURBANCE IF AREAS WILL REMAIN INACTIVE FOR SEVEN (7) DAYS OR LONGER. CONSTRUCTION VEHICLES SHALL AVOID STREAMS AND THE 30 FOOT BUFFER AREAS. IF AN ACTIVE DRAINAGE WAY MUST BE CROSSED BY CONSTRUCTION VEHICLES REPEATEDLY DURING CONSTRUCTION, A TEMPORARY STREAM CROSSING SHALL BE CONSTRUCTED ACCORDING TO THE SPECIFICATIONS IN THE WEST VIRGINIA BEST MANAGEMENT PRACTICES MANUAL. CONSTRUCTION OF BRIDGES, CULVERTS OR SEDIMENT CONTROL STRUCTURES SHALL NOT PLACE SOIL, DEBRIS AND OTHER FINE PARTICULATE MATERIAL INTO OR CLOSE TO THE WATER RESOURCES IN SUCH A MANNER THAT IT MAY SLOUGH, SLIP OR ERODE.
  - STORM SEWER INLETS SHALL BE PROTECTED SO THAT SEDIMENT-LOADED RUNOFF WILL NOT ENTER THE STORM SEWER SYSTEM WITHOUT FIRST BEING FILTERED AND/OR TREATED. SANITARY SEWER MANHOLES SHALL BE PROTECTED SO THAT NO STORM RUNOFF WILL ENTER THE SANITARY SEWER SYSTEM.
  - RE-VEGETATE SOIL. TEMPORARY SOIL STABILIZATION SHALL OCCUR WITHIN FOUR (4) DAYS AFTER ROUGH GRADING IF THE AREA WILL REMAIN IDLE LONGER THAN FOURTEEN (14) DAYS. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN FOUR (4) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. PERMANENT VEGETATION IS A GROUND COVER DENSE ENOUGH TO COVER 80% OF THE SOIL SURFACE AND MATURE ENOUGH TO SURVIVE WINTER WEATHER CONDITIONS.
  - SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED TO PREVENT SOIL LOSS. STABILIZATION SHALL BE REQUIRED IF STOCKPILES ARE LOCATED WITHIN CRITICAL AREAS NEAR STREAMS OR WETLANDS, OR IF DETERMINED BY THE WV DEP THAT SEDIMENT FROM STOCKPILES WILL LEAVE THE SITE.
  - UNSTABLE SOILS PRONE TO SLIPPING OR SLOUGHING SHALL NOT BE CLEARED, GRADED, EXCAVATED, FILLED OR HAVE LOADS IMPOSED UPON THEM UNLESS THE WORK IS PLANNED BY A QUALIFIED PROFESSIONAL ENGINEER AND INSTALLED IN ACCORDANCE WITH THE ESC PLAN. CUT AND FILL SLOPES SHOULD BE DESIGNED TO MINIMIZE EROSION PROBLEMS. ADEQUATE SLOPE DESIGN INCLUDES USE OF ROUGH SOIL SURFACE ALONG THE FACE OF THE SLOPE, WATER DIVERSION ALONG THE TOP OF THE SLOPE AWAY FROM THE FACE, TERRACES TO REDUCE SLOPE LENGTH, DELIVERY OF CONCENTRATED STORM WATER FLOWS TO THE BASE OF THE SLOPE VIA ADEQUATE CHANNEL OR PIPE, AND DRAINAGE FOR WATER SEEPS IN THE SLOPE THAT ENDANGER SLOPE STABILITY.
  - SOIL SHALL BE REMOVED FROM PAVED SURFACES AND/OR PUBLIC ROADS AT THE END OF EACH DAY IN SUCH A MANNER THAT DOES NOT CREATE OFF-SITE SEDIMENTATION IN ORDER TO ENSURE SAFETY AND ABATE OFF-SITE SOIL LOSS. COLLECTED SEDIMENTS SHALL BE PLACED IN STABLE LOCATION.
  - STABILIZED DISTURBED OR MODIFIED DRAINAGE WAYS REDUCE EROSION EFFECTS OF STORM WATER BY USING AND/OR MAINTAINING GRASSSED SWALES, INFILTRATED STRUCTURES, OR WATER DIVERSIONS.
  - SEDIMENT AND EROSION CONTROLS SHALL BE INSPECTED ONCE EVERY FOUR (4) DAYS AND WITHIN 24 HOURS OF A 0.25" OR GREATER RAINFALL EVENT. ANTERO WILL UTILIZE THE NEAREST WEATHER GAUGE VIA WEATHER UNDERGROUND OR NOAA. A WRITTEN LOG OF THESE INSPECTIONS AND IMPROVEMENTS TO CONTROLS SHALL BE KEPT ON SITE. THE INSPECTIONS SHALL INCLUDE THE DATE OF INSPECTION, NAME OF INSPECTOR, WEATHER CONDITIONS, OBSERVATIONS, ACTIONS TAKEN TO CORRECT THE PROBLEMS AND THE DATE OF CORRECTIVE ACTIONS WERE TAKEN.
  - TRENCHES FOR UNDERGROUND UTILITY LINES AND PIPES SHALL BE TEMPORARILY STABILIZED WITHIN FOUR (4) DAYS IF THEY ARE TO REMAIN INACTIVE FOR THIRTY DAYS (90). TRENCH DEPTH DRAINAGE DEVICES SHALL DISCHARGE IN A MANNER THAT FILTERS SOIL-LOADED WATER BEFORE DISCHARGING IT TO A RECEIVING DRAINAGE DITCH OR POND, IF SEEDING, MULCHING, OR OTHER EROSION AND SEDIMENT CONTROL MEASURES WERE PREVIOUSLY INSTALLED, THESE PROTECTIVE MEASURES SHALL BE REINSTITALLED.
  - DISTURBED AREAS WHICH WILL REMAIN UNWORKED FOR A PERIOD OF 14 DAYS OR MORE SHALL BE STABILIZED WITH SEEDING AND MULCHING OR OTHER APPROPRIATE MEANS WITHIN FOUR (4) DAYS.
  - SOLID, SANITARY AND TOXIC WASTE MUST BE DISPOSED OF IN A PROPER MANNER IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IT IS PROHIBITED TO BURN, BURY OR POKE OUT ONTO THE GROUND OR INTO THE STORM SEWER, ANY SOLVENTS, PAINTS, STAINS, GASOLINE, DIESEL FUEL, USED MOTOR OIL, HYDRAULIC FLUID, ANTIFREEZE, CEMENT CURING COMPOUNDS OR OTHER SUCH TOXIC OR HAZARDOUS WASTES. STORAGE TANKS SHOULD BE LOCATED IN DIKED AREAS AWAY FROM ANY DRAINAGE CHANNELS. THE DIKED AREA SHOULD HOLD A VOLUME 10% OF THE LARGEST TANK.
  - OFF-SITE VEHICLE TRACKING OF SEDIMENT SHALL BE MINIMIZED. CONSTRUCTION VEHICLES ARE LIMITED TO THE CONSTRUCTION ACCESS ROADS AND MAINTENANCE OF ROCK CONSTRUCTION ENTRANCE.
  - ALL EROSION AND SEDIMENT CONTROL PRACTICES MUST MEET THE STANDARDS AND SPECIFICATIONS OF THE WEST VIRGINIA BEST MANAGEMENT PRACTICES MANUAL. (LATEST EDITION)
  - OTHER EROSION AND SEDIMENT CONTROL ITEMS MAY BE NECESSARY DUE TO THE ENVIRONMENTAL CONDITIONS.
  - WINTERIZATION: ANY DISTURBED AREA THAT IS NOT GOING TO BE WORKED FOR 14 DAYS OR MORE MUST BE SEEDED AND MULCHED BY NOVEMBER 1 OR MUST HAVE A DORMANT SEEDING OR MULCH COVER APPLIED BETWEEN NOVEMBER 1 AND MARCH 1.
  - CONCRETE CEMENT IS TO BE TAKEN BACK TO PLANT FOR WASHOUT AND RECYCLING OR DESKURATED AREAS ON SITE FOR CONCRETE WASHOUT ARE TO BE USED.

**ADDITIONAL CONSTRUCTION SITE POLLUTION CONTROLS**

- CONSTRUCTION PERSONNEL, INCLUDING SUBCONTRACTORS WHO MAY USE OR HANDLE HAZARDOUS OR TOXIC MATERIALS, SHALL BE MADE AWARE OF THE FOLLOWING GENERAL GUIDELINES REGARDING DISPOSAL AND HANDLING OF HAZARDOUS AND CONSTRUCTION WASTES.
  - \*PREVENT SPILLS
  - \*USE PRODUCTS UP
  - \*REMOVE LIDS FROM EMPTY BOTTLES AND CANS WHEN DISPOSING IN TRASH
  - \*DON'T POUR INTO WATERWAYS, STORM DRAINS OR ONTO THE GROUND
  - \*DON'T BURY CHEMICALS OR CONTAINERS
  - \*DON'T POUR DOWN THE SINK, FLOOR DRAIN OR SEPTIC TANKS
  - \*DON'T BURN CHEMICALS OR CONTAINERS
  - \*DON'T MIX CHEMICALS TOGETHER
- CONTAINERS SHALL BE PROVIDED FOR THE PROPER COLLECTION OF ALL WASTE MATERIAL INCLUDING CONSTRUCTION DEBRIS, TRASH, PETROLEUM PRODUCTS AND ANY HAZARDOUS MATERIALS. CONTAINERS SHALL BE COVERED AND NOT LEAKING. ALL WASTE MATERIAL SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THAT MATERIAL HANDLING CONSTRUCTION DEMOLITION AND DEBRIS (CDAD) WASTE MUST BE DISPOSED OF AT A WEST VIRGINIA DEP APPROVED CDAD LANDFILL.
- NO CONSTRUCTION RELATED WASTE MATERIALS ARE TO BE BURIED ON-SITE BY EXCEPTION, CLEAN FILL (BRICK, HARDENED CONCRETE, SOIL) MAY BE UTILIZED IN A WAY WHICH DOES NOT ENCRUCH UPON NATURAL WETLANDS, STREAMS OR FLOODPLAINS OR RESULT IN THE CONTAMINATION OF WATERS OF THE STATE.
- HANDLING CONSTRUCTION CHEMICALS: MIXING, PUMPING, TRANSFERRING OR OTHER HANDLING OF CONSTRUCTION CHEMICALS SUCH AS FERTILIZER, LIME, ASPHALT, CONCRETE DRYING COMPOUNDS, AND ALL OTHER POTENTIALLY HAZARDOUS MATERIALS SHALL BE PERFORMED IN AN AREA AWAY FROM ANY WATERCOURSE, DITCH OR STORM DRAIN.
- EQUIPMENT FUELING AND MAINTENANCE, OIL CHANGING, ETC. SHALL BE PERFORMED AWAY FROM WATERCOURSES, DITCHES OR STORM DRAINS, IN AN AREA DESIGNATED FOR THAT PURPOSE. THE DESIGNATED AREA SHALL BE EQUIPPED FOR RECYCLING OIL AND CATCHING SPILLS. SECONDARY CONTAINMENT SHALL BE PROVIDED FOR ALL FUEL OIL STORAGE TANKS. THESE AREAS MUST BE INSPECTED EVERY FOUR (4) DAYS AND WITHIN 24 HRS OF A 0.25 INCH OR GREATER RAIN EVENT TO ENSURE THERE ARE NO EXPOSED MATERIALS WHICH WOULD CONTAMINATE STORM WATER. SITE OPERATORS MUST BE AWARE THAT SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) REQUIREMENTS MAY APPLY. AN SPCC PLAN IS REQUIRED FOR SITE WITH ONE SINGLE ABOVE GROUND TANK OF 660 GALLONS OR MORE, ACCUMULATIVE ABOVE GROUND STORAGE OF 130 GALLONS OR MORE, 42,000 GALLONS OF UNDERGROUND STORAGE. CONTAMINATED SOILS MUST BE DISPOSED OF IN ACCORDANCE WITH ITEM 8.
- CONCRETE WASH WATER SHALL NOT BE ALLOWED TO FLOW TO STREAM, DITCHES, STORM DRAINS, OR ANY OTHER WATER CONVEYANCE. A PUMP OR PIT WITH NO POTENTIAL FOR DISCHARGE SHALL BE CONSTRUCTED IF NEEDED TO CONTAIN CONCRETE WASH WATER. FIELD TILE OR OTHER SUBSURFACE DRAINAGE STRUCTURES WITHIN 10 FT. OF THE PUMP SHALL BE CUT AND PLUGGED FOR SMALL PROJECTS. TRUCK CHUTES MAY BE RINSED AWAY FROM ANY WATER CONVEYANCES.
- SPILL REPORTING REQUIREMENTS: SPILLS ON PAVEMENT SHALL BE ABSORBED WITH SAWDUST OR KITTY LITTER AND DISPOSED OF WITH THE TRASH AT A LICENSED SANITARY LANDFILL. HAZARDOUS OR INDUSTRIAL WASTES SUCH AS MOST SOLVENTS, GASOLINE, OIL-BASED PAINTS, AND CEMENT CURING COMPOUNDS REQUIRE SPECIAL HANDLING. SPILLS SHALL BE REPORTED TO WEST VIRGINIA DEP (1-800-642-3070), SPILLS OF 25 GALLONS OR MORE OF PETROLEUM PRODUCTS SHALL BE REPORTED TO WEST VIRGINIA DEP, THE LOCAL FIRE DEPARTMENT, AND THE LOCAL EMERGENCY PLANNING COMMITTEE WITHIN 30 MIN. OF THE DISCOVERY OF THE RELEASE. ALL SPILLS WHICH CONTACT WATERS OF THE STATE MUST BE REPORTED TO WEST VIRGINIA DEP.
- CONTAMINATED SOILS: IF SUBSTANCES SUCH AS OIL, DIESEL FUEL, HYDRAULIC FLUID, ANTIFREEZE, ETC. ARE SPILLED, LEADED, OR RELEASED ONTO THE SOIL, THE SOIL SHALL BE SUCK UP AND DISPOSED OF AT A LICENSED SANITARY LANDFILL OR OTHER APPROVED PETROLEUM CONTAMINATED SOIL REMEDIATION FACILITY. (NOT A CONSTRUCTION/DEMOLITION DEBRIS LANDFILL). NOTE THAT STORM WATER RUN OFF ASSOCIATED WITH CONTAMINATED SOILS ARE NOT TO BE AUTHORIZED UNDER WEST VIRGINIA'S GENERAL STORM WATER PERMIT ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- OPEN BURNING: NO MATERIALS CONTAINING RUBBER, GREASE, ASPHALT, OR PETROLEUM PRODUCTS, SUCH AS TIRES, AUTO PARTS, PLASTICS OR PLASTIC COATED WIRE MAY BE BURNED (WV45C286). OPEN BURNING IS NOT ALLOWED IN RESTRICTED AREAS, WHICH ARE DEFINED AS: 1) WITHIN CORPORATION LIMITS; 2) WITHIN 1000 FEET OF A MUNICIPAL CORPORATION HAVING A POPULATION OF 1000 TO 10,000; AND 3) A ONE MILE ZONE OUTSIDE OF A CORPORATION OF 10,000 OR MORE. OUTSIDE OF RESTRICTED AREAS, NO OPEN BURNING IS ALLOWED WITHIN A 1000 FEET OF AN UNHABITED BUILDING ON ANOTHER PROPERTY. OPEN BURNING IS PERMISSIBLE IN A RESTRICTED AREA FOR HEATING TAR, WELDING, SMUDGE POTS AND SIMILAR OCCUPATIONAL NEEDS, AND HEATING FOR WARMTH OR OUTDOOR BARBECUES, OUTSIDE OF RESTRICTED AREAS, OPEN BURNING IS PERMISSIBLE FOR LANDSCAPE OR LAND-CLEARING WASTES (PLANT MATERIAL, WITH PRIOR WRITTEN PERMISSION FROM WEST VIRGINIA DEP), AND AGRICULTURAL WASTES, EXCLUDING BUILDINGS.
- DUST CONTROL OR DUST SUPPRESSANTS SHALL BE USED TO PREVENT NUISANCE CONDITIONS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND IN A MANNER, WHICH PREVENTS A DISCHARGE TO WATERS OF THE STATE. SUFFICIENT DISTANCE MUST BE PROVIDED BETWEEN APPLICATIONS AND NEARBY BRIDGES, CATCH BASINS, AND OTHER WATERWAYS. APPLICATION (EXCLUDING WATER) MAY NOT OCCUR WHEN RAIN IS IMMINENT AS NOTED IN THE SHORT TERM FORECAST. USED OIL MAY NOT BE APPLIED FOR DUST CONTROL.
- OTHER AIR PERMITTING REQUIREMENTS: CERTAIN ACTIVITIES ASSOCIATED WITH CONSTRUCTION WILL REQUIRE AIR PERMITS INCLUDING BUT NOT LIMITED TO MOBILE CONCRETE BATCH PLANTS, MOBILE ASPHALT PLANTS, CONCRETE CRUSHERS, LARGE GENERATORS, ECT. THESE ACTIVITIES WILL REQUIRE SPECIFIC WEST VIRGINIA DEP AIR PERMITS FOR INSTALLATION AND OPERATION. OPERATORS MUST SEEK AUTHORIZATION FROM THE CORRESPONDING DISTRICT OF WEST VIRGINIA DEP FOR DEMOLITION OF ALL COMMERCIAL SITES. A NOTIFICATION FOR RESTORATION AND DEMOLITION MUST BE SUBMITTED TO WEST VIRGINIA DEP TO DETERMINE IF ASBESTOS CORRECTIVE ACTIONS ARE REQUIRED.
- PROCESS WASTE WATER/LEACHATE MANAGEMENT: WEST VIRGINIA DEPS CONSTRUCTION GENERAL PERMIT ONLY ALLOWS THE DISCHARGE OF STORM WATER AND DOES NOT INCLUDE OTHER WASTE STREAMS/DISCHARGES SUCH AS VEHICLE AND/OR EQUIPMENT WASHING, ON-SITE SEPTIC LEACHATE, CONCRETE WASH OUT, WHICH ARE CONSIDERED PROCESS WASTEWATER. ALL PROCESS WASTEWATER MUST BE COLLECTED AND PROPERLY DISPOSED AT AN APPROVED DISPOSAL FACILITY. IN THE EVENT LEACHATE OR SEEPAGE IS DISCHARGED, IT MUST BE ISOLATED FOR COLLECTION AND PROPER DISPOSAL AND CORRECTIVE ACTIONS TAKEN TO ELIMINATE THE SOURCE OF WASTE WATER.

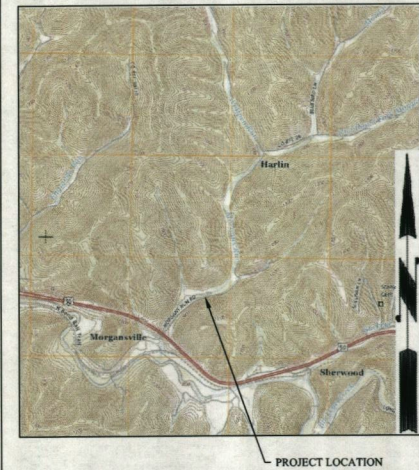
**CONSTRUCTION SEQUENCING**

- PRIOR TO COMMENCEMENT OF ANY EARTH DISTURBANCE ACTIVITY, INCLUDING CLEARING, GRUBBING, AND GRADING, THE REGISTRANT SHALL CLEARLY DELINEATE SENSITIVE AREAS, THE LIMITS OF CLEARING, AND TREES THAT ARE TO BE CONSERVED WITHIN THE PROJECT SITE. INSTALL APPROPRIATE BARRIERS WHERE EQUIPMENT MAY NOT BE PARKED, STAGED, OPERATED, OR LOCATED FOR ANY PURPOSES.
- TREE CLEARING - THIS IS THE FIRST ACTIVITY TO TAKE PLACE AT THE SITE, AND SHALL PROVIDE BMPs TO MINIMIZE ACCELERATED EROSION AND SEDIMENTATION DUE TO INCREASED RUNOFF FROM CLEARED AREAS.
- SEDIMENT BARRIERS - INSTALL PERIMETER BMPs PRIOR TO PERFORMING WORK THAT WILL RESULT IN GROUND DISTURBANCE, KEEPING THE ASSOCIATED GRUBBING AND GRADING LIMITED TO ONLY THAT AMOUNT REQUIRED FOR INSTALLING PERIMETER BMPs.
- LAND GRUBBING - IMPLEMENT GRUBBING ACTIVITIES ONLY AFTER ALL DOWNSLOPE PERIMETER EROSION AND SEDIMENTATION BMPs HAVE BEEN CONSTRUCTED AND STABILIZED.
- INSTALL TEMPORARY TRAFFIC CONTROL AND CONSTRUCT THE PILE AND LOGGING WALL AS SHOWN IN THE PLANS
- FINAL STABILIZATION - AFTER CONSTRUCTION IS COMPLETED, INSTALL STABILIZATION BMPs INCLUDING PLACING TOPSOIL AND PERMANENT SEEDING, MULCHING, AND COMPLETE IMPLEMENTATION OF STORM WATER BMPs (AS APPROPRIATE) AS SHOWN ON THE PLANS.
- AFTER 70 PERCENT UNIFORM, VEGETATIVE COVER HAS BEEN ACHIEVED AND THE SITE HAS BEEN STABILIZED, REMOVE ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND STABILIZE ANY DISTURBANCES ASSOCIATED WITH THE REMOVAL OF THE BMPs.

**EROSION & SEDIMENT CONTROL PLAN**  
**MORGAN RUN ROAD SLIP REPAIR MP 0.418**  
 MORGANSVILLE, DODDRIDGE COUNTY, WEST VIRGINIA

NOVEMBER 2021

**VICINITY MAP**  
 NOT TO SCALE



**SITE INFO**

**SITE DESCRIPTION**  
 EXISTING - CR 20

**SCHEDULE OF MAJOR CONSTRUCTION**  
 COMMENCEMENT \_\_\_\_\_  
 COMPLETION \_\_\_\_\_

**DEVELOPER**

ANTERO RESOURCES CORPORATION  
 515 WHITE OAKS BOULEVARD  
 BRIDGEPORT, WV 26330

**ENGINEER**

CIVIL & ENVIRONMENTAL CONSULTANTS INC.  
 120 GENESIS BOULEVARD  
 BRIDGEPORT, WV 26330



APPROVED FOR PERMITS	DATE:
APPROVED FOR BIDS	DATE:
APPROVED FOR CONSTRUCTION	DATE:



NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

ANTERO RESOURCES CORPORATION  
 DODDRIDGE COUNTY, ROUTE 20  
 MORGAN RUN SLIP REPAIR  
 EROSION & SEDIMENT CONTROL NOTES

SHEET No.  
**10**

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**TEMPORARY SEEDING**

Table IV-1 Recommended seeding dates for permanent and temporary cover unless otherwise specified.

Planting Dates	Suitability
March 1 - April 15 and August 1 - October 1	Best seeding periods
April 15 - August 1	HIGH RISK - moisture stress likely
October 1 - Dec. 1	HIGH RISK - Freeze damage to young seedlings
Dec. 1 - March 1	Good seeding period. Dormant seeding.

Table 2. Acceptable fertilization recommendation in absence of a soil test.

Species	N (lb/acre)	P2O5 (lb/acre)	K2O (lb/acre)	Example Rec. (per acre)
Cool Season Grass	40	80	80	400 lbs 10-20-20
CS Grass & Legume	30	60	60	300 lbs 10-20-20
Temporary Cover	40	40	40	200 lbs 19-19-19

Table 3. Temporary cover suitable for establishment in West Virginia.

Species	Seeding Rate (lb/acre)	Planting Dates	Drainage	pH Range
Annual Ryegrass	40	3/1 - 6/15 or 9/15 - 9/15	Well - Poorly	5.5 - 7.5
Field Bromegrass	40	3/1 - 6/15 or 9/15 - 9/15	Well - Mod. Well	6.0 - 7.0
Spring Oats	95	3/1 - 6/15	Well - Poorly	5.5 - 7.0
Sudangrass	40	5/15 - 6/15	Well - Poorly	5.5 - 7.5
Winter Rye	165	8/15 - 10/15	Well - Poorly	5.5 - 7.5
Winter Wheat	190	8/15 - 11/15	Well - Mod. Well	5.5 - 7.0
Japanese Millet	30	6/15 - 9/15	Well	4.5 - 7.0
Redtop	5	3/1 - 6/15	Well	4.0 - 7.5
Annual Ryegrass	20	3/1 - 6/15	Well - Poorly	5.5 - 7.5
Spring Oats	64	3/1 - 6/15	Well - Poorly	5.5 - 7.5

NOTE: These rates should be increased by 50% if planted April 15 - August 1 and October 1 - March 1.

- STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION SITE.
- TEMPORARY SEED SHALL BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED OR REWORKED FOR 14 DAYS OR GREATER. THESE IDLE AREAS SHALL BE SEED WITHIN FOUR (4) DAYS AFTER GRADING.
- THE SEEDBED SHOULD BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. TEMPORARY SEEDING SHOULD NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
- SOIL AMENDMENTS - TEMPORARY VEGETATION SEEDING RATES SHALL ESTABLISH ADEQUATE STANDS OF VEGETATION, WHICH MAY REQUIRE THE USE OF SOIL AMENDMENTS. BASE RATES FOR LIME AND FERTILIZER SHALL BE USED.
- SEEDING METHOD - SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SPREADER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEEDBEDS SHOULD BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

**MULCHING TEMPORARY SEEDING**

- APPLICATION OF TEMPORARY SEEDING SHALL INCLUDE MULCH, WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMAL SEEDING DATES ON FAVORABLE, VERY FLAT SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION.
- MATERIALS:
  - STRAW - IF STRAW IS USED, IT SHALL BE UNROLLED SMALL-GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE OR 90 LBS./1,000 SQ. FT. (2-3 BALES)
  - HYDROSEEDERS - IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT 2000LBS./AC. OR 46 LB./1000SQ. FT.
  - OTHER - OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 4 TON/AC
- STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER. ANCHORING METHODS:
  - MECHANICAL - A DISK, CRUMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT LEFT TO A LENGTH OF APPROXIMATELY 12 INCHES.
  - MULCH NETTING - NETTING SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.
  - SYNTHETIC BINDERS - SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (ARGTACT), DCA-70, PETROSET, TERRA TRACK, OR EQUIVALENT MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER.
  - WOOD CELLULOSE FIBER - WOOD CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WT. OF 750 LB./AC. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB./100 GAL.

**TEMPORARY SEEDING**

**CUT SLOPES - GREATER THAN 3:1 SLOPES**

- STAIR-STEP GRADING MAY BE CARRIED OUT ON ANY MATERIAL SOFT ENOUGH TO BE RIPPED WITH A BULLDOZER. THE RATIO OF THE HORIZONTAL DISTANCE TO THE VERTICAL CUT DISTANCE SHALL BE FLATTER THAN 1:1 AND THE HORIZONTAL PORTION OF THE STEP SHALL SLOPE TOWARD THE VERTICAL WALL. INDIVIDUAL VERTICAL CUTS SHALL NOT BE MORE THAN 24 INCHES ON SOFT SOIL MATERIALS AND NOT MORE THAN 36 INCHES IN ROCKY MATERIALS.
- GRADING MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPERATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUE COMPACTION. SUGGESTED IMPLEMENTS INCLUDE DISCS, TILLERS, SPRING HARROWS, AND THE TEETH ON A FRONT-END LOADER BUCKET. SUCH GROOVES SHALL NOT BE LESS THAN 3 INCHES DEEP NOR FURTHER THAN 15 INCHES APART.

**FILL SLOPES - GREATER THAN 3:1 SLOPES**

- FILL SLOPES STEEPER THAN 3:1 SHALL BE GROOVED OR ALLOWED TO REMAIN ROUGH AS THEY ARE CONSTRUCTED UTILIZING METHOD (1) OR (2) BELOW.
- GROOVING MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPERATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUE COMPACTION SUCH AS DISCS, TILLERS, SPRING HARROWS, AND THE TEETH ON A FRONT-END LOADER BUCKET. GROOVES LEFT SHALL NOT BE LESS THAN 3 INCHES DEEP NOR FURTHER THAN 15 INCHES APART.
- AS LIFTS OF THE FILL ARE CONSTRUCTED, SOIL AND ROCK MATERIALS MAY BE ALLOWED TO FALL NATURALLY ONTO THE SLOPE SURFACE. AT NO TIME SHALL SLOPES BE BLADED OR SCRAPED TO PRODUCE A SMOOTH, HARD SURFACE.

**CUTS, FILLS, AND GRADED AREAS WHICH WILL BE MOVED**

- MOVED SLOPES SHOULD NOT BE STEEPER THAN 3:1 AND SHALL AVOID EXCESSIVE ROUGHNESS. THESE AREAS MAY BE ROUGHENED WITH SHALLOW GROOVES SUCH AS THOSE, WHICH REMAIN AFTER TILLING, DISKING, HARROWING, RAKING, OR USE OF A CULTIPACKER-SEEDER. THE FINAL PASS OF ANY SUCH TILLAGE IMPLEMENT SHALL BE ON THE CONTOUR (PERPENDICULAR TO THE SLOPES).
- GROOVES FORMED BY IMPLEMENTS SHALL BE NOT LESS THAN 1 INCH DEEP AND NOT FURTHER THAN 12 INCHES APART. FILL SLOPES THAT ARE LEFT ROUGH DURING CONSTRUCTION MAY BE SMOOTHED WITH A CHAIN HARROW OR SIMILAR IMPLEMENT TO FACILITATE MOWING.

**SPECIFICATIONS FOR PERMANENT SEEDING**

**SITE PREPARATION**

1. SUBSOILER, FLOW, OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION (MAXIMIZING INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY.) SUBSOILING SHOULD BE DONE WHEN THE SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING SHALL NOT BE DONE ON SLP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION.

2. THE SITE SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING.

3. TOPSOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION.

**SEEDBED PREPARATION**

1. LIME-AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 150 POUNDS PER 1,000-SQ. FT. OR 3 TONS PER ACRE.

2. FERTILIZER-FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST. IN PLACE OF A SOIL TEST, FERTILIZER SHALL BE APPLIED AT A RATE OF 12 POUNDS PER 1,000-SQ. FT. OR 500 POUNDS PER ACRE OF A 10-20-20 OR EQUIVALENT.

3. THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES ON SLOPING LAND, THE SOIL SHALL BE WORKED ON THE CONTOUR.

**SEEDING DATES AND SOIL CONDITIONS**

SEEDING SHOULD BE DONE MARCH 1 TO APRIL 15 OR AUGUST 1 TO OCTOBER 1. IF SEEDING OCCURS APRIL 15 - AUGUST 1, AND OCTOBER 1 - MARCH 1, INCREASE SEEDING RATES BY 50%. TILLAGE FOR SEEDBED PREPARATION SHOULD BE DONE WHEN THE SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. FOR WINTER SEEDING, SEE THE FOLLOWING SECTION ON DORMANT SEEDING.

**DORMANT SEEDINGS**

1. SEEDINGS CAN BE MADE FROM DECEMBER 1 THROUGH MARCH 1. DURING THIS PERIOD, THE SEEDS ARE LIKELY TO GERMINATE BUT MAY NOT BE ABLE TO SURVIVE THE WINTER.

2. THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":  
 - FROM DECEMBER 1 THROUGH MARCH 1, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. INCREASE SEEDING RATES BY 50%.

**MULCHING**

1. MULCH MATERIAL SHALL BE APPLIED IMMEDIATELY AFTER SEEDING. DORMANT SEEDING SHALL BE MULCHED. 100% OF THE GROUND SURFACE SHALL BE COVERED WITH AN APPROVED MATERIAL.

**MATERIALS**

- STRAW-IF STRAW IS USED IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT THE RATE OF 2-3 TONS PER ACRE OR 135 POUNDS (THREE TO FOUR BALES) PER 1,000-SQ. FT. THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY APPLIED SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000-SQ-FT. SECTIONS AND SPREAD THREE 45-LB. BALES OF STRAW IN EACH SECTION.
- HYDROSEEDERS-IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE APPLIED AT 1,500 LB./AC. OR 35 LB./1,000 SQ. FT.
- OTHER-OTHER ACCEPTABLE MULCHES INCLUDE ROLLED EROSION CONTROL MATTINGS OR BLANKETS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TONS PER ACRE.

**STRAW AND MULCH ANCHORING METHODS**

- STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER.
- MECHANICAL - A DISK, CRUMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT, GENERALLY, BE LEFT LONGER THAN 6 INCHES.
- MULCH NETTING-NETTING SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.
- ASPHALT EMULSION-ASPHALT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURER OR AT THE RATE OF 160 GALLONS PER ACRE.

- SYNTHETIC BINDERS-SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TACK), DCA-70, PETROSET, TERRA TACK OR EQUIVALENT MAY BE USED AT RATES SPECIFIED BY THE MANUFACTURER.

- WOOD CELLULOSE FIBER-WOOD CELLULOSE FIBER SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 POUNDS PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER WITH THE MIXTURE CONTAINING A MAXIMUM OF 50 POUNDS CELLULOSE PER 100 GALLONS OF WATER.

**IRRIGATION**

PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY WEATHER OR ON ADVERSE SITE CONDITIONS, WHICH REQUIRE ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTH.

IRRIGATION RATES SHALL BE MONITORED TO PREVENT EROSION AND DAMAGE TO SEEDED AREAS FROM EXCESSIVE RUNOFF.

**TOPSOILING**

**SALVAGING AND STOCKPILING**

- DETERMINE THE DEPTH AND SUITABILITY OF TOPSOIL AT THE SITE. (FOR HELP, CONTACT YOUR NRCS OFFICE TO OBTAIN A COUNTY SOIL SURVEY REPORT).
- PRIOR TO STRIPPING TOPSOIL, INSTALL APPROPRIATE DOWNSLOPE EROSION AND SEDIMENTATION CONTROLS SUCH AS SEDIMENT TRAPS AND BASINS.
- REMOVE THE SOIL MATERIAL NO DEEPER THAN WHAT THE COUNTY SOIL SURVEY DESCRIBES AS "SURFACE SOIL" (IE. A OR AP HORIZON).
- CONSTRUCT STOCKPILES IN ACCESSIBLE LOCATIONS THAT DO NOT INTERFERE WITH NATURAL DRAINAGE. INSTALL APPROPRIATE SEDIMENT CONTROLS TO TRAP SEDIMENT SUCH AS SILT FENCE IMMEDIATELY ADJACENT TO THE STOCKPILE OR SEDIMENT TRAPS OR BASINS DOWNSTREAM OF THE STOCKPILE. STOCKPILE SIDE SLOPES SHALL NOT EXCEED A RATIO OF 2:1.
- IF TOPSOIL IS STORED FOR MORE THAN 14 DAYS, IT SHOULD BE TEMPORARY SEEDED, OR COVERED WITH A TARP.

**SPREADING THE TOPSOIL**

- PRIOR TO APPLYING TOPSOIL, THE TOPSOIL SHOULD BE PULVERIZED.
- TO ENSURE BONDING, GRADE THE SUBSOIL AND ROUGHEN THE TOP 3-4 IN. BY DISKING.
- DO NOT APPLY WHEN SITE IS WET, MUDDY, OR FROZEN. BECAUSE IT MAKES SPREADING DIFFICULT. CAUSES COMPACTION PROBLEMS, AND INHIBITS BONDING WITH SUBSOIL.
- APPLY TOPSOIL EVENLY TO A DEPTH OF AT LEAST 4 INCHES AND COMPACT SLIGHTLY TO IMPROVE CONTACT WITH SUBSOIL.
- AFTER SPREADING, GRADE AND STABILIZE WITH SEEDING OR APPROPRIATE VEGETATION.

Table 4a. Permanent seeding mixtures suitable for establishment in WV.

Species/Mixture	Seeding Rate (lb/acre)	Soil Drainage Preference	pH Range
Crownvetch/ Tall Fescue	10-15	Well - Mod. Well	5.0 - 7.5
Crownvetch/ Perennial Ryegrass	30	Well - Mod. Well	5.0 - 7.5
Frigoles or Perennial Pea/ Tall Fescue	20	Well - Mod. Well	4.0 - 8.0
Ladino Clover/ Sericea Lespedeza/ Tall Fescue	30 25 40	Well - Mod. Well	4.5 - 7.5
Tall Fescue/ Ladino Clover/ Redtop	2 3 3	Well - Mod. Well	5.0 - 7.5
Crownvetch/ Tall Fescue/ Redtop	10 20 3	Well - Mod. Well	5.0 - 7.5
Tall Fescue/ Birdfoot Trefoil/ Redtop	40 10 3	Well - Mod. Well	5.0 - 7.5
Sericea Lespedeza/ Tall Fescue/ Redtop	25 30 3	Well - Mod. Well	4.5 - 7.5
Redtop/ Tall Fescue/ Creeping Red	30 3 50	Well - Mod. Well	5.0 - 7.5
Tall Fescue/ Perennial Ryegrass/ Ladino Clover	50 16 28	Well - Poorly	4.5 - 7.5 5.0 - 8.0

Table IV-1-4 taken from Natural Resources Conservation Service Manual Critical Area Planting

Table 4b. Mixtures in the table below are more wildlife and farm friendly.

Species/Mixture	Seeding Rate (lb/acre)	Soil Drainage Preference	pH Range
KY Bluegrass/ Redtop	20 3	Well - Mod. Well	5.5 - 7.5
Ladino Clover or Birdfoot Trefoil	2/10		
Timothy	15	Well - Mod. Well	6.5 - 8.0
Alfalfa	5		
Timothy/ Birdfoot Trefoil	8	Well - Poorly	5.5 - 7.5
Orchardgrass/ Ladino Clover/ Redtop	10 2 3	Well - Mod. Well	5.5 - 7.5
Orchardgrass/ Ladino Clover	20 2	Well - Mod. Well	5.5 - 7.5
Orchardgrass/ Perennial Ryegrass	10 10	Well - Mod. Well	5.5 - 7.5
Creeping Red Fescue/ Perennial Ryegrass	30 16	Well - Mod. Well	5.5 - 7.5
Orchardgrass or Kentucky Bluegrass	20	Well - Mod. Well	6.0 - 7.5
Birdfoot Trefoil/ Redtop	10 5	Well - Mod. Well	5.5 - 7.5
Orchardgrass/ Ladino Clover/ Ladino Clover	30 20 2	Well - Mod. Well	5.5 - 7.5

Mixtures listed in table are suitable for use in shaded woodland settings. Those in italics are suitable for use in filter strips.  
 \* Ladino/Fescue is preferably preferable to some livestock. All hayages should be grazed with proper rotation prior to seeding.  
 For unimproved seedbeds or seeding outside the optimum timeframes, add 50% more seed to the specified rate.

Table IV-5 Lime and Fertilizer Application Table


pH of Soil	Lime in Tons Per Acre	Fertilizer, Lbs. per Acre	10-20-20 - or Equivalent
Above 6.0	2	500	
5.0 to 6.0	3	600	
Below 5.0	4	500	

The pH can be determined with a portable pH testing kit or by sending the soil sample to a soil testing laboratory. When 4 tons of lime per acre are applied it must be incorporated into the soil by plowing, disking or tracking up and over the slope.

Table IV-6. Mulch Materials Rates and Uses

Material	Minimum Rates Per Acre	Coverage	Remarks
Hay or Straw	2 to 3 Tons	Cover 75% to 90% of Surface	Subject to Wind blowing or washing unless bed down
Wood Fiber	1000 to 1500 lbs	Cover all	For Hydroseeding
Pulp Fiber			Disturbed Areas
Wood Cellulose			
Recirculated Paper			

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**Antero Resources**

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APPROVED FOR PERMITS: \_\_\_\_\_ DATE: \_\_\_\_\_

APPROVED FOR BIDS: \_\_\_\_\_ DATE: \_\_\_\_\_

BY: \_\_\_\_\_ DATED FOR CONSTRUCTION: \_\_\_\_\_

DATE: \_\_\_\_\_

---

**CEL**

**Civil & Environmental Consultants, Inc.**

1500 University Blvd., Suite 200, Morgantown, WV 26505

PH: 304.241.1111 FAX: 304.241.1112

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ANTERO RESOURCES CORPORATION

DODDRIEGE COUNTY ROUTE 20

MORGANTOWN RUN SLP REPAIR

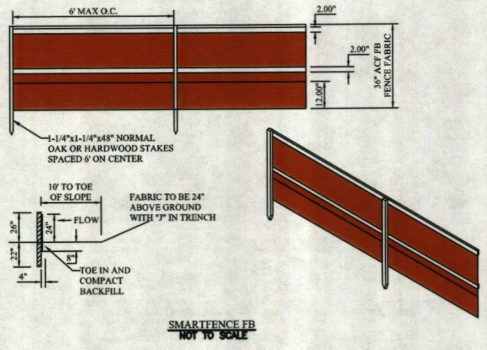
EROSION & SEDIMENT CONTROL NOTES

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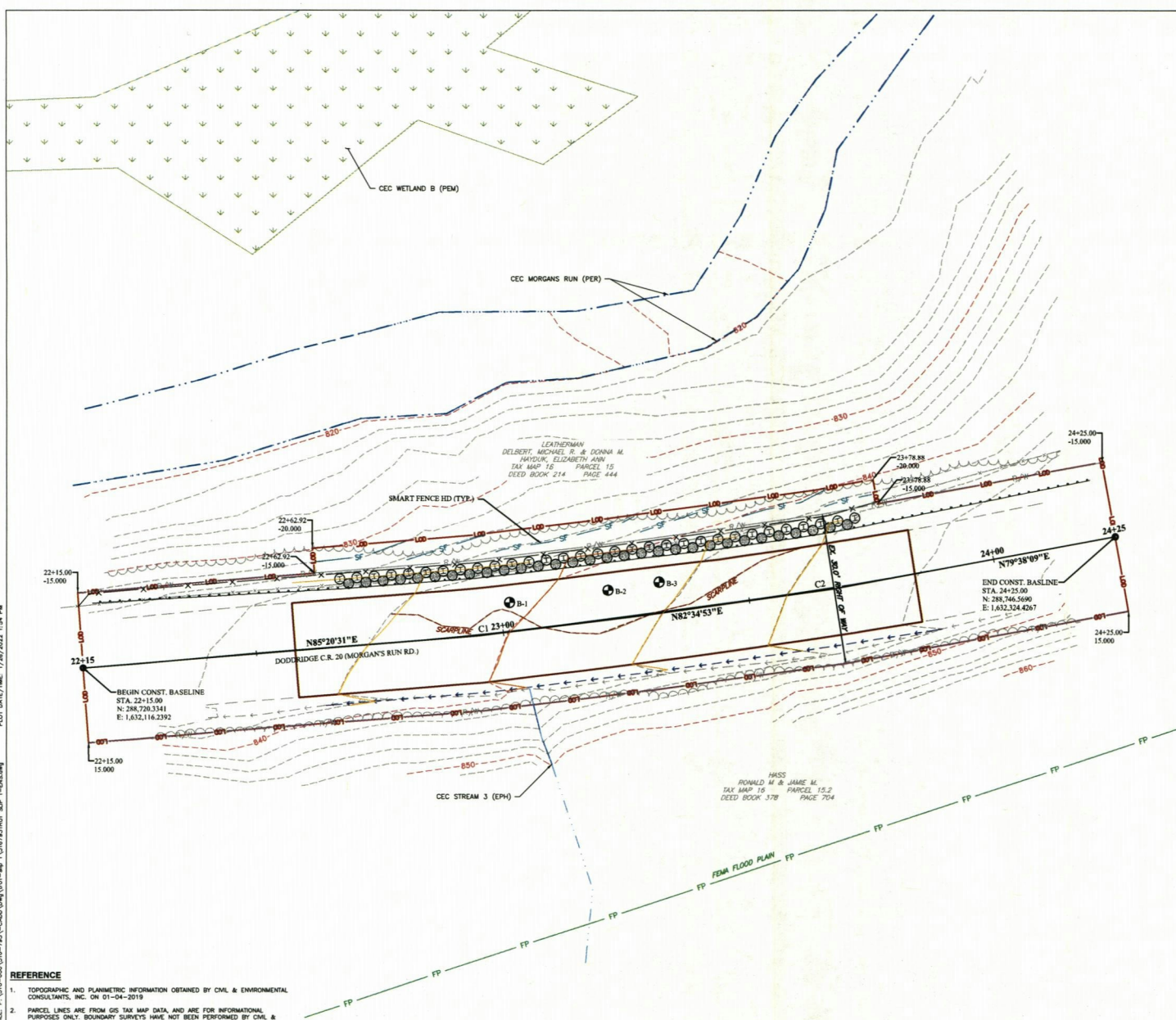
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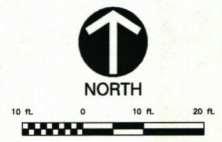


ANTERO RESOURCES CORPORATION DODDRIDGE COUNTY ROUTE 20 MORGANS RUN SLIP REPAIR EROSION & SEDIMENT CONTROL DETAILS	NO.	BY	DATE	DESCRIPTION
Civil & Environmental Consultants, Inc. P.O. Box 432, 2119 S. 24th Ave., Suite 202, Phoenix, AZ 85034 Phone: 602.432.2119 Fax: 602.432.2127				
APPROVED FOR PERMITS: BY: _____ DATE: _____	APPROVED FOR BIDS: BY: _____ DATE: _____	APPROVED FOR CONSTRUCTION: BY: _____ DATE: _____	SHEET No. <b>12</b>	

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PLAN LEGEND	
	PROPERTY LINE
	EXISTING FENCE
	EXISTING TREE LINE
	EXISTING RIGHT OF WAY
	EXISTING DELINEATED STREAM - PERENNIAL
	EXISTING FEMA FLOODPLAIN
	EXISTING CONTOURS
	EXISTING ROAD EDGE
	EXISTING SCARP LINE
	EXISTING SWALE/DITCH
	BORE HOLE
	LIMIT OF DISTURBANCE
	PROPOSED CONTOURS
	PROPOSED EDGE OF PAVEMENT
	PROPOSED DITCH
	PROPOSED FENCE
	TEMPORARY CONSTRUCTION EASEMENT
	PROPOSED SMART FENCE HD



- REFERENCE**
1. TOPOGRAPHIC AND PLANNING INFORMATION OBTAINED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 01-04-2019
  2. PARCEL LINES ARE FROM GIS TAX MAP DATA, AND ARE FOR INFORMATIONAL PURPOSES ONLY. BOUNDARY SURVEYS HAVE NOT BEEN PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
  3. DELINEATION PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 10/28/2021.



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APPROVED FOR BIDS	DATE
BY	DATE
APPROVED FOR CONSTRUCTION	DATE
BY	DATE

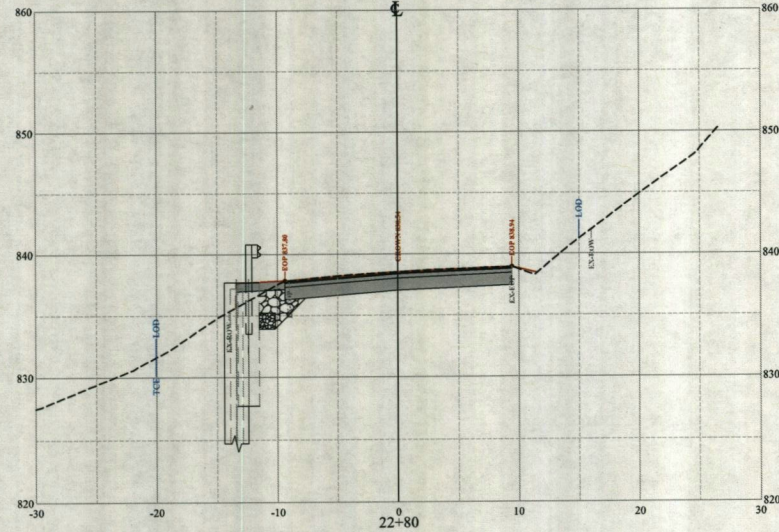
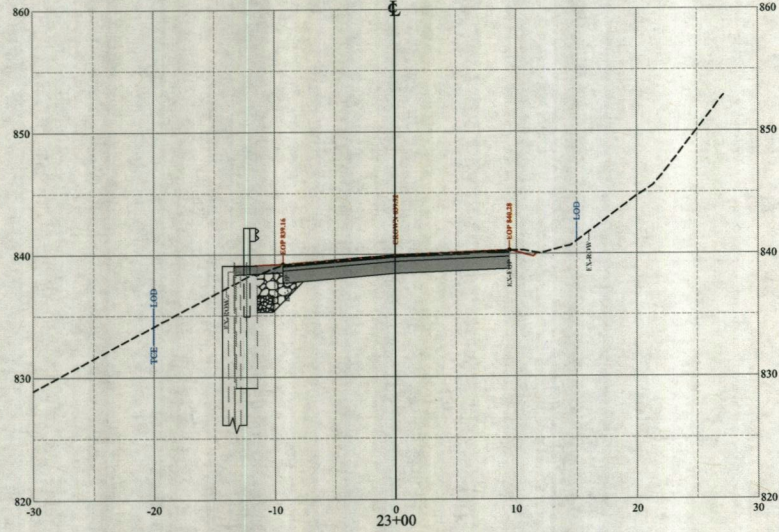
**CEE**  
 Civil & Environmental Consultants, Inc.  
 1500 Greenway Boulevard, Suite 200  
 Fort Lauderdale, FL 33304  
 Phone: 754.333.1111

NO.	REV.	DATE	DESCRIPTION

ANTERO RESOURCES CORPORATION  
 DODDRIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 EROSION & SEDIMENT CONTROL PLAN

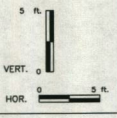
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**13**

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**SECTIONS LEGEND**

---	EXISTING GROUND
---	PROPOSED GRADE
---	EXISTING EDGE OF PAVEMENT
---	EXISTING RIGHT OF WAY
---	PROPOSED LIMIT OF DISTURBANCE
---	CROWN OF PAVEMENT ELEVATION



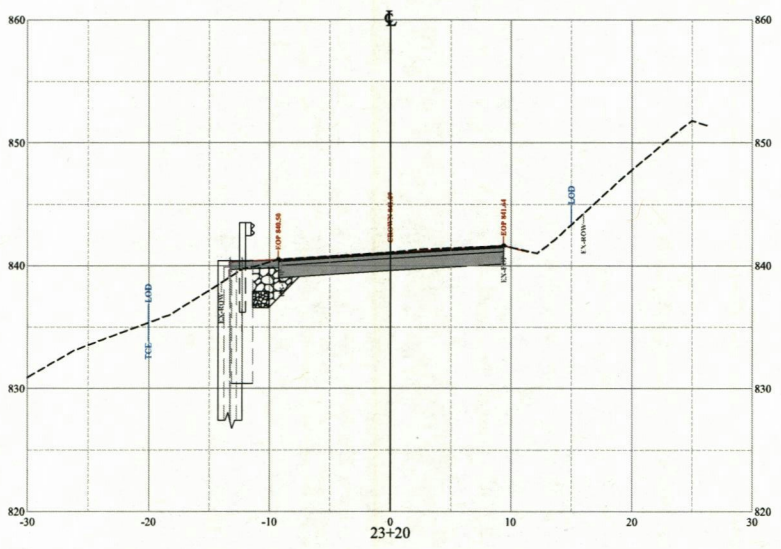
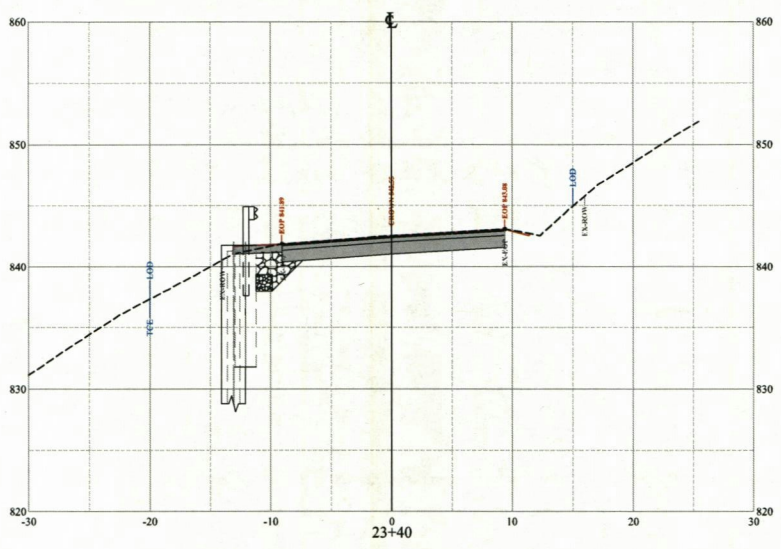
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BY	
APPROVED FOR BIDS	DATE
BY	
APPROVED FOR CONSTRUCTION	DATE
BY	

**CEE**  
 Civil & Environmental Consultants, Inc.  
 2500 West 10th Street, Suite 200  
 Fort Collins, CO 80504  
 Phone: 970.221.1111  
 Fax: 970.221.1112  
 www.ceeinc.com

NO.	BY	DATE	DESCRIPTION

ANTERO RESOURCES CORPORATION  
 DODDRIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 CROSS SECTIONS

SHEET No. **14**



**SECTIONS LEGEND**

---	EXISTING GROUND
—	PROPOSED GRADE
- - -	EXISTING EDGE OF PAVEMENT
—	EXISTING RIGHT OF WAY
—	LOD
—	PROPOSED LIMIT OF DISTURBANCE
—	CROWN OF PAVEMENT ELEVATION



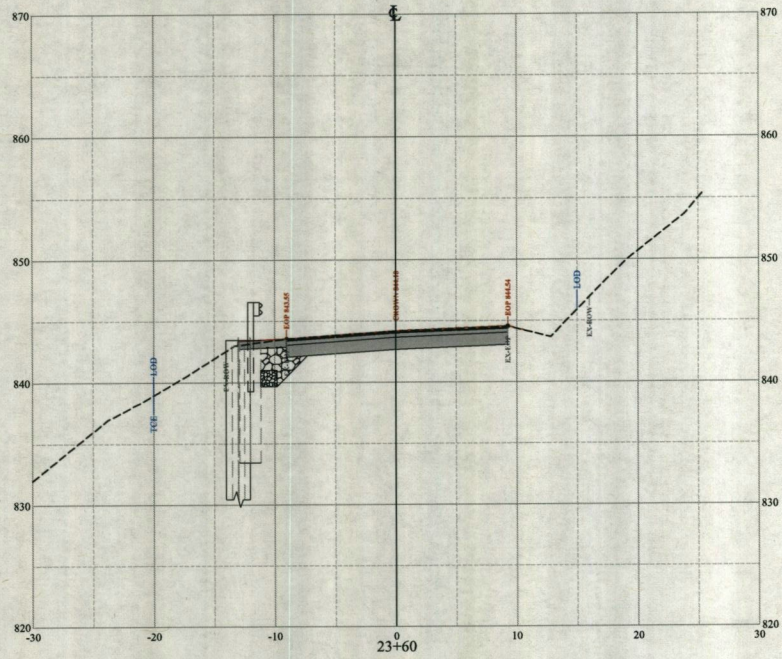
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APPROVED FOR BIDS	DATE
BY	DATE
BY	DATE

**CEE**  
 Civil & Environmental Consultants, Inc.  
 100 Grand Boulevard, Westport, NY 10580  
 PH: 914.363.1111 WWW.CEECONS.COM

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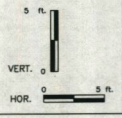
ANTERO RESOURCES CORPORATION  
 DODDRIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 CROSS SECTIONS

SHEET No.  
**15**



**SECTIONS LEGEND**

---	EXISTING GROUND
---	PROPOSED GRADE
---	EXISTING EDGE OF PAVEMENT
---	EXISTING RIGHT OF WAY
---	PROPOSED LIMIT OF DISTURBANCE
---	CROWN OF PAVEMENT ELEVATION



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BY	

**CEE**  
**Civil & Environmental Consultants, Inc.**  
 10000 Inwood Highway, W. 2000  
 Fort Worth, TX 76116  
 www.ceeinc.com

NO.	BY	DATE	DESCRIPTION

ANTERO RESOURCES CORPORATION  
 DODDRIEGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 CROSS SECTIONS

SHEET No.  
**16**

Doddridge County Floodplain Permits  
(Week of FEBRUARY 14, 2022)

Please take notice that on the (31st) of (January), 2022, (ANTERO RESOURCES) filed an application for a Floodplain Permit (#22-608) to develop land located at or about (MORGANS RUN ROAD) Coordinates: 39.286667,-80.687822. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by (MARCH 7, 2022) (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. This project is a slip repair.

George C. Eidel, CFM  
Doddridge County Floodplain Manager

12/29x2XB

STATE of WEST VIRGINIA;  
COUNTY OF DODDRIDGE, TO WIT:

I, Tamela B. Beamer, Editor of THE HERALD RECORD, a certified weekly newspaper published regularly in Doddridge County, West Virginia, DO Hereby Certify Upon Oath that the accompanying Legal Notice entitled:

Floodplain Application # 21-608  
Courtney Tilley

was published in said paper for 2 successive weeks beginning with the issue of 2/9, 2022 and ending with the issue of 2/26, 2022 that contains 184 word space at .115 cents per word and amounts to the sum of

\$ 21.16 FOR THE FIRST PUBLICATION.

SECOND PUBLICATION IS 75% OF THE FIRST PUBLICATION and each other publication thereafter \$ 15.78 for the TOTAL OF:

\$ 37.03.

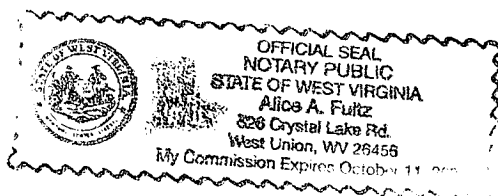
Editor,

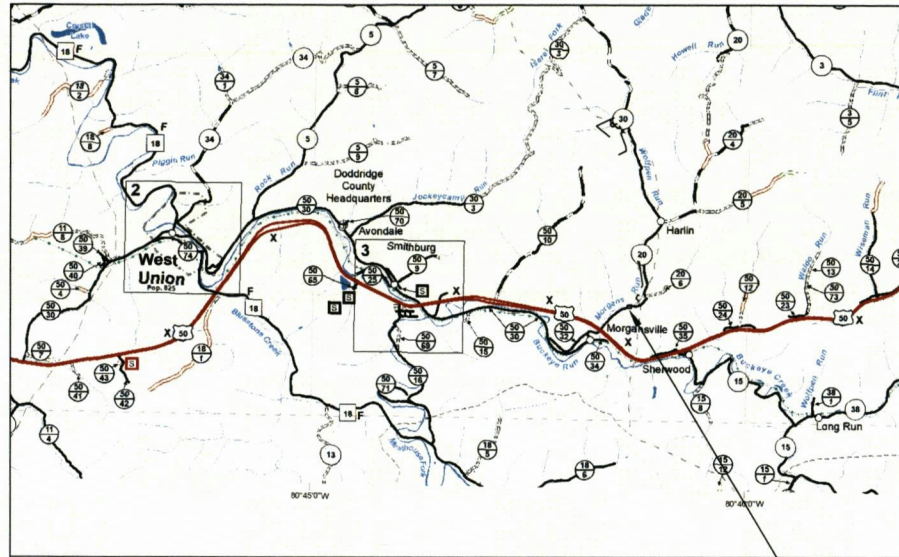
Tamela B. Beamer

SWORN TO AND SUBSCRIBED BEFORE ME THIS THE 23rd day of February, 2022.

NOTARY PUBLIC

Alice A. Fultz

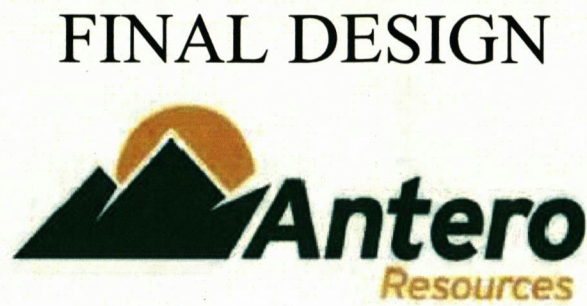




COUNTY HIGHWAY MAP  
1 INCH = 1 MILE



PROJECT LOCATION



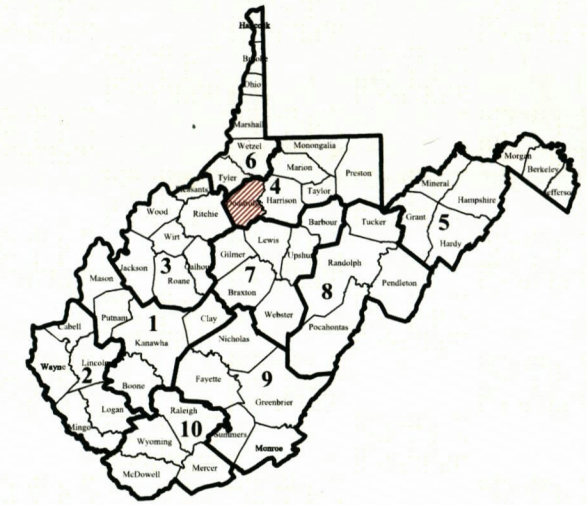
# FINAL DESIGN

## MORGAN'S RUN ROAD SLIP REPAIR - C.R. 20 MP 0.418

MORGANSVILLE, DODDRIDGE COUNTY, WEST VIRGINIA

NOVEMBER 2021

BEGIN PROJECT - LAT: 39.286583/LONG: -80.688481  
END PROJECT - LAT: 39.286663/LONG: -80.687747



WEST VIRGINIA DOH DISTRICT MAP  
NOT TO SCALE

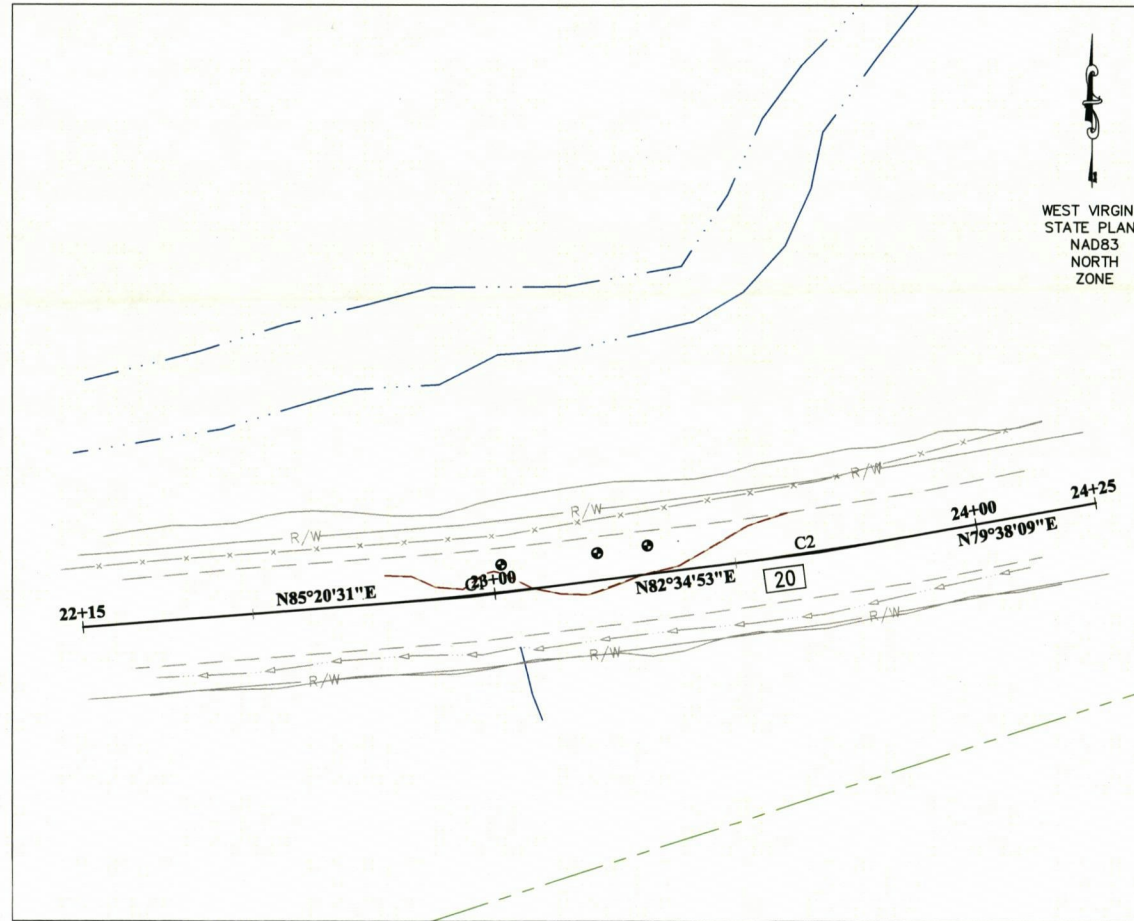


**DISTURBED ACREAGE**  
0.157 ACRES

SURFACE EASEMENT OUTSIDE RIGHT-OF-WAY						
DESCRIPTION	OWNER	APN	TYPE OF EASEMENT	TOTAL EASEMENT (SF)	AREAS	
					STATION	STATION
	LEATHERMAN		TCE	571	22+62.92	23+78.88

DISTURBANCE AREA OUTSIDE RIGHT-OF-WAY			
DESCRIPTION	TOTAL AREA (SF)	TOTAL AREA (AC)	AREAS STATION STATION
PROJECT WIDE	571	0.013	22+62.92 23+78.88

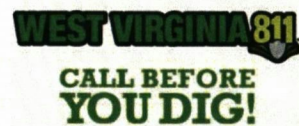
FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN A FLOODPLAIN?	YES
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR?	YES
FLOOD HAZARD ZONE?	YES
HEC-RAS STUDY COMPLETED?	NO
FLOODPLAIN SHOWN ON DRAWINGS?	YES
FIRM MAP NUMBER(S) FOR THIS SITE:	54017C0140C
AREA OF RIGHT-OF-WAY IN FLOOD HAZARD AREA:	0.14 ACRES



WEST VIRGINIA  
STATE PLANE  
NAD83  
NORTH  
ZONE

SEE SHEET 7

**FINAL DESIGN  
ISSUE FOR BID  
2021-12-14**



THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE THAN TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION. WEST VIRGINIA STATE LAW REQUIRES 2 WORKING DAYS NOTICE (B24C-1-1 TO B24C-1-8 OF THE WEST VIRGINIA CODE).

CALL BEFORE YOU DIG IN WEST VIRGINIA  
MISS UTILITY: 811 OR 1-800-245-4848

**REFERENCE**

- TOPOGRAPHIC AND PLANIMETRIC INFORMATION OBTAINED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 01-04-2019
- PARCEL LINES ARE FROM GIS TAX MAP DATA, AND ARE FOR INFORMATIONAL PURPOSES ONLY. BOUNDARY SURVEYS HAVE NOT BEEN PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
- DELINEATION PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 10/28/2021.

INDEX OF SHEETS	
COVER SHEET	1
GENERAL NOTES	2
SUMMARY OF ESTIMATED QUANTITIES	3
TYPICAL SECTION AND DETAILS	4
CORE BORING LOGS	5
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PLUG PILE WALL PLAN	7
PLUG PILE WALL PROFILE	8
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EROSION & SEDIMENT CONTROL NOTES	10-11
EROSION & SEDIMENT CONTROL DETAILS	12
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CROSS SECTIONS	14-16

**OWNER/DEVELOPER**

ANTERO RESOURCES  
JOHN DEPOY  
ROADWAY ENGINEER MANAGER  
740-760-1887  
jdepoy@anteroresources.com

**ENGINEER/SURVEYOR**

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.  
GREG LINDER  
PRINCIPAL  
304-848-7104  
glinder@ceinc.com



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APPROVED FOR BIDS: DATE: \_\_\_\_\_  
APPROVED FOR CONSTRUCTION: DATE: \_\_\_\_\_

**CEC**  
Civil & Environmental Consultants, Inc.  
180 Geneva Boulevard - Bridgeport, WV 26330  
Ph: 304.833.3110 - 855.484.9539 - Fax: 304.833.3327  
www.ceinc.com

NO.	BY	DATE	DESCRIPTION

ANTERO RESOURCES  
CORPORATION  
DODDRIDGE COUNTY ROUTE 20  
MORGANSVILLE, WV  
COVER SHEET

SHEET No.  
**1**





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TO BE ADDED AFTER BIDDING

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ANTERO RESOURCES CORPORATION  
DODDRIDGE COUNTY ROUTE 20  
MORGANS RUN SLIP REPAIR  
SUMMARY OF ESTIMATED QUANTITIES



APPROVED FOR PERMITS:	DATE: --
BY: --	
APPROVED FOR BIDS:	DATE: --
BY: --	
APPROVED FOR CONSTRUCTION:	DATE: --
BY: --	

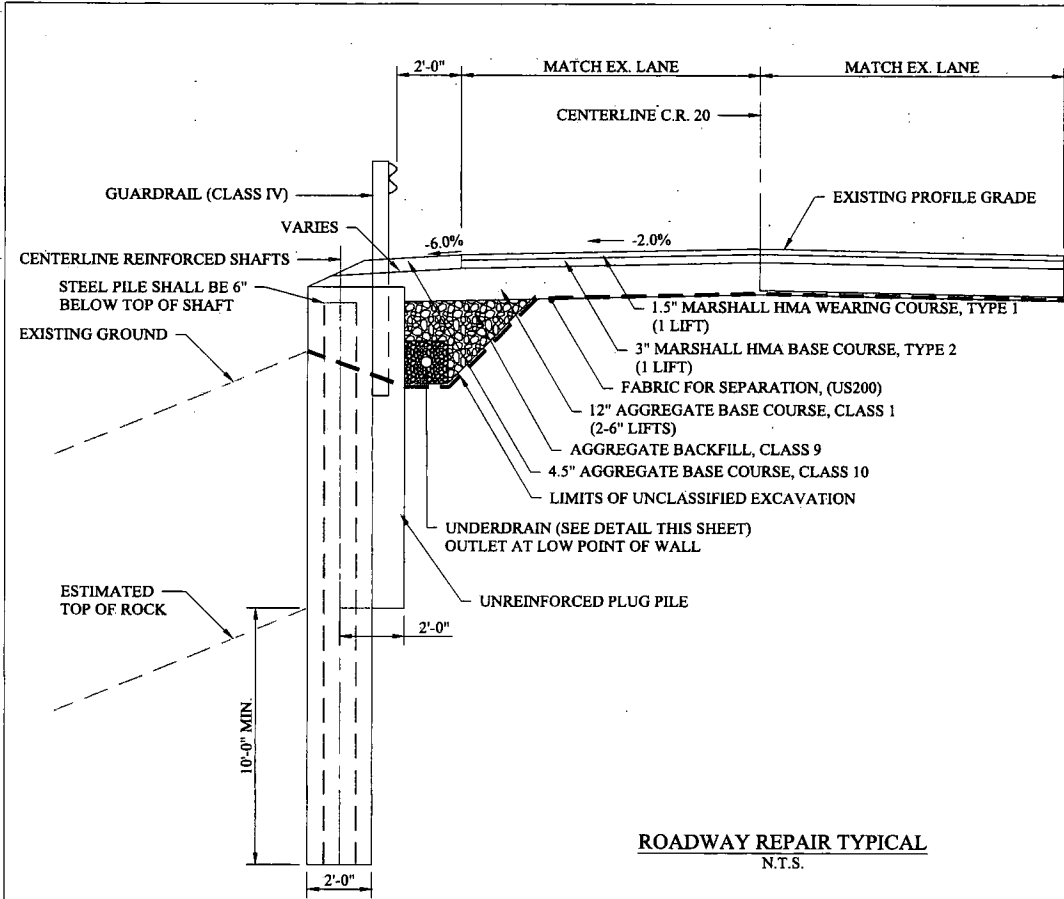
**CEE**  
**Civil & Environmental Consultants, Inc.**  
 150 Granite Boulevard - Skaneateles, NY 13152  
 PH: 304.853.3119 FAX: 304.853.3377  
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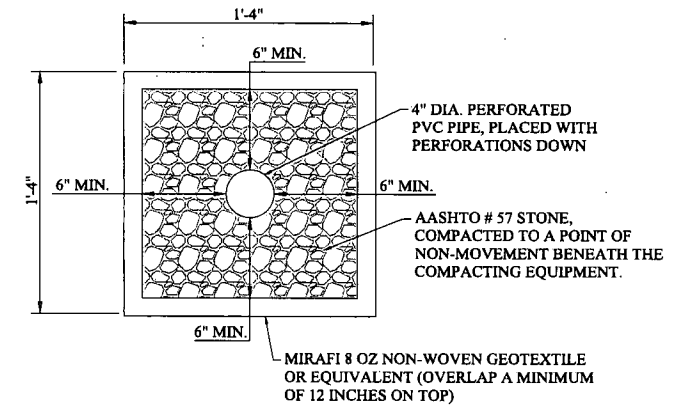
ANTERO RESOURCES CORPORATION  
 DODDRIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 SUMMARY OF ESTIMATED QUANTITIES

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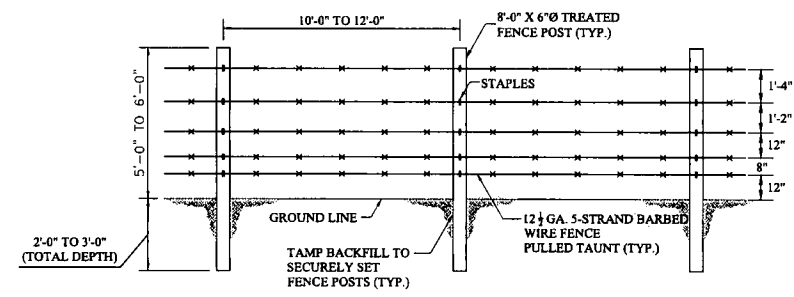
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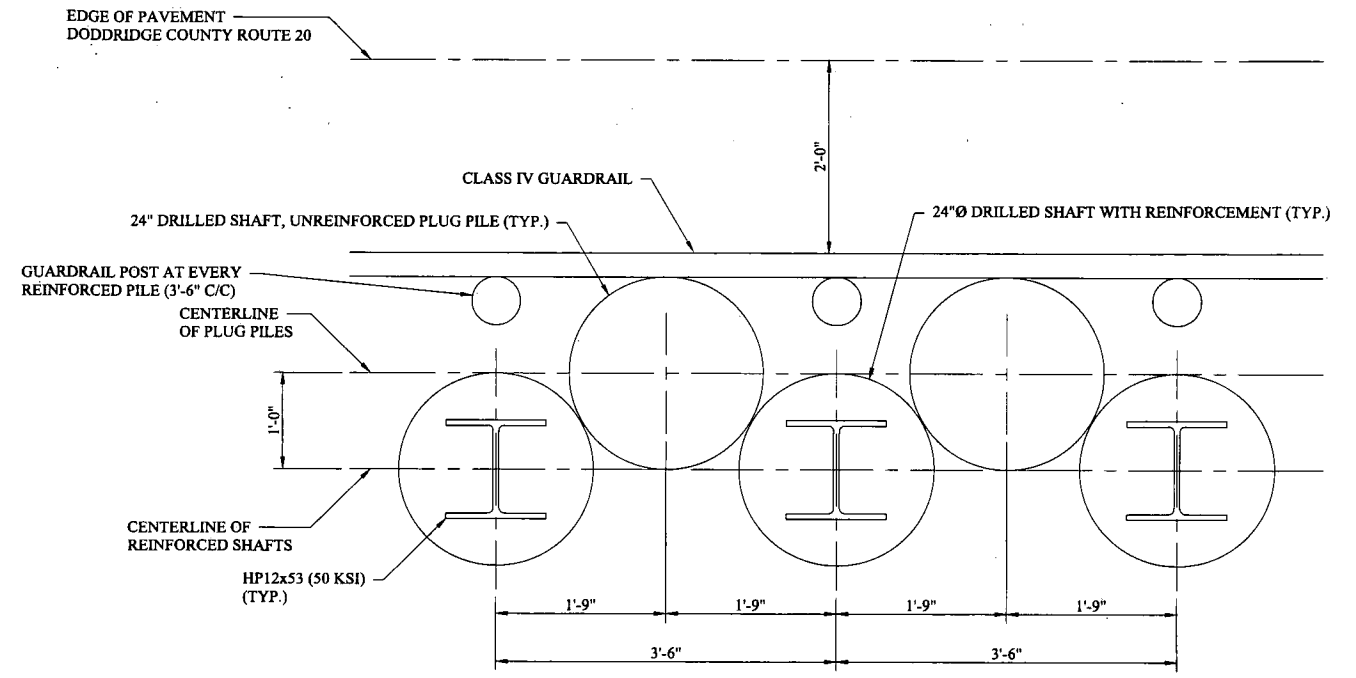
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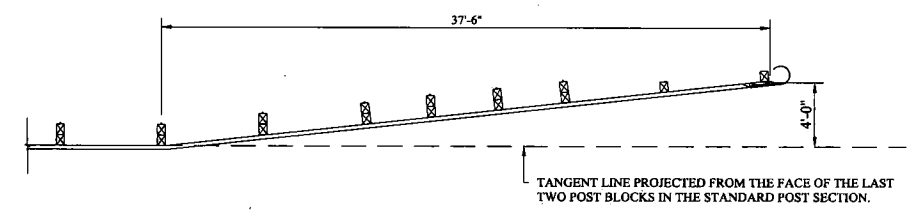
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**FARMFENCE DETAIL**  
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**PLUG PILE WALL TYPICAL PLAN**  
N.T.S.



**GUARDRAIL TERMINAL FLARE DETAIL**  
N.T.S.

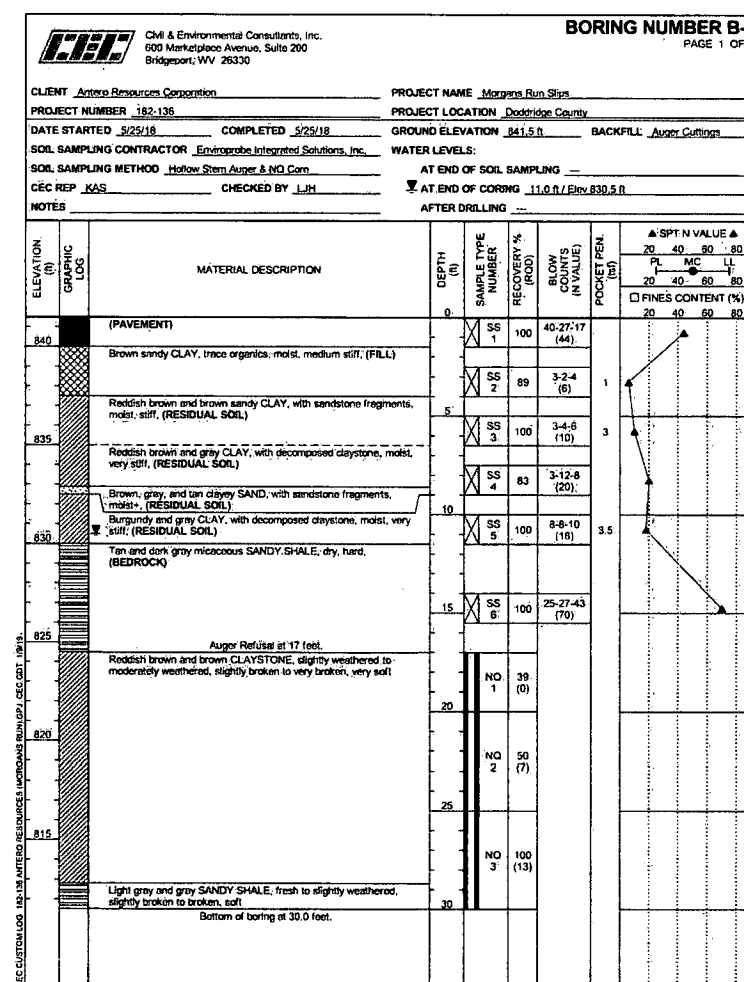
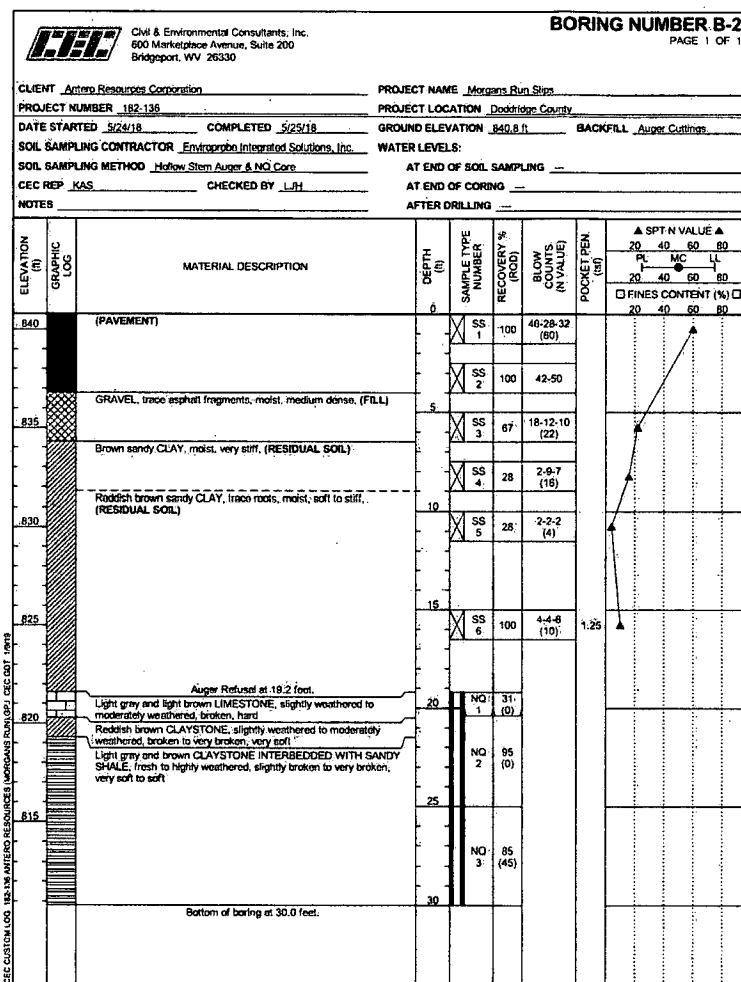
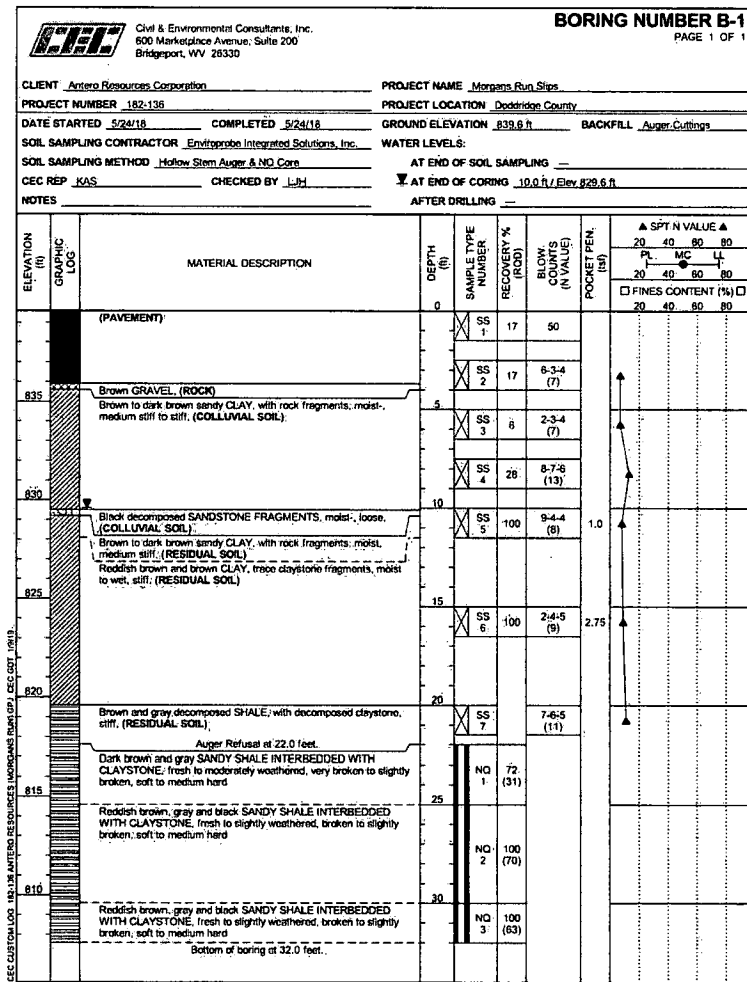


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APPROVED FOR CONSTRUCTION:	DATE:
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ANTERO RESOURCES CORPORATION  
DODDRIDGE COUNTY ROUTE 20  
MORGANS RUN SLIP REPAIR  
TYPICAL SECTION AND DETAILS



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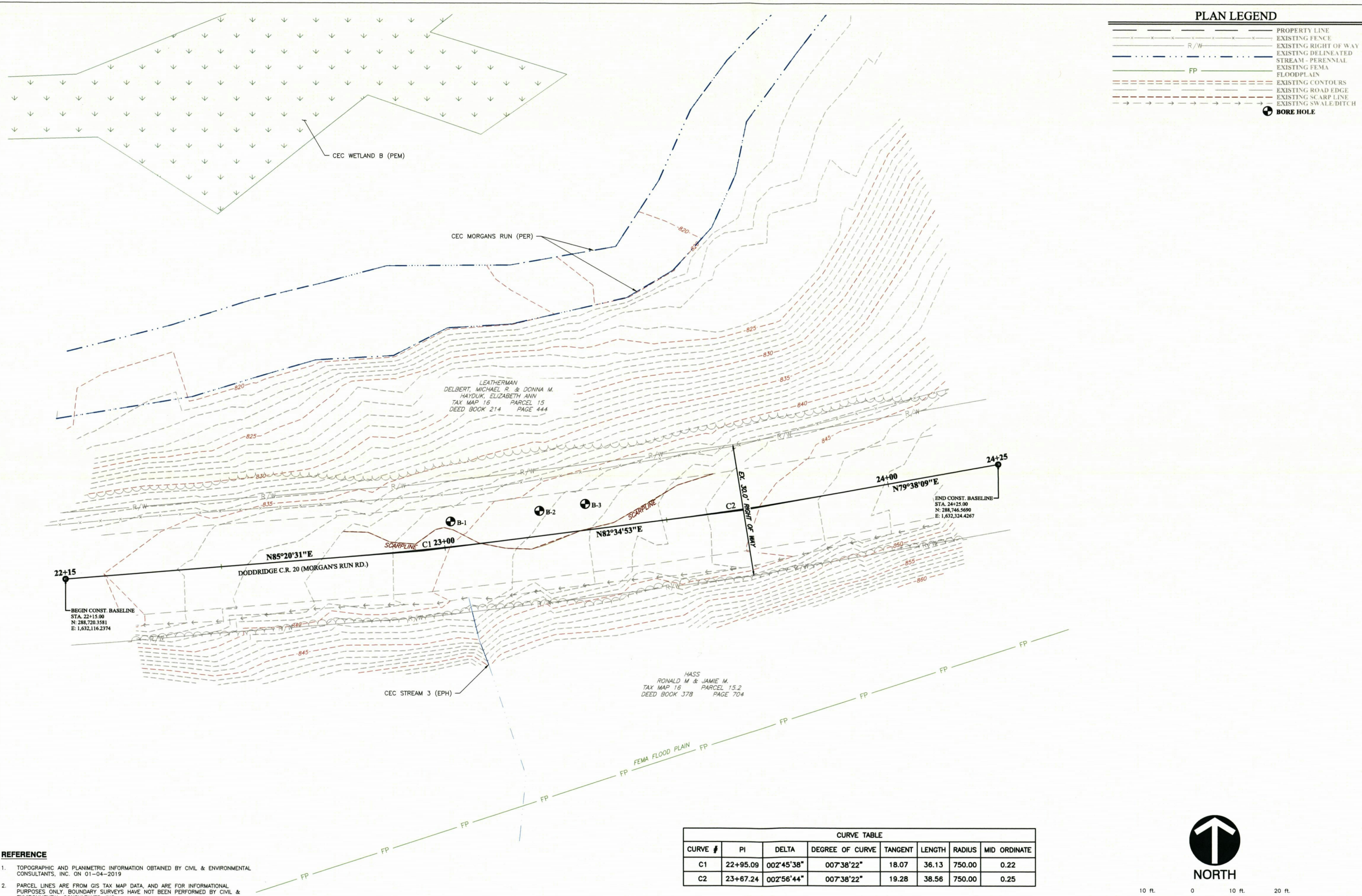
Civil & Environmental Consultants, Inc.  
120 Chestnut Boulevard - Bridgeport, WV 26308  
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ANTERO RESOURCES CORPORATION  
DODDRIDGE COUNTY ROUTE 20  
MORGANS RUN SLIP REPAIR  
CORE BORING LOGS

SHEET No. **5**

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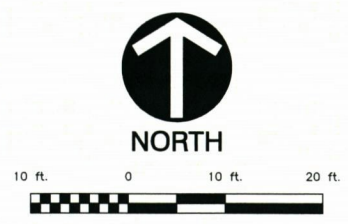
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	PROPERTY LINE
	EXISTING FENCE
	EXISTING RIGHT OF WAY
	EXISTING DELINEATED STREAM - PERENNIAL
	EXISTING FEMA FLOODPLAIN
	EXISTING CONTOURS
	EXISTING ROAD EDGE
	EXISTING SCARP LINE
	EXISTING SWALE/DITCH
	BORE HOLE

- REFERENCE**
- TOPOGRAPHIC AND PLANIMETRIC INFORMATION OBTAINED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 01-04-2019
  - PARCEL LINES ARE FROM GIS TAX MAP DATA, AND ARE FOR INFORMATIONAL PURPOSES ONLY. BOUNDARY SURVEYS HAVE NOT BEEN PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
  - DELINEATION PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 10/28/2021.

CURVE #	PI	DELTA	DEGREE OF CURVE	TANGENT	LENGTH	RADIUS	MID ORDINATE
C1	22+95.09	002°45'38"	007°38'22"	18.07	36.13	750.00	0.22
C2	23+67.24	002°56'44"	007°38'22"	19.28	38.56	750.00	0.25



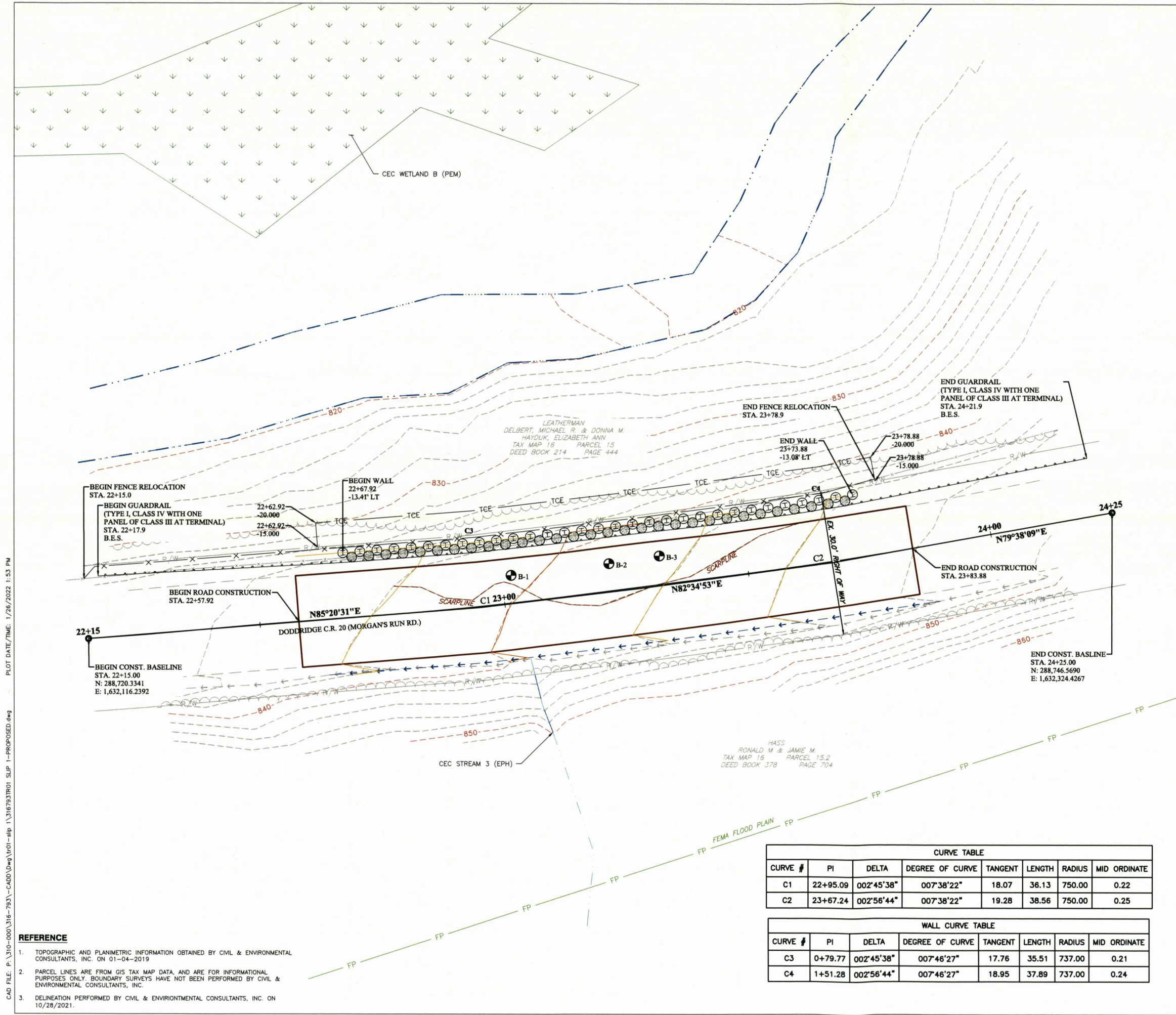
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BY: --	BY: --	BY: --
APPROVED FOR CONSTRUCTION:	DATE: --	DATE: --
BY: --	BY: --	BY: --

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ANTERO RESOURCES CORPORATION  
 DODDRIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 EXISTING CONDITIONS

SHEET No.  
**6**



**PLAN LEGEND**

	PROPERTY LINE
	EXISTING FENCE
	EXISTING TREE LINE
	EXISTING RIGHT OF WAY
	EXISTING DELINEATED STREAM - PERENNIAL
	EXISTING FEMA FLOODPLAIN
	EXISTING CONTOURS
	EXISTING ROAD EDGE
	EXISTING SCARP LINE
	EXISTING SWALE/DITCH
	BORE HOLE
	LIMIT OF DISTURBANCE
	PROPOSED CONTOURS
	PROPOSED EDGE OF PAVEMENT
	PROPOSED FENCE
	TEMPORARY CONSTRUCTION EASEMENT



**CURVE TABLE**

CURVE #	PI	DELTA	DEGREE OF CURVE	TANGENT	LENGTH	RADIUS	MID ORDINATE
C1	22+95.09	002°45'38"	007°38'22"	18.07	36.13	750.00	0.22
C2	23+67.24	002°56'44"	007°38'22"	19.28	38.56	750.00	0.25

**WALL CURVE TABLE**

CURVE #	PI	DELTA	DEGREE OF CURVE	TANGENT	LENGTH	RADIUS	MID ORDINATE
C3	0+79.77	002°45'38"	007°46'27"	17.76	35.51	737.00	0.21
C4	1+51.28	002°56'44"	007°46'27"	18.95	37.89	737.00	0.24

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- REFERENCE**
- TOPOGRAPHIC AND PLANIMETRIC INFORMATION OBTAINED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 01-04-2019
  - PARCEL LINES ARE FROM GIS TAX MAP DATA, AND ARE FOR INFORMATIONAL PURPOSES ONLY. BOUNDARY SURVEYS HAVE NOT BEEN PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
  - DELINEATION PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 10/28/2021.

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BY: _____	DATE: _____
APPROVED FOR BIDS:	DATE: _____
BY: _____	DATE: _____
APPROVED FOR CONSTRUCTION:	DATE: _____
BY: _____	DATE: _____

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 PH: 304-853-1118 FAX: 304-853-3287  
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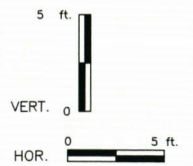
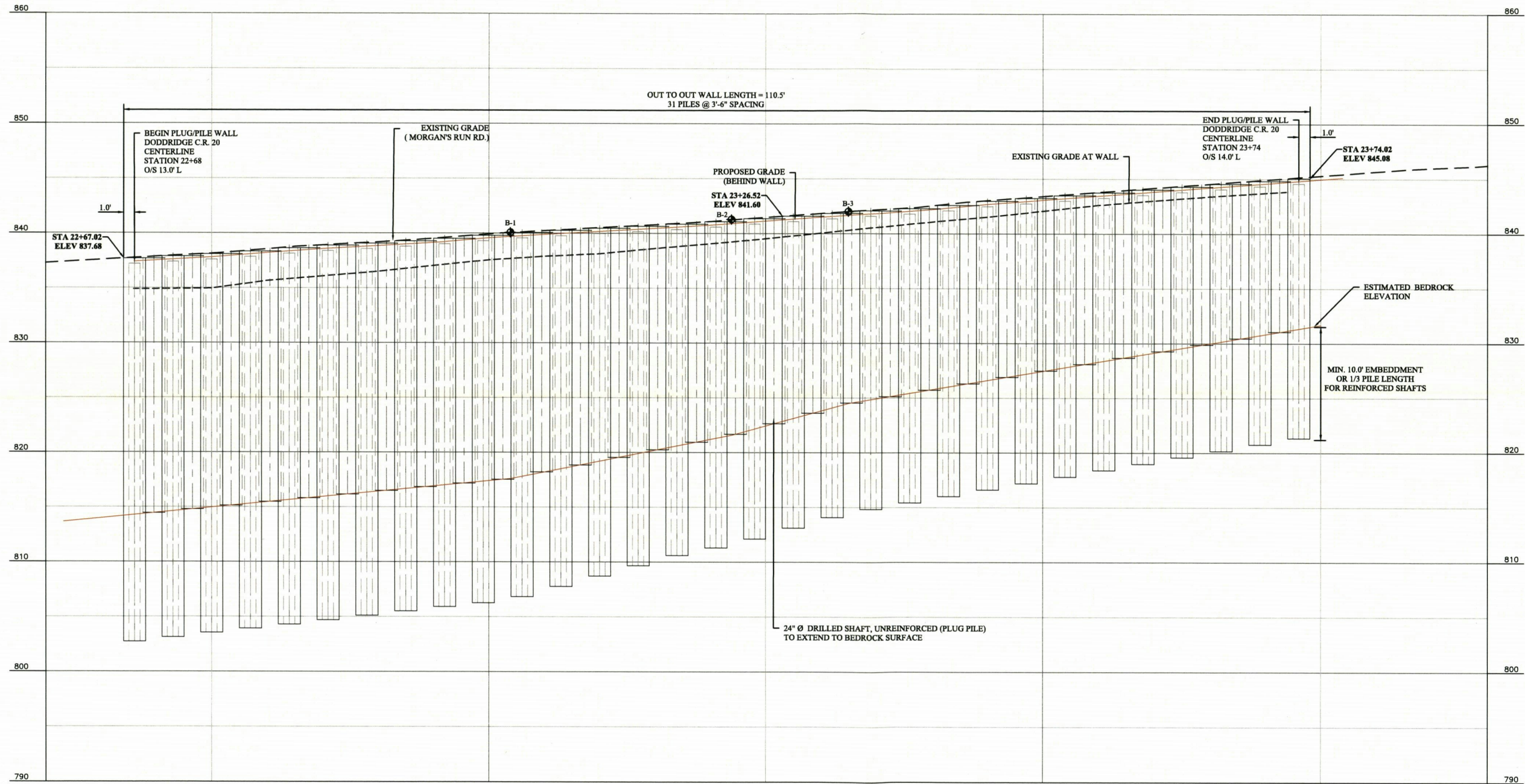
NO.	BY	DATE	DESCRIPTION

ANTERO RESOURCES CORPORATION  
 DODDRIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 PLUG PILE WALL PLAN

SHEET No. **7**

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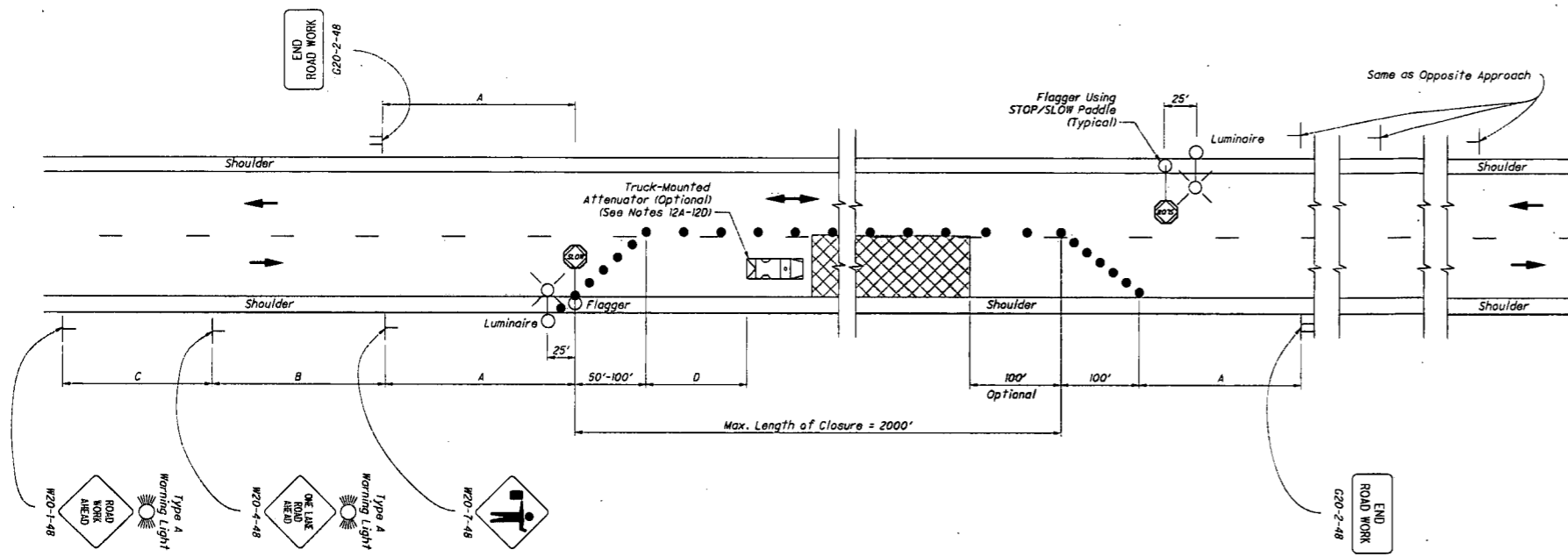
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BY: --	
APPROVED FOR CONSTRUCTION:	DATE: --
BY: --	

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150 Gessert Boulevard - Edgemoor, WY 82430  
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NO.	BY	DATE	DESCRIPTION

ANTERO RESOURCES CORPORATION  
DODDRIDGE COUNTY ROUTE 20  
MORGAN'S RUN SLIP REPAIR  
PLUG PILE WALL PROFILE

SHEET No.  
**8**

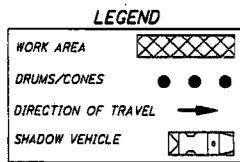


**TABLE I (SIGN SPACING)**

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
Two-Lane (< 40 MPH)	100	100	100
Two-Lane (45-50 MPH)	350	350	350
Two-Lane (55-60 MPH)	500	500	500

**TABLE II**

SPEED LIMIT (MPH)	BUFFER (D) (FT) MIN.
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570



**NOTES:**

**FLAGGERS**

1. Flaggers, one for each direction, shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall have 2-way, handheld communication to be able to communicate with each other at all times. Flaggers are not permitted to have vehicles.

**LENGTH OF CLOSURE**

2. Several small work areas close together should be combined into one work zone. However, the closure shall not be more than 2000' long unless approved by the Engineer. The minimum length between closures shall be 2000'. Only one side of the road shall be closed in any one work zone.

**SIGN LOCATION AND SPACING**

3A. The minimum spacing between work zone signs is shown in Table I. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.

3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200' for speeds of 45 mph or less and a minimum of 400' for speeds of 50 mph or greater.

3C. The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

**ADJUSTMENTS FOR SIGHT DISTANCE**

4. The location of the flagger station and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

**BASIC SIGNING**

5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.

5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. It is intended that these signs be placed on the mainline, on all exist ramps, and on roadways exiting the work limits.

5C. Overlapping of the signing for adjacent projects should be avoided where the messages could be confusing. Any ROAD WORK AHEAD (W20-1) or END ROAD WORK (G20-2) sign shall be omitted or covered during the period when both projects are active.

**SIGNING DETAILS**

6A. The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.

6B. 36" warning signs may be used when the approach speed limit is 40 mph or less.

**FLASHING WARNING LIGHTS**

7. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.

**DRUMS / CONES**

8A. Drum spacing shall be as follows:

- a) Spacing along the closure shall be 40' center-to-center.
- b) Spacing along the approach taper shall be 10' center-to-center.

8B. Cones may be substituted for drums as follows:

- a) Cones used for daytime traffic control shall have a minimum height of 28".
- b) Cones used for nighttime traffic control shall have a minimum height of 42".
- c) Use of cones at night shall be prohibited along tapers.

8C. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.

8D. A minimum of two drums shall be used to close the paved shoulder.

**(RESERVED FOR FUTURE USE)**

9A. (Intentionally blank)

**AREA ILLUMINATION**

10A. Adequate area illumination of each flagger station shall be provided at night. Use of portable flood lighting is acceptable. Luminaries shall be located adjacent to each flagger station.

10B. To ensure the adequacy of floodlight placement and the elimination of glare, the Contractor and the Engineer shall drive through the worksite each night when the lighting is in place. Light placement and shielding shall be adjusted to the satisfaction of the Engineer.

**INTERSECTION / DRIVEWAY ACCESS**

11. Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The contractor shall:

- a) Place across the closed lane, either three drums (cones) or barricades, and/or
- b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25' beyond the projected pavement edges of the driveway or cross highway, as shown in Standard Construction Drawings (SCDs MT-97.11 or MT-97.12. For barricades, see SCD MT-101.60

Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

**SHADOW VEHICLE**

12A. The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.

12B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s).

12C. The vehicle shall be equipped with a truck-mounted attenuator when called for in the plans.

12D. Other protective devices may be used in lieu of the shadow vehicle shown when approved by the Engineer.

**CHIP SEAL OPERATIONS**

13. For chip seal operations, additional signing shall be incorporated in the advance warning area.





TEMPORARY SEEDING

Table IV-1 Recommended seeding dates for permanent and temporary cover unless otherwise specified.

Table with 2 columns: Planting Dates, Suitability. Rows include March-April/October, April-August, October-December, and December-March.

Table 2. Acceptable fertilization recommendation in absence of a soil test.

Table with 5 columns: Species, N (lbs/ac), P2O5 (lbs/ac), K2O (lbs/ac), Example Rec. (per acre). Rows include Cool Season Grass, CS Grass & Legume, and Temporary Cover.

Table 3. Temporary cover suitable for establishment in West Virginia.

Table with 6 columns: Species, Seeding Rate (lbs/acre), Optimum Seeding Dates, Drainage, pH Range. Rows include Annual Ryegrass, Field Bromegrass, Spring Oats, Sudangrass, Winter Rye, Winter Wheat, Japanese Millet, Redtop, Annual Ryegrass, and Spring Oats.

NOTE: These rates should be increased by 50% if planted April 15 - August 1 and October 1 - March 1.

- 1. STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION SITE.
2. TEMPORARY SEED SHALL BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED OR REWORKED FOR 14 DAYS OR GREATER. THESE IDLE AREAS SHALL BE SEEDED WITHIN FOUR (4) DAYS AFTER GRADING.
3. THE SEEDBED SHOULD BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. TEMPORARY SEEDING SHOULD NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
4. SOIL AMENDMENTS - TEMPORARY VEGETATION SEEDING RATES SHALL ESTABLISH ADEQUATE STANDS OF VEGETATION, WHICH MAY REQUIRE THE USE OF SOIL AMENDMENTS. BASE RATES FOR LIME AND FERTILIZER SHALL BE USED.
5. SEEDING METHOD - SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SPREADER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

MULCHING TEMPORARY SEEDING

- 1. APPLICATION OF TEMPORARY SEEDING SHALL INCLUDE MULCH, WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES ON FAVORABLE, VERY FLAT SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION.
2. MATERIALS:
2.1. STRAW - IF STRAW IS USED, IT SHALL BE UNROLLED SMALL-GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE OR 90 LBS./1,00 SQ. FT. (2-3 BALES)
2.2. HYDROSEEDERS - IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT 2000 LBS./AC. OR 46 LB./1000 SQ. FT.
2.3. OTHER - OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TON/AC
3. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER. ANCHORING METHODS:
3.1. MECHANICAL - A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT LEFT TO A LENGTH OF APPROXIMATELY 6 INCHES.
3.2. MULCH NETTING - NETTING SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.
3.3. SYNTHETIC BINDERS - SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TRACK, OR EQUIVALENT MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER.
3.4. WOOD CELLULOSE FIBER - WOOD CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WT. OF 750 LB./AC. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB./100 GAL.

TEMPORARY SEEDING

CUT SLOPES - GREATER THAN 3:1 SLOPES

- 1. STAIR-STEP GRADING MAY BE CARRIED OUT ON ANY MATERIAL SOFT ENOUGH TO BE RIPPED WITH A BULLDOZER. THE RATIO OF THE HORIZONTAL DISTANCE TO THE VERTICAL CUT DISTANCE SHALL BE FLATTER THAN 1:1 AND THE HORIZONTAL PORTION OF THE "STEP" SHALL SLOPE TOWARD THE VERTICAL WALL. INDIVIDUAL VERTICAL CUTS SHALL NOT BE MORE THAN 24 INCHES ON SOFT SOIL MATERIALS AND NOT MORE THAN 36 INCHES IN ROCKY MATERIALS.
2. GROOVING MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPERATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUCE COMPACTION. SUGGESTED IMPLEMENTS INCLUDE DISCS, TILLERS, SPRING HARROWS, AND THE TEETH ON A FRONT-END LOADER BUCKET. SUCH GROVES SHALL NOT BE LESS THAN 3 INCHES DEEP NOR FURTHER THAN 15 INCHES APART.

FILL SLOPES - GREATER THAN 3:1 SLOPES

- FILL SLOPES STEEPER THAN 3:1 SHALL BE GROOVED OR ALLOWED TO REMAIN ROUGH AS THEY ARE CONSTRUCTED UTILIZING METHOD (1) OR (2) BELOW.
1. GROOVING MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPERATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUCE COMPACTION SUCH AS DISCS, TILLERS, SPRING HARROWS, AND THE TEETH ON A FRONT-END LOADER BUCKET. GROOVES LEFT SHALL NOT BE LESS THAN 3 INCHES DEEP NOR FURTHER THAN 15 INCHES APART.
2. AS LIFTS OF THE FILL ARE CONSTRUCTED, SOIL AND ROCK MATERIALS MAY BE ALLOWED TO FALL NATURALLY ONTO THE SLOPE SURFACE. AT NO TIME SHALL SLOPES BE BLADED OR SCRAPPED TO PRODUCE A SMOOTH, HARD SURFACE.

CUTS, FILLS, AND GRADED AREAS WHICH WILL BE MOWED

- 1. MOWED SLOPES SHOULD NOT BE STEEPER THAN 3:1 AND SHALL AVOID EXCESSIVE ROUGHNESS. THESE AREAS MAY BE ROUGHENED WITH SHALLOW GROOVES SUCH AS THOSE, WHICH REMAIN AFTER TILLING, DISKING, HARROWING, RAKING, OR USE OF A CULTIPACKER-SEEDER. THE FINAL PASS OF ANY SUCH TILLAGE IMPLEMENT SHALL BE ON THE CONTOUR (PERPENDICULAR TO THE SLOPE).
2. GROOVES FORMED BY IMPLEMENTS SHALL BE NOT LESS THAN 1 INCH DEEP AND NOT FURTHER THAN 12 INCHES APART. FILL SLOPES THAT ARE LEFT ROUGH DURING CONSTRUCTION MAY BE SMOOTHED WITH A CHAIN HARROW OR SIMILAR IMPLEMENT TO FACILITATE MOWING.

SPECIFICATIONS FOR PERMANENT SEEDING

SITE PREPARATION

- 1. SUBSOILER, FLOW, OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION. (MAXIMIZING INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY.) SUBSOILING SHOULD BE DONE WHEN THE SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING SHALL NOT BE DONE ON SLIP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION.
2. THE SITE SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING.
3. TOPSOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION.

SEEDBED PREPARATION

- 1. LIME-AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 150 POUNDS PER 1,000-SQ. FT. OR 3 TONS PER ACRE.
2. FERTILIZER-FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST. IN PLACE OF A SOIL TEST, FERTILIZER SHALL BE APPLIED AT A RATE OF 12 POUNDS PER 1,000-SQ. FT. OR 500 POUNDS PER ACRE OF A 10-20-20 OR EQUIVALENT.
3. THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES. ON SLOPING LAND, THE SOIL SHALL BE WORKED ON THE CONTOUR.

SEEDING DATES AND SOIL CONDITIONS

SEEDING SHOULD BE DONE MARCH 1 TO APRIL 15 OR AUGUST 1 TO OCTOBER 1. IF SEEDING OCCURS APRIL 15 - AUGUST 1, AND OCTOBER 1 - MARCH 1, INCREASE SEEDING RATES BY 50%. TILLAGE FOR SEEDBED PREPARATION SHOULD BE DONE WHEN THE SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. FOR WINTER SEEDING, SEE THE FOLLOWING SECTION ON DORMANT SEEDING.

DORMANT SEEDINGS

- 1. SEEDINGS CAN BE MADE FROM DECEMBER 1 THROUGH MARCH 1. DURING THIS PERIOD, THE SEEDS ARE LIKELY TO GERMINATE BUT MAY NOT BE ABLE TO SURVIVE THE WINTER.
2. THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":
- FROM DECEMBER 1 THROUGH MARCH 1, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. INCREASE SEEDING RATES BY 50%.

MULCHING

1. MULCH MATERIAL SHALL BE APPLIED IMMEDIATELY AFTER SEEDING. DORMANT SEEDING SHALL BE MULCHED. 100% OF THE GROUND SURFACE SHALL BE COVERED WITH AN APPROVED MATERIAL.

2. MATERIALS

- STRAW-IF STRAW IS USED IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT THE RATE OF 2-3 TONS PER ACRE OR 135 POUNDS (THREE TO FOUR BALES) PER 1,000-SQ. FT. THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY APPLIED SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000-SQ.FT. SECTIONS AND SPREAD THREE 45-LB. BALES OF STRAW IN EACH SECTION.
- HYDROSEEDERS-IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE APPLIED AT 1,500 LB./AC. OR 35 LB/1,000 SQ. FT.
- OTHER-OTHER ACCEPTABLE MULCHES INCLUDE ROLLED EROSION CONTROL MATTINGS OR BLANKETS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TONS PER ACRE.

3. STRAW AND MULCH ANCHORING METHODS

- STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER.
- MECHANICAL-A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT, GENERALLY, BE LEFT LONGER THAN 6 INCHES.
- MULCH NETTING-NETTING SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.
- ASPHALT EMULSION-ASPHALT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURER OR AT THE RATE OF 160 GALLONS PER ACRE.

- SYNTHETIC BINDERS-SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUIVALENT MAY BE USED AT RATES SPECIFIED BY THE MANUFACTURER.
- WOOD CELLULOSE FIBER-WOOD CELLULOSE FIBER SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 POUNDS PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER WITH THE MIXTURE CONTAINING A MAXIMUM OF 50 POUNDS CELLULOSE PER 100 GALLONS OF WATER.

IRRIGATION

PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY WEATHER OR ON ADVERSE SITE CONDITIONS, WHICH REQUIRE ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTH.

IRRIGATION RATES SHALL BE MONITORED TO PREVENT EROSION AND DAMAGE TO SEEDED AREAS FROM EXCESSIVE RUNOFF.

TOPSOILING

SALVAGING AND STOCKPILING:

- 1. DETERMINE THE DEPTH AND SUITABILITY OF TOPSOIL AT THE SITE. (FOR HELP, CONTACT YOUR NRCS OFFICE TO OBTAIN A COUNTY SOIL SURVEY REPORT).
2. PRIOR TO STRIPPING TOPSOIL, INSTALL APPROPRIATE DOWNSLOPE EROSION AND SEDIMENTATION CONTROLS SUCH AS SEDIMENT TRAPS AND BASINS.
3. REMOVE THE SOIL MATERIAL NO DEEPER THAN WHAT THE COUNTY SOIL SURVEY DESCRIBES AS "SURFACE SOIL" (IE. A OR AP HORIZON).
4. CONSTRUCT STOCKPILES IN ACCESSIBLE LOCATIONS THAT DO NOT INTERFERE WITH NATURAL DRAINAGE. INSTALL APPROPRIATE SEDIMENT CONTROLS TO TRAP SEDIMENT SUCH AS SILT FENCE IMMEDIATELY ADJACENT TO THE STOCKPILE OR SEDIMENT TRAPS OR BASINS DOWNSTREAM OF THE STOCKPILE. STOCKPILE SIDE SLOPES SHALL NOT EXCEED A RATION OF 2:1.
5. IF TOPSOIL IS STORED FOR MORE THAN 14 DAYS, IT SHOULD BE TEMPORARY SEEDDED, OR COVERED WITH A TARP.

SPREADING THE TOPSOIL

- 1. PRIOR TO APPLYING TOPSOIL, THE TOPSOIL SHOULD BE PULVERIZED.
2. TO ENSURE BONDING, GRADE THE SUBSOIL AND ROUGHEN THE TOP 3-4 IN. BY DISKING.
3. DO NOT APPLY WHEN SITE IS WET, MUDDY, OR FROZEN, BECAUSE IT MAKES SPREADING DIFFICULT, CAUSES COMPACTION PROBLEMS, AND INHIBITS BONDING WITH SUBSOIL.
4. APPLY TOPSOIL EVENLY TO A DEPTH OF AT LEAST 4 INCHES AND COMPACT SLIGHTLY TO IMPROVE CONTACT WITH SUBSOIL.
5. AFTER SPREADING, GRADE AND STABILIZE WITH SEEDING OR APPROPRIATE VEGETATION.

Table 4a. Permanent seeding mixtures suitable for establishment in WV.

Table with 4 columns: Species/Mixture, Seeding Rate (lbs/acre), Soil Drainage Preference, pH Range. Rows include Crownvetch/Tall Fescue, Crownvetch/Perennial Ryegrass, Flatpea or Perennial Pea/Tall Fescue, Ladino Clover/Serecia Lespedeza/Tall Fescue, Crownvetch/Tall Fescue/Redtop, Tall Fescue/Birdsfoot Trefoil/Redtop, Serecia Lespedeza/Tall Fescue/Redtop, Redtop/Tall Fescue/Creeping Red, Tall Fescue/Perennial Ryegrass/Tall Fescue/Lathco Flatpea.

Tables IV 1-4 taken from Natural Resources Conservation Service Manual Critical Area Planting

Table 4b. Mixtures in the table below are more wildlife and farm friendly.

Table with 4 columns: Species/Mixture, Seeding Rate (lbs/acre), Soil Drainage Preference, pH Range. Rows include KY Bluegrass/Redtop, Ladino Clover or Birdsfoot Trefoil, Timothy/Alfalfa, Timothy/Birdsfoot Trefoil, Orchardgrass/Ladino Clover/Redtop, Orchardgrass/Ladino Clover, Orchardgrass/Perennial Ryegrass, Creeping Red Fescue/Perennial Ryegrass, Orchardgrass or Kentucky Bluegrass, Birdsfoot Trefoil/Redtop/Orchardgrass, Lathco Flat Pea/Perennial Ryegrass, Lathco Flat Pea/Orchardgrass.

Mixtures listed in bold are suitable for use in shaded woodland settings; those in italics are suitable for use in filter strips. \* Lathco Flatpea is potentially poisonous to some livestock. All legumes should be planted with proper inoculants prior to seeding. For unprepared seedbeds or seeding into the optimum timeframe, add 50% more seed to the specified rate.

Table IV-5 Lime and Fertilizer Application Table

Table with 4 columns: pH of Soil, Lime in Tons Per Acre, Fertilizer, Lbs., per Acre, 10-20-20- or Equivalent. Rows include Above 6.0, 5.0 to 6.0, Below 5.0.

The pH can be determined with a portable pH testing kit or by sending the soil samples to a soil testing laboratory. When 4 tons of lime per acre are applied it must be incorporated into the soil by disking, backblading or tracking up and down the slope.

Table IV-6 Mulch Materials Rates and Uses

Table with 4 columns: Material, Minimum Rates Per Acre, Coverage, Remarks. Rows include Hay or Straw, Wood Fiber, Pulp Fiber, Wood-Cellulose, Recirculated Paper.



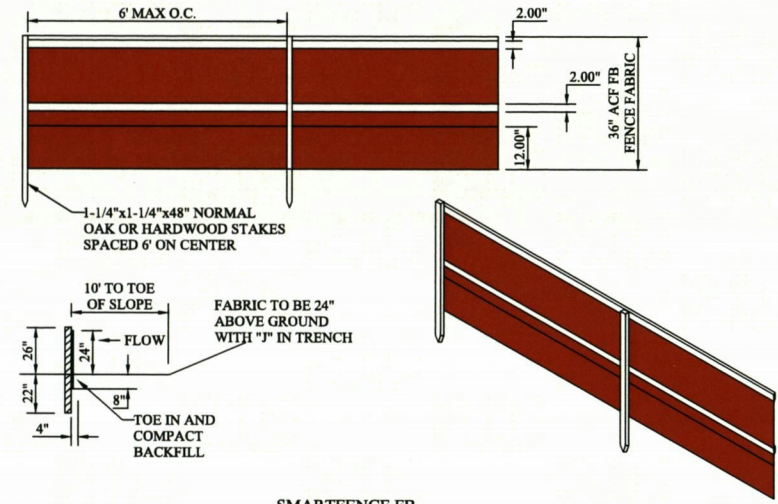
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Civil & Environmental Consultants, Inc. 150 Research Boulevard - Beltsville, MD 20814 Tel: 301-983-3119 Fax: 301-983-3287 www.cec.com

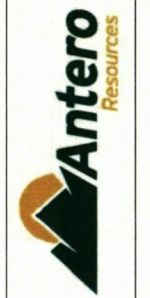
Table with 2 columns: NO., DATE. Rows include 1, 2, 3, 4, 5.

ANTERO RESOURCES CORPORATION DODDRIDGE COUNTY ROUTE 20 MORGANS RUN SLIP REPAIR EROSION & SEDIMENT CONTROL NOTES

SHEET No.



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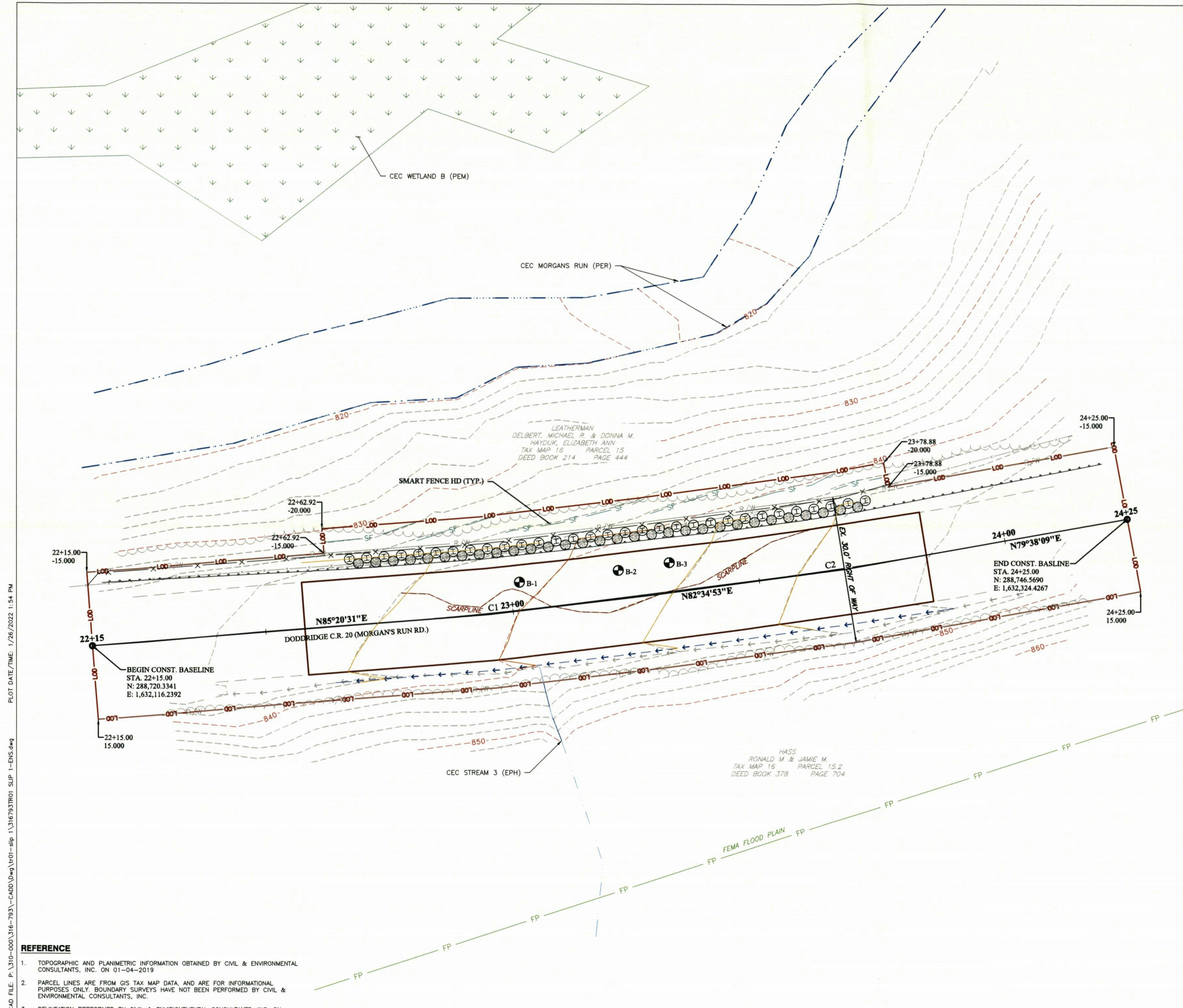


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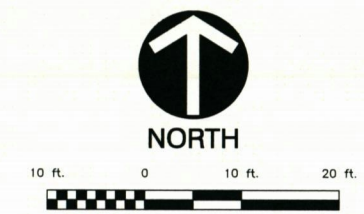
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 DODDRIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 EROSION & SEDIMENT CONTROL DETAILS



**PLAN LEGEND**

	PROPERTY LINE
	EXISTING FENCE
	EXISTING TREE LINE
	EXISTING RIGHT OF WAY
	EXISTING DELINEATED STREAM - PERENNIAL
	EXISTING FEMA FLOODPLAIN
	EXISTING CONTOURS
	EXISTING ROAD EDGE
	EXISTING SCARP LINE
	EXISTING SWALE/DITCH
	BORE HOLE
	LIMIT OF DISTURBANCE
	PROPOSED CONTOURS
	PROPOSED EDGE OF PAVEMENT
	PROPOSED DITCH
	PROPOSED FENCE
	TEMPORARY CONSTRUCTION EASEMENT
	PROPOSED SMART FENCE HD



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- REFERENCE**
1. TOPOGRAPHIC AND PLANIMETRIC INFORMATION OBTAINED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 01-04-2019
  2. PARCEL LINES ARE FROM GIS TAX MAP DATA, AND ARE FOR INFORMATIONAL PURPOSES ONLY. BOUNDARY SURVEYS HAVE NOT BEEN PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
  3. DELINEATION PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 10/28/2021.

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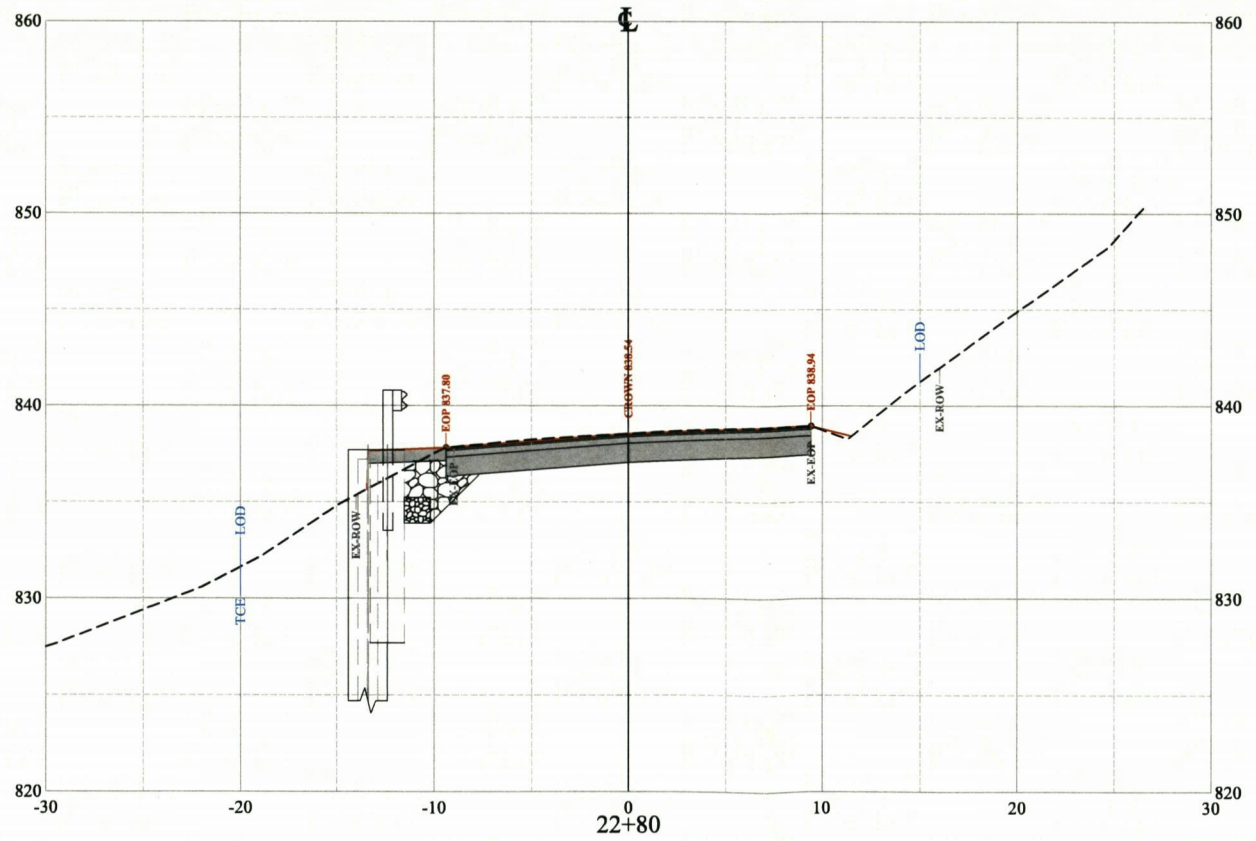
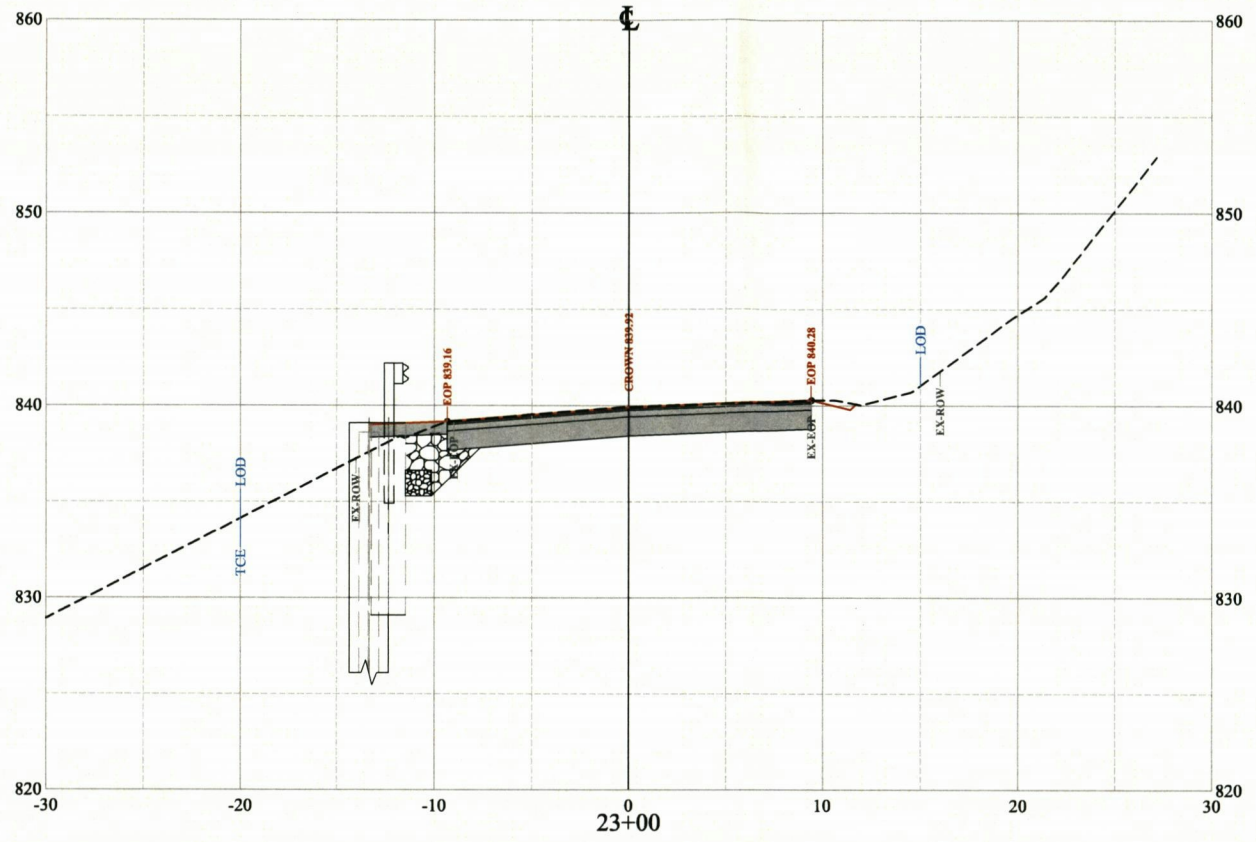
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 150 Bennett Boulevard - Bridgeport, NY 14050  
 PH: 304.883.3118 Fax: 304.883.3377  
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 DODDRIDGE COUNTY ROUTE 20  
 MORGANS RUN SLIP REPAIR  
 EROSION & SEDIMENT CONTROL PLAN

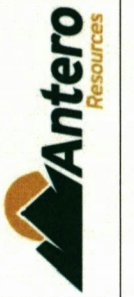
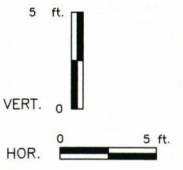
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**SECTIONS LEGEND**

- EXISTING GROUND
- PROPOSED GRADE
- - - EX-EOP
- - - EX-ROW
- - - LOD
- - - CROWN 999.99
- EXISTING EDGE OF PAVEMENT
- EXISTING RIGHT OF WAY
- PROPOSED LIMIT OF DISTURBANCE
- CROWN OF PAVEMENT ELEVATION



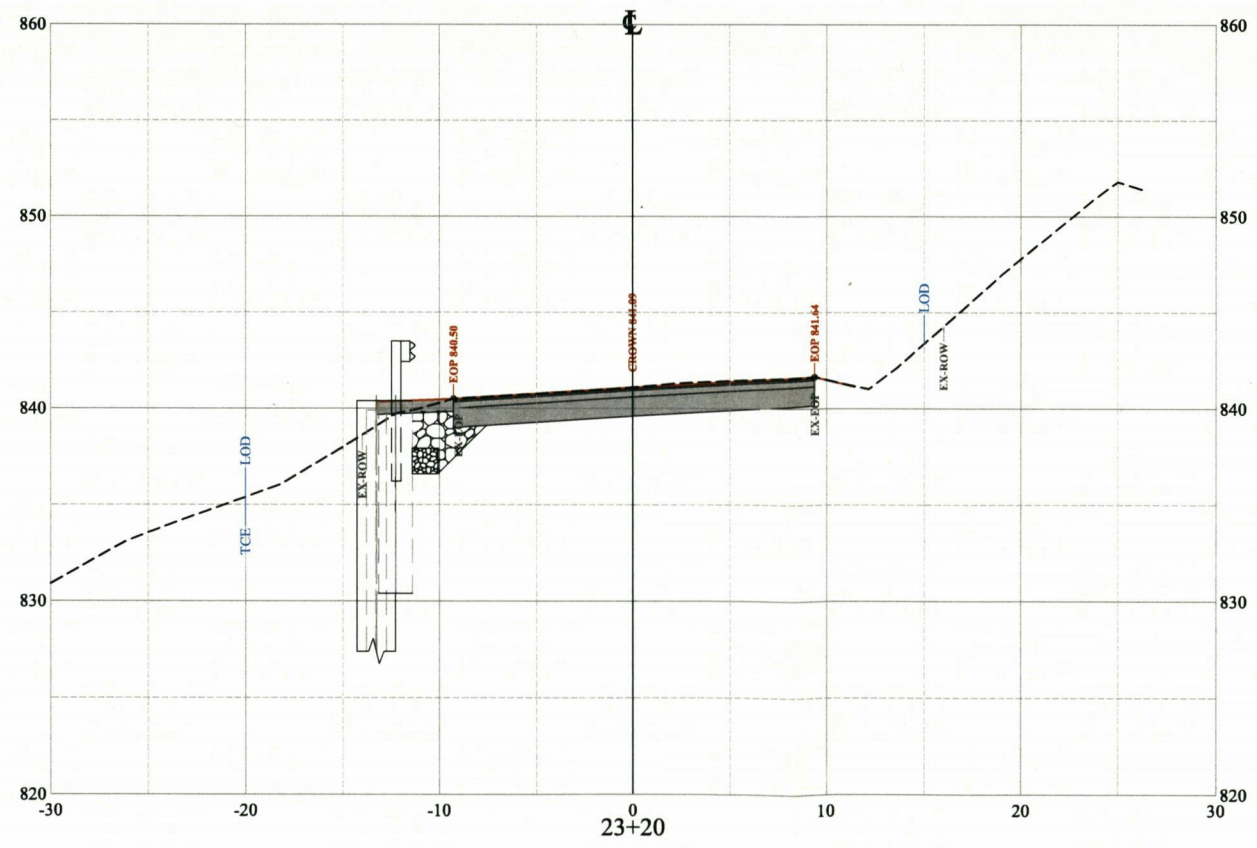
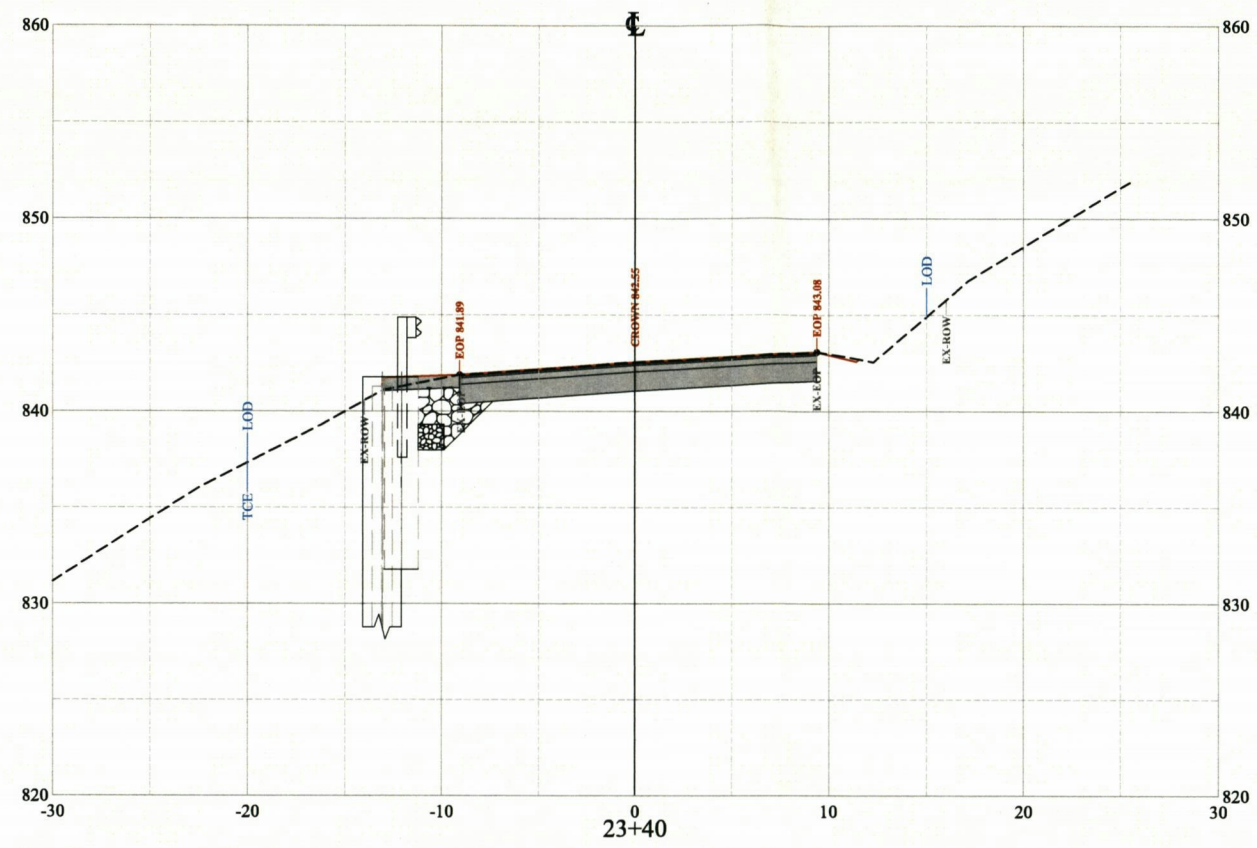
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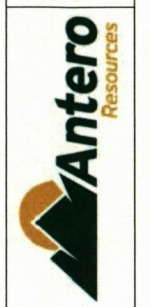
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**SECTIONS LEGEND**

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	EXISTING EDGE OF PAVEMENT
	EXISTING RIGHT OF WAY
	PROPOSED LIMIT OF DISTURBANCE
	CROWN 999.99
	CROWN OF PAVEMENT ELEVATION

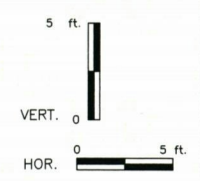


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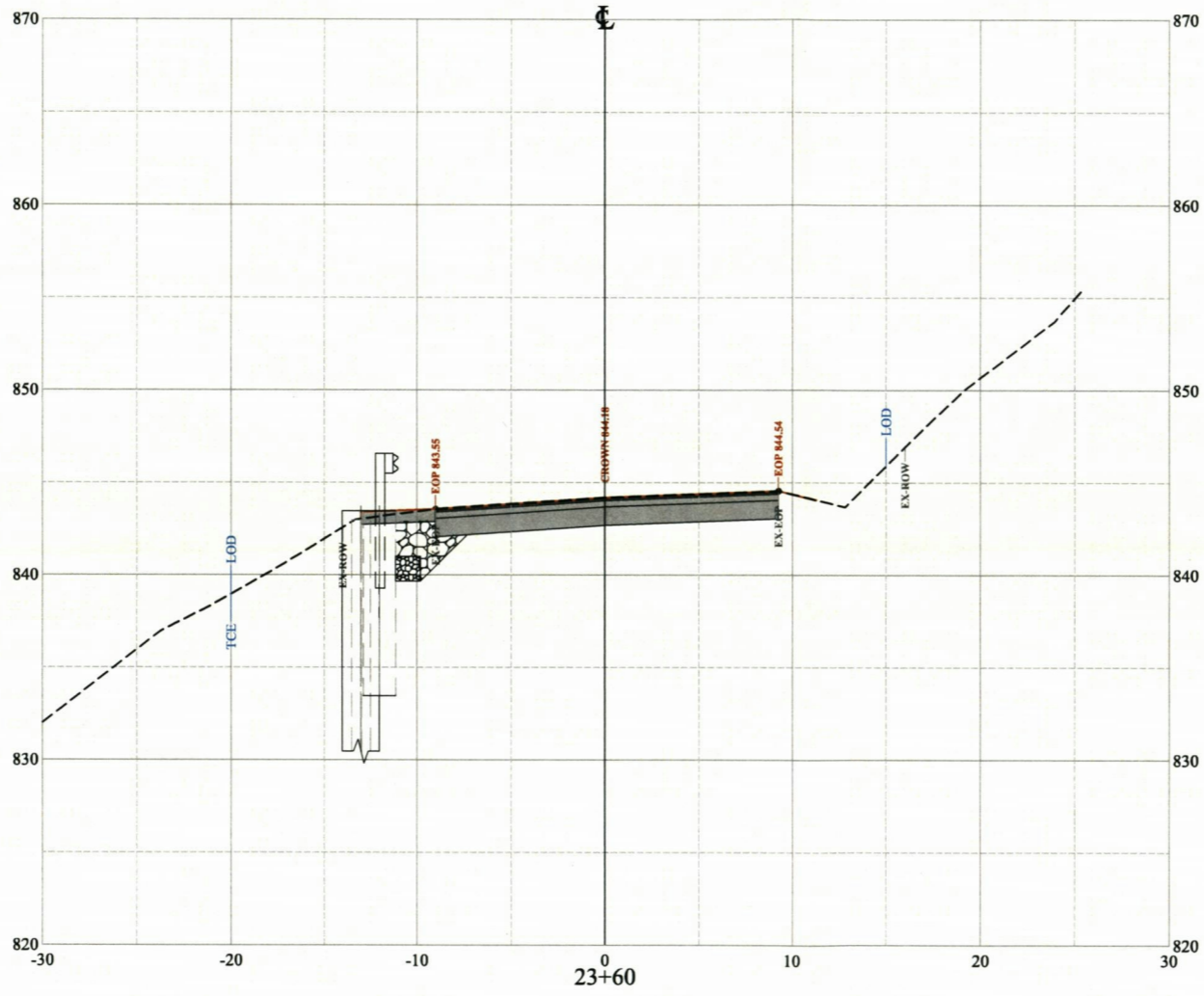
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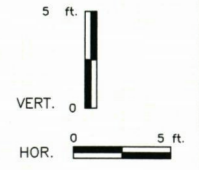
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---	EXISTING GROUND
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---	EXISTING EDGE OF PAVEMENT
---	EXISTING RIGHT OF WAY
---	LOD
---	PROPOSED LIMIT OF DISTURBANCE
---	CROWN 999.99
---	CROWN OF PAVEMENT ELEVATION



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