

Commercial/Industrial Floodplain Development Permit

Doddridge County, WV Floodplain Management

This permit has been issued to Dominion Transmission Inc., and is for the approved commercial and/or industrial development project associated with this permit 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: #14-189

Date Approved: 07/02/2014

Expires: N/A

Issued to: Antero Resources

**POC: Shaye Marshall
303-357-6412**

Company Address:

Project Address:

Firm: N/A

Purpose of development: Pipeline. Project does not impact floodplain.

Issued by: Edwin L. "Bo" Wriston, Doddridge County FPM (or designee)

Date: 07/01/2014

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

14-189



Antero Resources
1625 17th Street
Denver, Colorado 80202
Office 303.357.7310
Fax 303.357.7315

March 28, 2014

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

To whom it may concern:

Per the Doddridge County Ordinance, Antero Resources Corporation (Antero) would like to submit a floodplain determination for the Pearl Jean to Canton Pipeline which is **NOT** located in the floodplain. The proposed project consists of a buried 12-inch steel natural gas pipeline from the existing Canton Pipeline to the proposed Pearl Jean Well Pad. Per the FIRM Map 54017C0145C and the WV Flood Tool Map no part of the pipeline & access road for construction will cross a designated FEMA floodplain. Please find enclosed the following:

- Doddridge County Floodplain Permit Application
- FIRM Map
- WV Flood Tool Map
- Pearl Jean to Canton Pipeline Construction Plans

If you have any questions please feel free to contact me at (303) 357-6412.

Sincerely,

A handwritten signature in black ink that reads "Shaye Marshall". The signature is fluid and cursive.

Shaye Marshall
Permit Representative
Antero Resources Corporation

Enclosures

2014 MAR 31 PM 1:31
BETH A. ROGERS
COUNTY CLERK
DODDRIDGE COUNTY, WV

FILED



Civil & Environmental Consultants, Inc.

Celebrating 25 Years

March 27, 2014

Ralph Sandora
Doddridge County Clerk's Office
118 E. Court Street, Room 102
West Union, WV 26456

Mr. Sandora:

Subject: Antero resources Corporation
Proposed Pearl Jean to Canton Pipeline Project
Floodplain Development Permit Application
Doddridge County, West Virginia
CEC Project 132-985

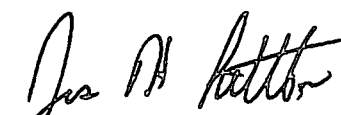
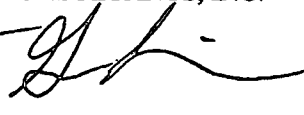
Civil & Environmental Consultants, Inc. (CEC) is pleased to submit this letter in support of the floodplain development permit application for the above referenced project on behalf of Antero Resources Corporation. The proposed Project consists of the installation of a buried 12-inch steel natural gas pipeline. The purpose of the Project is to transport natural gas from the existing Canton Pipeline to the proposed Pearl Jean Well Pad. The project is located east of Smithburg in Doddridge County, West Virginia. The eastern section of the project begins at 39.285490°, -80.673715° North American Datum (NAD) 83, and its western end lies at 39.286097°, -80.681023° NAD83.

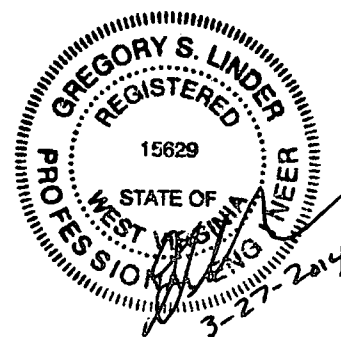
The proposed project is located on Flood Insurance Rate Map (FIRM) map number 54017C0145C, panel 145 of 325 with a map revised date of October 4, 2011. The proposed pipeline and associated access roads will not be located in a FEMA designated 100 year floodplain. The proposed pipelines will be installed utilizing open cut construction methods. The pipeline trenches will be excavated and backfilled to match the original ground contour.

CEC appreciates your time and effort in reviewing this floodplain development permit application. Please feel free to contact me at 304-933-3119 or via e-mail at jlittler@cecinc.com if you have questions or need additional information.

Respectfully submitted,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

	
Jason Littler, P.S. Project Manager	Greg Linder, P.E. Project Manager



cc: Shayelyn Marshall, Antero Resources Corporation
Shauna Demattee, Antero Resources Corporation
Patricia Kazimier, Antero Resources Corporation

#14-189

DODDRIDGE COUNTY FLOODPLAIN DEVELOPMENT PERMIT APPLICATION

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

2014 MAR 31 PM 1:32
BETH A. ROGERS
COUNTY CLERK
DODDRIDGE COUNTY, MO

FILED

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

APPLICANT'S SIGNATURE _____



DATE 3/28/14

SECTION 2: PROPOSE DEVELOPMENT (TO BE COMPLETED BY APPLICANT).

IF THE APPLICANT IS NOT A NATURAL PERSON, THE NAME, ADDRESS, AND TELEPHONE NUMBER OF A NATURAL PERSON WHO SHALL BE APPOINTED BY THE APPLICANT TO RECEIVE NOTICE PURSUANT TO ANY PROVISION OF THE CURRENT DODDRIDGE COUNTY FLOODPLAIN ORDINANCE.

APPLICANT'S NAME: Randy Koberdanz

ADDRESS: 1625 17th Street, Denver, CO 80202

TELEPHONE NUMBER: Contact Shaye Marshall: 303-357-6412

BUILDER'S NAME: Antero Resources Corporation

ADDRESS: 1625 17th Street, Denver, CO 80202

TELEPHONE NUMBER: (303) 357-7310

ENGINEER'S NAME: Civil & Environmental Consultants, Inc

ADDRESS: 99 Cambridge Place, Bridgeport, WV 26330

TELEPHONE NUMBER: 304-933-3119

PROJECT LOCATION:

NAME OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT)

Please See Exhibit A

ADDRESS OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT)

Please See Exhibit A

DISTRICT: Grant

DATE/FROM WHOM PROPERTY

PURCHASED: N/A

LAND BOOK DESCRIPTION:

DEED BOOK REFERENCE: Please See Exhibit A

TAX MAP REFERENCE: Please See Exhibit A

EXISTING BUILDINGS/USES OF PROPERTY: N/A

NAME OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY N/A

ADDRESS OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY N/A

To avoid delay in processing the application, please provide enough information to easily identify the project location.

DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)

A. STRUCTURAL DEVELOPMENT

<u>ACTIVITY</u>		<u>STRUCTURAL TYPE</u>	
X	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 X Pipelining
 Grading
 Excavation (except for STRUCTURAL DEVELOPMENT checked above)
 Watercourse Altercation (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)
-

C. STANDARD SITE PLAN OR SKETCH

1. SUBMIT ALL STANDARD SITE PLANS, IF ANY HAVE BEEN PREPARED.
2. IF STANDARD SITE PLANS HAVE NOT BEEN PREPARED:
 SKETCH ON A SEPARATE 8 ½ X 11 INCH SHEET OF PAPER THE SHAPE AND LOCATION OF THE LOT. SHOW THE LOCATION OF THE INTENDED CONSTRUCTION OR LAND USE INDICATING BUILDING SETBACKS, SIZE & HEIGHT. IDENTIFY EXISTING BUILDINGS, STRUCTURES OR LAND USES ON THE PROPERTY.
3. SIGN AND DATE THE SKETCH.

ACTUAL TOTAL CONSTRUCTION COSTS OF THE COMPLETE DEVELOPMENT IRRESPECTIVE OF WHETHER ALL OR ANY PART OF THE SUBJECT PROPOSED CONSTRUCTION PROJECT IS WITHIN THE FLOODPLAIN \$ N/A - Location is not within the floodplain

D. ADJACENT AND/OR AFFECTED LANDOWNERS:

1. NAME AND ADDRESS OF ALL OWNERS OF SURFACE TRACTS ADJACENT TO THE AREA OF THE SURFACE TRACT (UP & DOWN STREAM) UPON WHICH THE PROPOSED ACTIVITY WILL OCCUR AND ALL OTHER SURFACE OWNERS UP & DOWN STREAM) WHO OWN PROPERTY THAT MAY BE AFFECTED BY FLOODING AS IS DEMONSTRATED BY A FLOODPLAIN STUDY OR SURVEY (IF ONE HAS BEEN COMPLETED).

NAME: ___N/A-No properties sharing an
 ADDRESS: ___ immediate and common boundary
 ___ up or down stream due to the
 ___ location not being in floodplain

NAME: _____
 ADDRESS: _____

NAME: _____
 ADDRESS: _____

NAME: _____
 ADDRESS: _____

1. NAME AND ADDRESS OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON ANY ADJACENT PROPERTY AT THE TIME THE FLOODPLAIN PERMIT APPLICATION IS FILED AND THE NAME AND ADDRESS OF AT LEAST ONE ADULT RESIDING IN ANY HOME ON ANY PROPERTY THAT MAY BE AFFECTED BY FLOODING AS IS DEMONSTRATED BY A FLOODPLAIN STUDY OR SURVEY.

NAME: _____
 ADDRESS: _____

NAME: _____
 ADDRESS: _____

NAME: _____
 ADDRESS: _____

NAME: _____
 ADDRESS: _____

E. CONFIRMATION FORM

THE APPLICANT ACKNOWLEDGES, AGREES, AND CONFIRMS THAT HE/IT WILL PAY WITHIN 30 DAYS OF RECEIPT OF INVOICE BY THE COUNTY FOR ALL EXPENSES RELATIVE TO THE PERMIT APPLICATION PROCESS GREATER THAN THE REQUIRED DEPOSIT FOR EXPENSES INCLUDING:

- (A) PERSONAL SERVICE OF PROCESS BY THE DODDRIDGE COUNTY SHERIFF AT THE RATES PERMITTED BY LAW FOR SUCH SERVICE.
- (B) SERVICE BY CERTIFIED MAIL RETURN RECEIPT REQUESTED.
- (C) PUBLICATION.

EXHIBIT A

Surface Owners	Deed Book/Pg #	Tax Map/Parcel	Ac.	Address
Dean R. and Martha A. Pennington	Deed Book 275 Page 51	Parcel ID: 3-16-21 (District 3/ Map 16 / Parcel 21)	62.63	1203 East Run, West Union, WV 26456
Gloria J. Jett	Deed Book 237 Page 504	Parcel ID: 3-19-7 (District 3 / Map 19 / Parcel 7)	70.43	RR4 Box 697A, Fairmont WV, 26554

- (D) COURT REPORTING SERVICES AT ANY HEARINGS REQUESTED BY THE APPLICANT.
- (E) CONSULTANTS AND/OR HEARING EXPERTS UTILIZED BY DODDRIDGE COUNTY FLOODPLAIN ADMINISTRATOR/MANAGER OR FLOODPLAIN APPEALS BOARD FOR REVIEW OF MATERIALS AND/OR TESTIMONY REGARDING THE EFFICACY OF GRANTING OR DENYING THE APPLICANT'S FLOODPLAIN PERMIT.

NAME (PRINT): Randy Klobberdanz

SIGNATURE:  DATE: 3/28/14

After completing SECTION 2, APPLICANT should submit form to Floodplain Administrator/Manager or his/her representative for review.

SECTION 3: FLOODPLAIN DETERMINATION (to be completed by Floodplain Administrator/Manager or his/her representative)

THE PROPOSED DEVELOPMENT:

THE PROPOSED DEVELOPMENT IS LOCATED ON:

FIRM Panel: _____

Dated: _____

Is **NOT** located in a Specific Flood Hazard Area (Notify applicant that the application review is complete and **NO FLOODPLAIN DEVELOPMENT PERMIT IS REQUIRED**).

Is located in Special Flood Hazard Area.
 FIRM zone designation _____
 100-Year flood elevation is: _____ NGVD (MSL)

Unavailable

The proposed development is located in a floodway.
 FBFM Panel No. _____ Dated _____

See section 4 for additional instructions.

SIGNED

Ralph Sande

DATE

4-4-14

SECTION 4: ADDITIONAL INFORMATION REQUIRED (To be completed by Floodplain Administrator/Manager or his/her representative)

The applicant must submit the documents checked below before the application can be processed.

- A plan showing the location of all existing structures, water bodies, adjacent roads, lot dimensions and proposed development.
- Development plans, drawn to scale, and specifications, including where applicable: details for anchoring structures, storage tanks, proposed elevation of lowest floor, (including basement or crawl space), types of water resistant materials used below the first floor, details of flood proffing of utilities located below the first floor and details of enclosures below the first floor. Also _____
- Subdivision or other development plans (If the subdivision or development exceeds 50 lots or 5 acres, whichever is the lesser, the applicant must provide 100-year flood elevations if they are not otherwise available).
- Plans showing the extent of watercourse relocation and/or landform alterations.
- Top of new fill elevation _____ Ft. NGVD (MSL).
For floodproofing structures applicant must attach certification from registered engineer or architect.
- Certification from a registered engineer that the proposed activity in a regulatory floodway will not result in any increase in the height of the 100-year flood. A copy of all data and calculations supporting this finding must also be submitted.
- Manufactured homes located in a floodplain area must have a West Virginia Contractor's License and a Manufactured Home Installation License as required by the Federal Emergency Management Agency (FEMA).

Other:

SECTION 5: PERMIT DETERMINATION (To be completed by Floodplain Administrator/Manager or his/her representative)

I have determined that the proposed activity (**type is or is not**) in conformance with provisions of the Floodplain Ordinance adopted by the County Commission of Doddridge County on May 21, 2013. The permit is issued subject to the conditions attached to and made part of this permit.

SIGNED _____ DATE _____

If the Floodplain Administrator/Manager found that the above was not in conformance with the provisions of the Doddridge County Floodplain Ordinance and/or denied that application, the applicant may complete an appealing process below.

APPEALS: Appealed to the County Commission of Doddridge County? Yes No
Hearing Date: _____
County Commission Decision - Approved Yes No

CONDITIONS: _____

SECTION 6: AS-BUILT ELEVATIONS (To be submitted by APPLICANT before Certificate of Compliance is issued).

The following information must be provided for project structures. This section must be completed by a registered professional engineer or a licensed land surveyor (or attach a certification to this application).

COMPLETE 1 OR 2 BELOW:

- 1 Actual (As-Built) Elevation of the top of the lowest floor (including basement or crawl space) is _____ FT. NGVD (MSL)
- 2 Actual (As Built) elevation of floodproofing is _____ FT. NGVD (MSL)

Note: Any work performed prior to submittal of the above information is at risk of the applicant.

SECTION 7: COMPLIANCE ACTION (To be completed by the Floodplain Administrator/Manager or his/her representative).

The Floodplain Administrator/Manager or his/her representative will complete this section as applicable based on inspection of the project to ensure compliance with the Doddridge County Floodplain Ordinance.

INSPECTIONS:

DATE: _____ BY: _____
DEFICIENCIES ? Y/N

COMMENTS

SECTION 8: CERTIFICATE OF COMPLIANCE (To be completed by Floodplain Administrator/Manager or his/her representative).

Certificate of Compliance issued: DATE: _____ BY: _____

**CERTIFICATE OF COMPLIANCE
FOR DEVELOPMENT IN SPECIAL FLOOD HAZARD AREA
(OWNER MUST RETAIN)**

PERMIT NUMBER: _____

PERMIT DATE: _____

PURPOSE –

CONSTRUCTION LOCATION: _____

OWNER'S ADDRESS: _____

**THE FOLLOWING MUST BE COMPLETED BY THE FLOODPLAIN
ADMINISTRATOR/MANAGER OR HIS/HER AGENT.**

**COMPLIANCE IS HEREBY CERTIFIED WITH THE REQUIREMENT OF THE
FLOODPLAIN ORDINANCE ADOPTED BY THE COUNTY COMMISSION OF
DODDRIDGE COUNTY ON MAY 21, 2013.**

SIGNED _____ **DATE** _____

WV Flood Map

Pearl Jean to Canton Pipeline

Western
Terminus:
39.286097,
-80.681023
(NAD 83)


Eastern
Terminus:
39.285490,
-80.673715
(NAD 83)

300 m

1000 ft

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

Map Created on 1/31/2014

 Location of the mouse click

 Flood Hazard Zone
(1% annual chance floodplain)

User Notes:

Pearl Jean To Canton Pipeline

Disclaimer:

The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. To obtain more detailed information in areas where Base Flood Elevations have been determined, users are encouraged to consult the latest Flood Profile data contained in the official flood insurance study. These studies are available online at www.msc.fema.gov.

WV Flood Tool is supported by FEMA, WV NFIP Office, and WV GIS Technical Center
(<http://www.MapWV.gov/flood>)

Flood Hazard Area: Selected site is NOT WITHIN any identified flood hazard area. Unmapped flood hazard areas may be present.

Elevation: About 946 feet

Location (long, lat): 80.675895 W, 39.285214 N

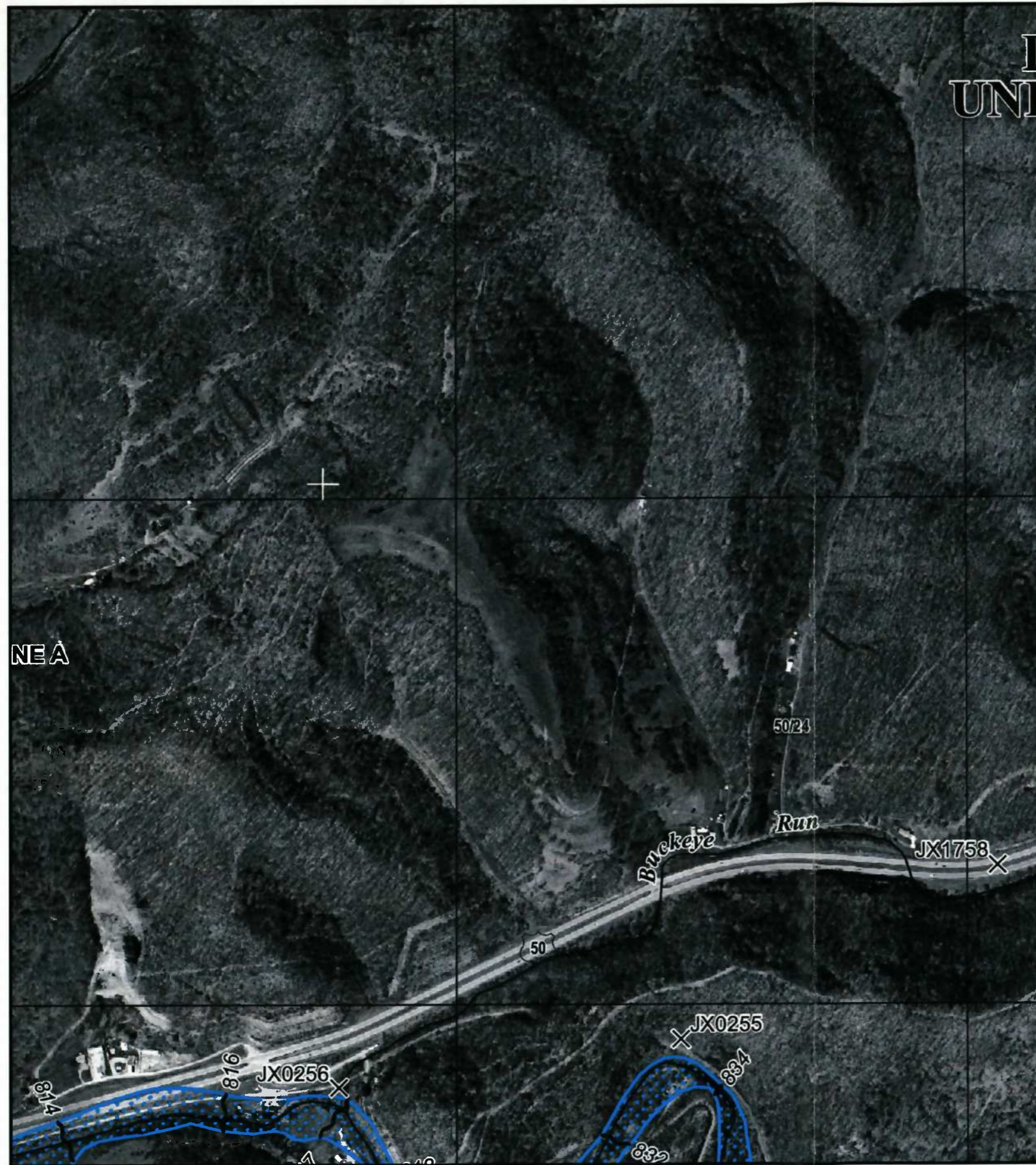
Location (UTM 17N): (527952, 4348478)

FEMA Issued Flood Map: 54017C0145C

Contacts: Doddridge County

CRS Information: No CRS information available

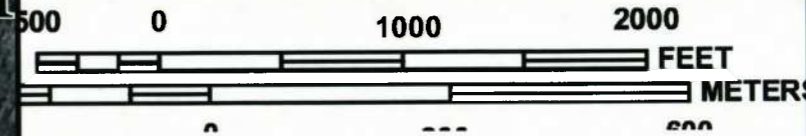
Parcel Number:



UNI



MAP SCALE 1" = 1000'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0145C

FIRM

FLOOD INSURANCE RATE MAP
DODDRIDGE COUNTY,
WEST VIRGINIA
AND INCORPORATED AREAS

PANEL 145 OF 325
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DODDRIDGE COUNTY	540024	0145	C

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



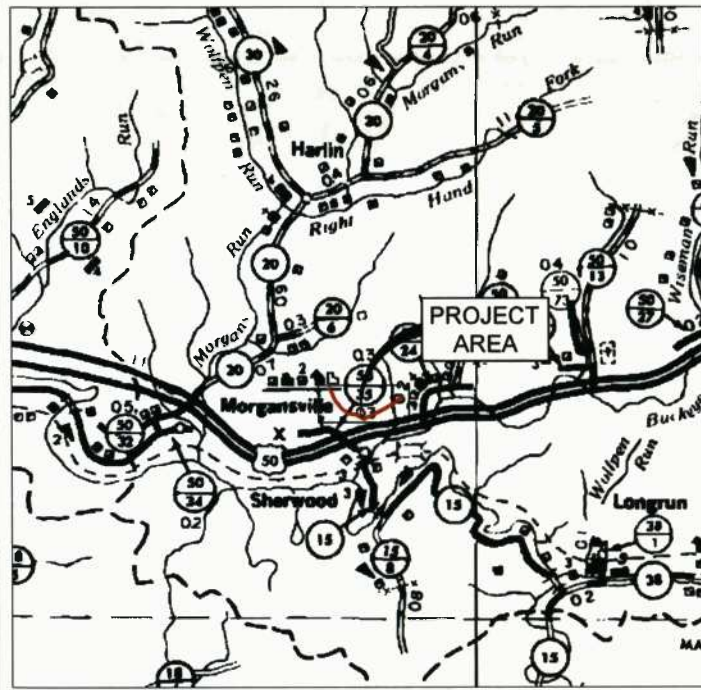
MAP NUMBER
54017C0145C
MAP REVISED
OCTOBER 4, 2011

Federal Emergency Management Agency

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

PEARL JEAN TO CANTON GASLINE GRANT DISTRICT DODDRIDGE COUNTY WEST VIRGINIA

LAT./LONG: N 39° 17' 01.43" W 80° 40' 39.15"
(APPROXIMATE CENTER OF PROJECT)



VICINITY MAP
DODDRIDGE COUNTY ROAD MAP
SCALE IN FEET
0 1/2 MILES 1 MILES
1 INCH = 1/2 MILE



PROJECT OWNER/APPLICANT

ANTERO RESOURCES CORPORATION
1625 17TH STREET
DENVER, CO 80202
PH: (303) 357-6827
CONTACT: JEREMY GRAMLING

CIVIL ENGINEER

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
99 CAMBRIDGE PLACE
BRIDGEPORT, WV. 26330
PH: (304) 933-3119
FAX: (304) 933-3327
CONTACTS: GREG LINDER, P.E.



MISS UTILITY OF WEST VIRGINIA
1-800-245-4848
West Virginia State Law
(Section XV, Chapter 24-C requires that you call two business days before you dig in the state of West Virginia.)
IT'S THE LAW

MISS UTILITY OF WEST VIRGINIA ONE CALL WAS PERFORMED IN JANUARY, 2014.

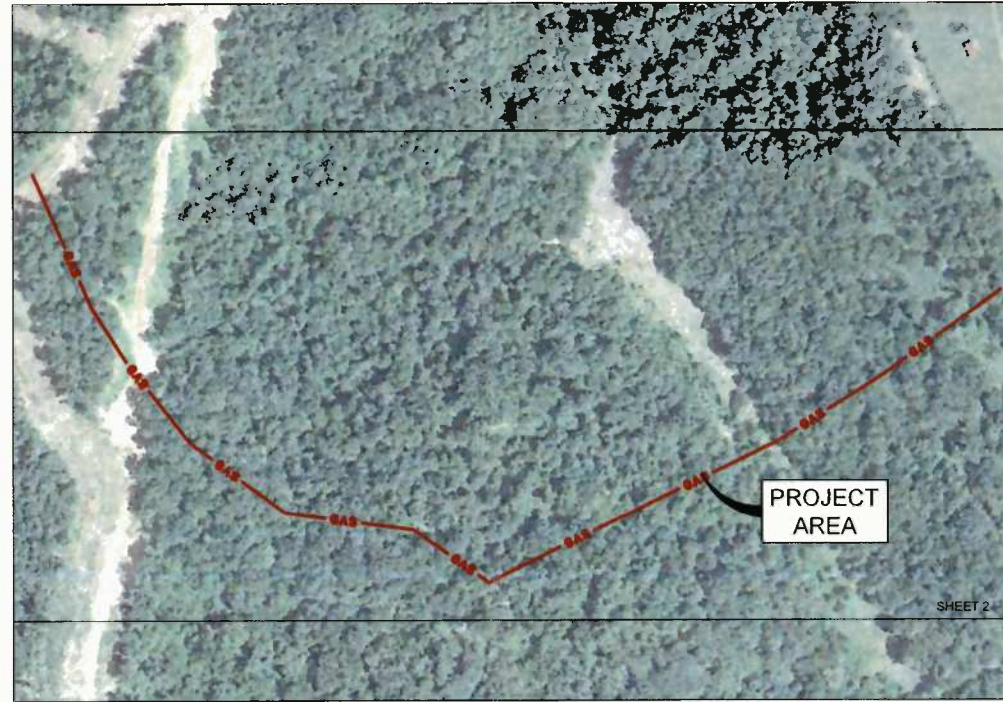
THE FOLLOWING UTILITY COMPANIES MAY BE PRESENT IN THE PROJECT AREA:

- FRONTIER COMMUNICATIONS (FORMERLY VERIZON)
- ANTERO RESOURCES APPALACHIAN CORP
- DOMINION HOPE
- MARKWEST LIBERTY MIDSTREAM & RESOURCES LLC
- FIRSTENERGY CORP
- DOMINION TRANSMISSION CORPORATION
- SUMMIT MIDSTREAM



REFERENCES:

- EXISTING CONTOURS ARE DERIVED FROM THE WEST VIRGINIA GIS DIGITAL ELEVATION MODELS (USGS 3-METER) DATED 2003 (http://ftp.wv.gov/wvgs/wvu.edu/pub/Clearinghouse/Elevation/3MeterDEM_SAMB_2003_utm83/); ACCESSED 06-04-2013 AND FROM BLUE MOUNTAIN AERIAL MAPPING 2-FOOT CONTOUR INTERVALS, DATED 03-22-2012 (www.bluemountainaerialmapping.com/).
- AERIAL PHOTOGRAPHY IS A SCREEN CAPTURE FROM GOOGLE EARTH PRO EXTRACTED ON 01-21-2014, IMAGERY DATE 2013.
- THIS IS NOT A BOUNDARY SURVEY. BOUNDARY LINES AS SHOWN HEREON ARE BASED ON TAX PARCEL INFORMATION DERIVED FROM G.I.S.
- BY GRAPHIC PLOTTING ONLY, THIS PIPELINE IS NOT LOCATED IN A FLOODPLAIN ACCORDING TO THE FLOOD INSURANCE RATE MAP FOR DODDRIDGE COUNTY, MAP #54017C0145C, WITH A MAP EFFECTIVE DATE OF OCTOBER 04, 2011.
- USGS 7.5 MIN. TOPOGRAPHIC QUADRANGLE SMITHBURG, WV, DATED 1981; PHOTOREVISED 1976.
- WETLAND AND STREAM DELINEATION WAS BASED ON SURVEYS CONDUCTED BY CEC ON JANUARY 14, 2014. WETLAND AND STREAM DATA WAS COLLECTED BY MAPPING GRADE G.P.S..



AERIAL MAP
DODDRIDGE COUNTY
SCALE IN FEET
0 200 400
1 INCH = 200 FEET



LOCATION MAP
SMITHBURG USGS 7.5' QUAD
SCALE IN FEET
0 2000 4000
1 INCH = 2000 FEET



PLAN REPRODUCTION WARNING
THE PLANS HAVE BEEN CREATED ON ANSI D (22" X 34") SHEETS. FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

THE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF THE PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES.

WARNING: INFORMATION MAY BE LOST IN COPYING AND/OR GRAY SCALE PLOTTING.

RECEIVING WATERS	
AQUATIC RESOURCE NAME	WATERSHED
UNT-1	BUCKEYEE CREEK
UNT-2	BUCKEYEE CREEK

SHEET INDEX	
SHEET 1 OF 7	COVER SHEET
SHEET 2 OF 7	ALIGNMENT SHEETS STATION 0+00 TO 26+59.79
SHEET 3 OF 7	STREAM CROSSING DETAILS
SHEET 4 OF 7	STREAM AND WETLAND LOCATION MAP
SHEET 5 OF 7	EROSION & SEDIMENTATION CONTROL NOTES
SHEET 6 TO 7	EROSION & SEDIMENTATION CONTROL DETAILS

LIMITS OF CONSTRUCTION AND
LIMITS OF DISTURBANCE - 5.60 AC

SUMMARY OF MATERIALS

NO.	DESCRIPTION	QUANTITY
A	12.750" O.D. X 52 X 0.375 W.T. FBE	2,785 LF
B	12" FILTER SOCK	667 LF
C	18" FILTER SOCK	1,500 LF
D	24" FILTER SOCK	269 LF
E	32" FILTER SOCK	415 LF
F	WATERBARS	27 EA
G	TRENCH PLUGS	12 EA
H	EROSION CONTROL BLANKET	20,725 SY
I	STABILIZED CONSTRUCTION ENTRANCE	1 EA

"NOTE TO CONTRACTOR"

THE CONTRACTOR SHALL REFER TO ALL PLANS WITHIN THIS CONSTRUCTION SET. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.

THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITIES. THE CONTRACTOR IS REQUIRED TO CONTACT WEST VIRGINIA ONE CALL SYSTEM PRIOR TO PERFORMING ANY EXCAVATION.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC. DOES NOT GUARANTEE THAT THIS SURVEY OR MAP DEPICTS COMPLETE OR CONCLUSIVE SUBSURFACE INFORMATION, NOR DOES IT REFLECT A COMPLETED BOUNDARY SURVEY.

SEAL



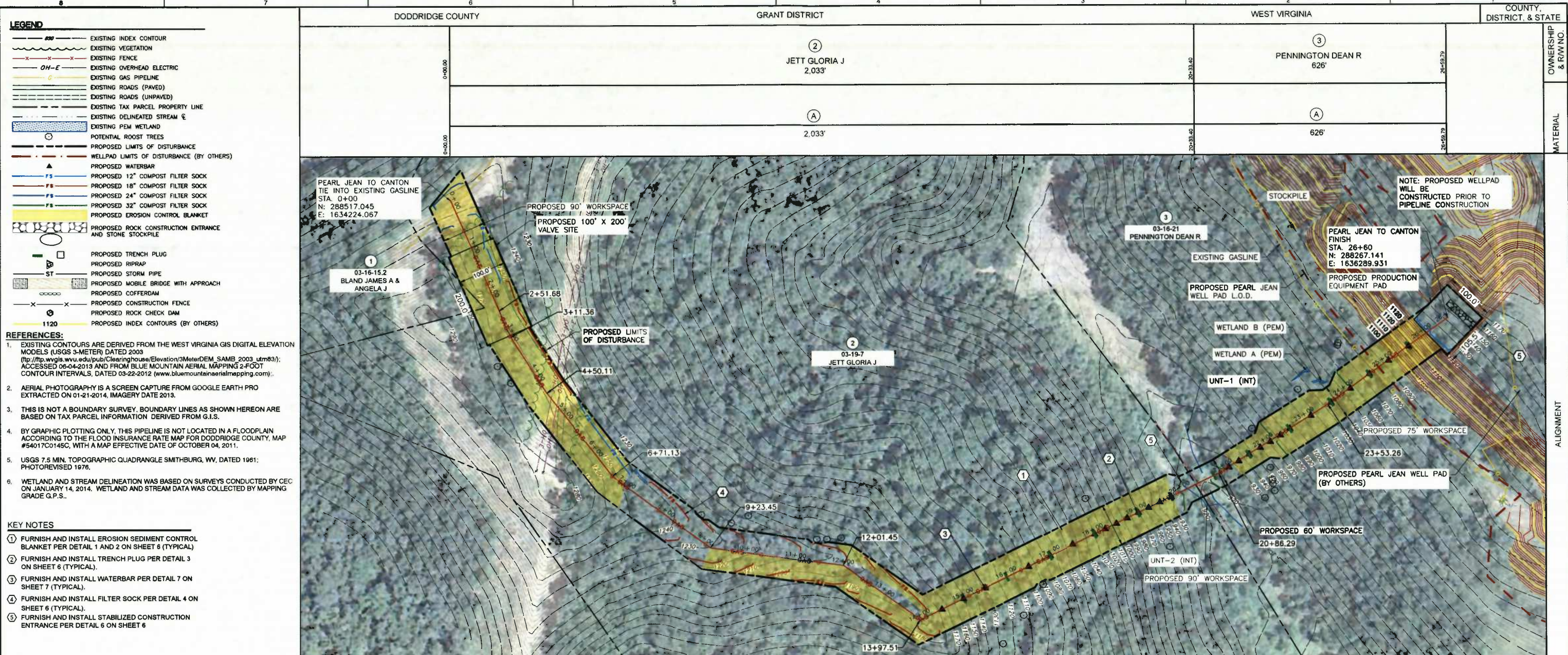
REVISION RECORD

NO.	DATE	DESCRIPTION
1	3 / 28 / 2014	ISSUED FOR CONSTRUCTION

Civil & Environmental Consultants, Inc.
99 Cambridge Place - Bridgeport, WV 26330
Ph: 304.933.3119 - Fax: 304.933.3327
www.cecinc.com

LINE TABULATION			
PEARL JEAN TO CANTON GASLINE	HORIZONTAL LENGTH	SLOPE LENGTH	DIAMETER GAS
SHEET 2	2,660'	2,785'	12"
TOTAL	2,660'	2,785'	12"

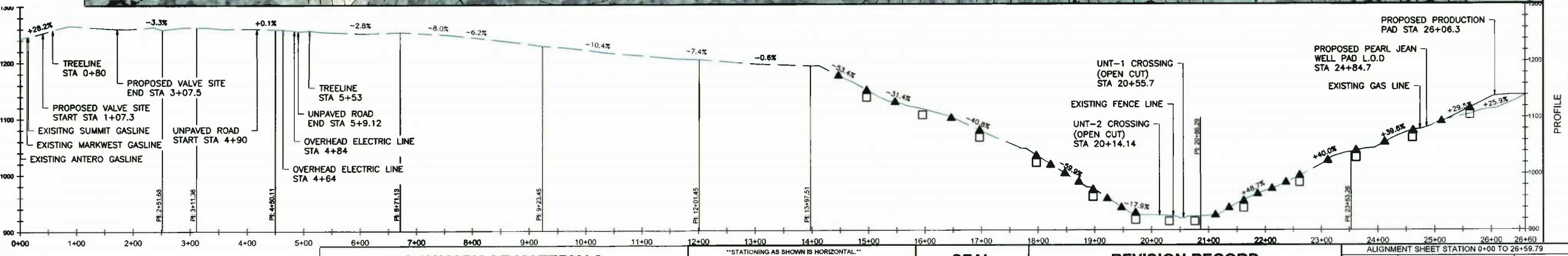
PEARL JEAN TO CANTON GASLINE
12" GASLINE
GRANT DISTRICT, DODDRIDGE COUNTY, WV
DATE: 3/25/2014 PROJECT NO: 132-995
SCALE: AS NOTED
DRAWN BY: RLG
CHECKED BY: JHL
SHEET 1 OF 7



- LEGEND**
- EXISTING INDEX CONTOUR
 - EXISTING VEGETATION
 - X-X- EXISTING FENCE
 - OH-E EXISTING OVERHEAD ELECTRIC
 - G EXISTING GAS PIPELINE
 - EXISTING ROADS (PAVED)
 - EXISTING ROADS (UNPAVED)
 - EXISTING TAX PARCEL PROPERTY LINE
 - EXISTING DELINEATED STREAM
 - EXISTING PEM WETLAND
 - POTENTIAL ROOST TREES
 - PROPOSED LIMITS OF DISTURBANCE
 - WELLPAD LIMITS OF DISTURBANCE (BY OTHERS)
 - ▲ PROPOSED WATERBAR
 - FS PROPOSED 12" COMPOST FILTER SOCK
 - FS PROPOSED 18" COMPOST FILTER SOCK
 - FS PROPOSED 24" COMPOST FILTER SOCK
 - FS PROPOSED 32" COMPOST FILTER SOCK
 - PROPOSED EROSION CONTROL BLANKET
 - PROPOSED ROCK CONSTRUCTION ENTRANCE AND STONE STOCKPILE
 - PROPOSED TRENCH PLUG
 - ST PROPOSED STORM PIPE
 - PROPOSED MOBILE BRIDGE WITH APPROACH
 - PROPOSED COFFERDAM
 - X-X- PROPOSED CONSTRUCTION FENCE
 - PROPOSED ROCK CHECK DAM
 - 1120 PROPOSED INDEX CONTOURS (BY OTHERS)

- REFERENCES:**
1. EXISTING CONTOURS ARE DERIVED FROM THE WEST VIRGINIA GIS DIGITAL ELEVATION MODELS (USGS 3-METER) DATED 2008 (ftp://ftp.wv.gov/wvu.edu/pub/Clearinghouse/Elevation/3MeterDEM_SAMB_2003_utm83/); ACCESSED 06-04-2013 AND FROM BLUE MOUNTAIN AERIAL MAPPING 2-FOOT CONTOUR INTERVALS, DATED 03-22-2012 (www.bluemountainaerialmapping.com).
 2. AERIAL PHOTOGRAPHY IS A SCREEN CAPTURE FROM GOOGLE EARTH PRO EXTRACTED ON 01-21-2014, IMAGERY DATE 2013.
 3. THIS IS NOT A BOUNDARY SURVEY. BOUNDARY LINES AS SHOWN HEREON ARE BASED ON TAX PARCEL INFORMATION DERIVED FROM G.I.S.
 4. BY GRAPHIC PLOTTING ONLY, THIS PIPELINE IS NOT LOCATED IN A FLOODPLAIN ACCORDING TO THE FLOOD INSURANCE RATE MAP FOR DODDRIDGE COUNTY, MAP #54017C0145C, WITH A MAP EFFECTIVE DATE OF OCTOBER 04, 2011.
 5. USGS 7.5 MIN. TOPOGRAPHIC QUADRANGLE SMITHBURG, WV, DATED 1981; PHOTOREVISED 1976.
 6. WETLAND AND STREAM DELINEATION WAS BASED ON SURVEYS CONDUCTED BY CEC ON JANUARY 14, 2014. WETLAND AND STREAM DATA WAS COLLECTED BY MAPPING GRADE G.P.S..

- KEY NOTES**
- ① FURNISH AND INSTALL EROSION SEDIMENT CONTROL BLANKET PER DETAIL 1 AND 2 ON SHEET 6 (TYPICAL)
 - ② FURNISH AND INSTALL TRENCH PLUG PER DETAIL 3 ON SHEET 6 (TYPICAL).
 - ③ FURNISH AND INSTALL WATERBAR PER DETAIL 7 ON SHEET 7 (TYPICAL).
 - ④ FURNISH AND INSTALL FILTER SOCK PER DETAIL 4 ON SHEET 6 (TYPICAL).
 - ⑤ FURNISH AND INSTALL STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 6 ON SHEET 6



P.I. TABLE

STATION	DEFLECTION	Northing	Easting
0+00.00		288,517.045	1,634,224.067
2+51.68	179°57'43" L	288,286.388	1,634,324.756
3+11.36	170°59'25" L	288,231.891	1,634,348.633
4+50.11	174°18'10" L	288,114.792	1,634,423.372
6+71.13	164°55'47" L	287,941.316	1,634,560.327
9+23.45	151°08'50" R	287,790.768	1,634,762.821
12+01.45	152°27'06" R	287,753.476	1,635,038.304
13+97.51	118°25'58" L	287,640.020	1,635,198.201
20+86.29	173°51'42" L	287,944.846	1,635,815.855
23+53.26	176°38'30" L	288,087.897	1,636,041.269
26+59.79		288,267.141	1,636,289.931

SUMMARY OF MATERIALS

NO.	DESCRIPTION	QUANTITY
A	12.750" O.D. X 52 X 0.375 W.T. FBE	2,785 LF
B	12" FILTER SOCK	667 LF
C	18" FILTER SOCK	1,500 LF
D	24" FILTER SOCK	269LF
E	32" FILTER SOCK	415 LF
F	WATERBARS	27 EA
G	TRENCH PLUGS	12 EA
H	EROSION CONTROL BLANKET	20,725 SY
I	STABILIZED CONSTRUCTION ENTRANCE	1 EA

SEAL

REVISION RECORD

NO.	DATE	DESCRIPTION
1	3 / 25 / 2014	ISSUED FOR CONSTRUCTION

LINE TABULATION

PEARL JEAN TO CANTON GASLINE	HORIZONTAL LENGTH	SLOPE LENGTH	DIAMETER GAS
SHEET 2	2,660'	2,785'	12"
TOTAL	2,660'	2,785'	12"

Antero

PEARL JEAN TO CANTON GASLINE

12" GASLINE
GRANT DISTRICT, DODDRIDGE COUNTY, WV

DATE: 3/25/2014 PROJECT NO: 132-945
SCALE: 1" = 100'
DRAWN BY: RLG
CHECKED BY: JHL

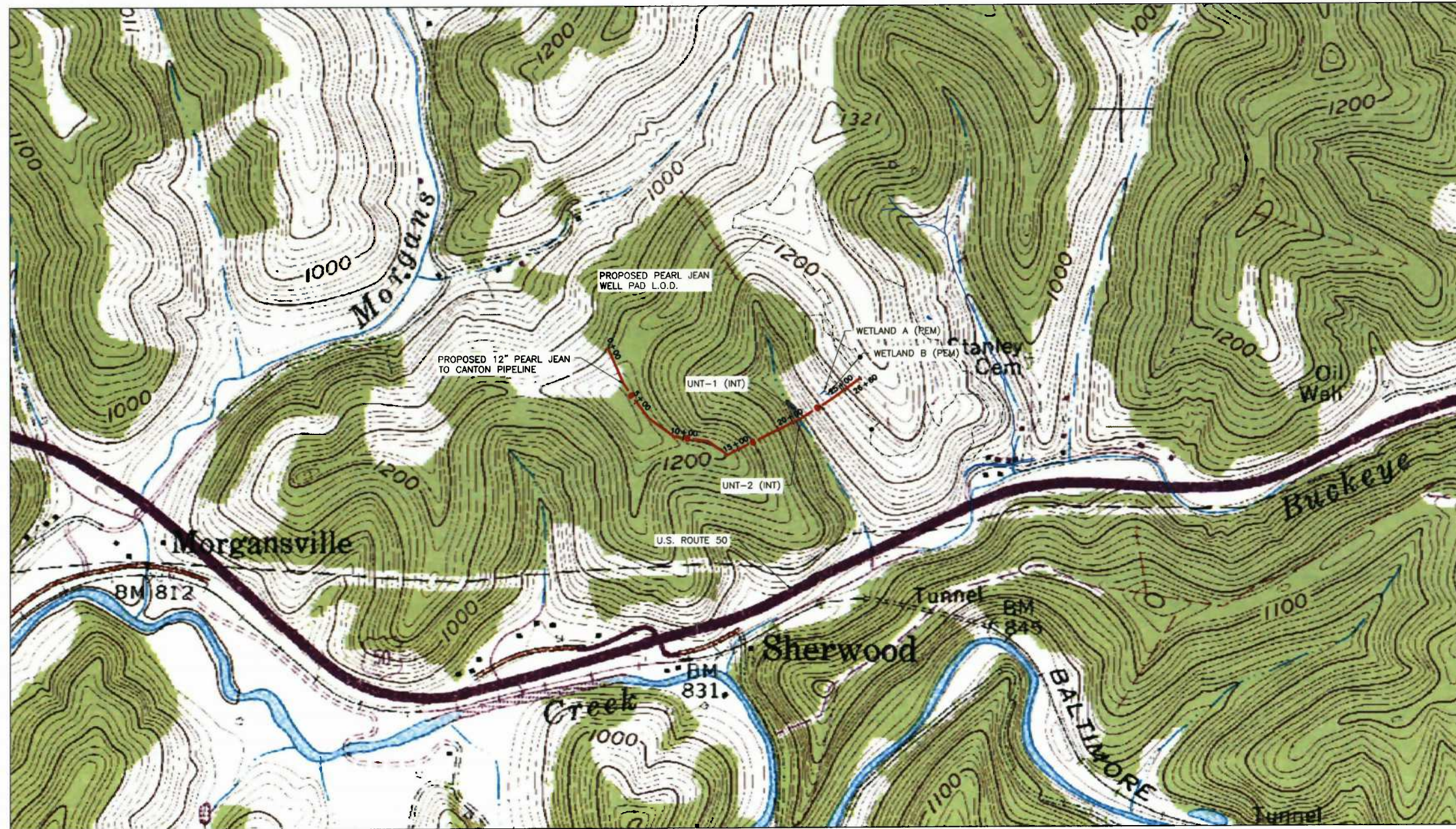
SHEET 2 OF 7

CEC

Civil & Environmental Consultants, Inc.

99 Cambridge Place - Bridgeport, WV 26330
Ph: 304.933.3119 - Fax: 304.933.3327
www.cecinc.com

A:\2014\132-945\132-945.dwg (132-945.dwg) - 3/25/2014 1:58 PM



C:\Users\jrl\Documents\Projects\12" Gasline\12" Gasline.dwg (3/25/2014 1:58 PM) - 1" = 100' (3/25/2014 1:58 PM)

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STREAM AND WETLAND IMPACTS		
STREAM/WETLAND	CLASSIFICATION	STATION
UNT-1	INTERMITTENT	19+37
UNT-2	INTERMITTENT	19+79

"STATIONING AS SHOWN IS HORIZONTAL."

NORTH
SCALE IN FEET

0 50 100

"THIS PLAN HAS BEEN CREATED ON AN ANSI D (22"x34") SHEET. FOR REDUCTIONS, REFER TO GRAPHIC SCALE."

SEAL

REVISION RECORD		
NO.	DATE	DESCRIPTION
1	3/25/2014	ISSUED FOR CONSTRUCTION

STREAM AND WETLAND LOCATION MAP

PEARL JEAN TO CANTON GASLINE

12" GASLINE
GRANT DISTRICT, DODDRIDGE COUNTY, WV

DATE: 3/25/2014 PROJECT NO: 152-988
 SCALE: 1" = 100'
 DRAWN BY: RLG
 CHECKED BY: JHL

SHEET 4 OF 7

CONTRACTOR NOTES:

- 1. ALL EXISTING UTILITY DATA IS PROVIDED FOR INFORMATION ONLY. ALTHOUGH THE DATA IS SHOWN AS ACCURATELY AS POSSIBLE, THE CONTRACTOR IS CAUTIONED THAT THE DEVELOPER AND THE ENGINEER NEITHER ASSUME NOR IMPLY ANY RESPONSIBILITY FOR THE ACCURACY OF THIS DATA.
2. ALL CONTRACTORS/SUBCONTRACTORS PERFORMING WORK ON THIS PROJECT SHALL FAMILIARIZE THEMSELVES WITH THE SITE AND SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM THEIR OPERATIONS. SAID EXISTING IMPROVEMENTS SHALL INCLUDE BUT NOT BE LIMITED TO BERMS, DITCHES, FENCES AND PLANTS. ANY REMOVAL OR DAMAGE TO EXISTING IMPROVEMENTS SHALL BE REPLACED OR REPAIRED BY THE CONTRACTORS AT THEIR EXPENSE AND SHALL BE APPROVED BY THE OWNER/REP.
3. ALL CONSTRUCTION SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE "PERMITTING ENTITY" AND WVDOT, WVDNR & WVDEP.
4. ALL TESTING SHALL BE DONE BY AN APPROVED LABORATORY AT THE EXPENSE OF THE CONTRACTOR.
5. PRIOR TO CONSTRUCTION, ALL CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS, THE PLANS INCLUDING ALL NOTES, THE CONDITIONS OF ALL PERMITS AND ANY OTHER APPLICABLE STANDARDS OR SPECIFICATIONS RELEVANT TO THE PROPER COMPLETION OF THE WORK SPECIFIED. FAILURE ON THE PART OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL STANDARDS OR SPECIFICATIONS PERTAINING TO THIS WORK SHALL IN NO WAY RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMING THE WORK IN ACCORDANCE WITH ALL SUCH APPLICABLE STANDARDS AND SPECIFICATIONS.
6. CONTRACTORS SHALL HAVE IN THEIR POSSESSION, PRIOR TO CONSTRUCTION, ALL NECESSARY PERMITS, LICENSES, BONDS, INSURANCE, ETC. CONTRACTORS SHALL EACH HAVE AT LEAST ONE SET OF APPROVED ENGINEERING PLANS AND SPECIFICATIONS, SWPPP, AND GPP ON-SITE AT ALL TIMES.
7. CONTRACTORS MUST CONFINE THEIR ACTIVITIES TO THE WORK AREA. NO ENCROACHMENTS ONTO DEVELOPED AREAS WILL BE ALLOWED. ANY DAMAGE RESULTING THEREFROM SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR.
8. IT WILL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO PROTECT ALL EXISTING PUBLIC AND PRIVATE UTILITIES THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONTRACTORS SHALL CALL WEST VIRGINIA UTILITIES PROTECTION SERVICE AT 1-800-245-4848 OR 811 AND CONTACT THE APPROPRIATE UTILITY COMPANIES OR LINE LOCATIONS AT LEAST 2 WORKING DAYS (48 HOURS) PRIOR TO CONSTRUCTION AND SHALL ASSUME FULL LIABILITY TO THOSE COMPANIES FOR ANY DAMAGES CAUSED TO THEIR FACILITIES.
9. TRENCHES WHICH LIE OUTSIDE EXISTING OR FUTURE PAVEMENTS SHALL BE BACK-FILLED ABOVE THE TOP OF THE EMBEDMENT AND COMPACTED TO 95% PROCTOR DENSITY.
10. TOP OF NATURAL GAS PIPELINE SHALL BE A MINIMUM OF 3'-0" BELOW THE FINISHED GROUND ELEVATION EXCEPT IN AGRICULTURAL FIELDS IN WHICH THE DEPTH SHALL BE 4'-0".
11. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH STANDARD ANTERO RESOURCES CORPORATION TRENCH SAFETY GUIDELINES AND SHALL BE IN ACCORDANCE WITH THE U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATOR'S STANDARDS.
12. THIS IS NOT A BOUNDARY SURVEY. BOUNDARY LINES AS SHOWN HEREON ARE BASED ON TAX PARCEL INFORMATION DERIVED FROM THE WEST VIRGINIA DEPARTMENT OF REVENUE, DATED 2008.
13. CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE PROJECT DESIGN ENGINEER FOR ANY DEVIATION FOUND RELATIVE TO PROJECT.
14. EXISTING EASEMENTS AND/OR RIGHT-OF-WAYS WERE NOT ADDRESSED DURING THIS SURVEY, OTHER THAN SHOWN HEREON.
15. FENCE LINES ENCOUNTERED DURING CONSTRUCTION SHOULD BE RELOCATED AND REPLACED PER THE GUIDANCE OF THE LANDOWNER AND THE ANTERO RESOURCES CORPORATION REPRESENTATIVE. CONTRACTOR SHALL SURVEY THE LOCATION OF ALL EXISTING FENCES PRIOR TO REMOVAL AND RECONSTRUCT AFTER CONSTRUCTION IS COMPLETE.
16. CONTRACTOR IS TO VERIFY HEIGHT OF OVERHEAD POWER LINE PRIOR TO CONSTRUCTION.
17. CONTRACTOR IS TO INSTALL TEMPORARY DIVERSION DITCHES WITH STABILIZED OUTLETS IN ACCORDANCE WITH THE PLANS AND THE OWNER'S CONSTRUCTION SPECIALIST OR THE CHIEF INSPECTOR IN ACCORDANCE WITH WV DEP EROSION AND SEDIMENT CONTROL BMP MANUAL.

PRODUCT TRANSPORTED: NATURAL GAS

EROSION CONTROL NOTES:

- 1. ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT EROSION. IN THE EVENT THAT EROSION OCCURS AS A RESULT OF CONSTRUCTION, THE CONTRACTOR SHALL RESTORE THE ERODED AREA TO ITS ORIGINAL CONDITION PRIOR TO MULCHING.
2. ALL CONSTRUCTION, EROSION CONTROL MEASURES, AND STORM WATER DISCHARGES FROM THE SITE SHALL ADHERE TO THE CONDITIONS OF THE WEST VIRGINIA OIL AND GAS CONSTRUCTION STORMWATER GENERAL PERMIT.
WATER QUALITY
THE CONTRACTOR WILL BE RESPONSIBLE FOR WATER QUALITY THROUGHOUT THE OPERATION OF CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE FOLLOWING:
- IMPLEMENTING THE EROSION CONTROL PLAN.
- DIRECTING THE CONSTRUCTION, OPERATING, AND DISMANTLING OF TEMPORARY EROSION CONTROL FEATURES.
- IMPLEMENTING REMEDIAL ACTION REQUIRED TO REPAIR FAILING EROSION AND SEDIMENTATION CONTROL FEATURES.
- IMPLEMENTING STORM AND WINTER SHUTDOWN PROCEDURES AS REQUIRED.
- THE CONTRACTOR WILL SHAPE EARTHWORK PRIOR TO THE SUSPENSION OF GRADING OPERATIONS EACH DAY IN A MANNER THAT WILL PERMIT STORM RUNOFF WITH A MINIMUM AMOUNT OF EROSION.
- EROSION CONTROL FEATURES INSTALLED BY THE CONTRACTOR WILL BE OPERATED AND MAINTAINED IN AN ACCEPTABLE CONDITION.
- WHEN ANY EROSION OR SEDIMENT CONTROL FEATURE HAS REACHED HALF OF ITS CAPACITY, THE DEVICE IS TO BE CLEANED OUT AND RESTORED TO ITS ORIGINAL CONDITION.
- CONTRACTOR IS ADVISED TO CLOSELY EXAMINE THE WATERBAR DETAILS TO ENSURE THAT A SUPER SILT FENCE BARRIER IS PLACED AROUND THE OUTLET OF EACH WATERBAR.

Civil & Environmental Consultants, Inc.
99 Cambridge Place - Bridgeport, WV 26330
Ph: 304.933.3119 · Fax: 304.933.3327
www.cecin.com

CONSTRUCTION NOTES:

- 1. DATUM BASED ON WEST VIRGINIA STATE PLANE COORDINATES SYSTEM, NAD 83 NORTH ZONE, NAVD 88, ELEVATIONS MSL.
2. PRIOR TO CONSTRUCTION AND CALL WEST VIRGINIA UTILITIES PROTECTION SERVICE AT 1-800-245-4848 OR 811 AND ALL OTHER UTILITY COMPANIES AT LEAST 2 WORKING DAYS (48 HOURS) PRIOR TO CONSTRUCTION.
3. ALL EXCAVATION AND EARTH MOVING ACTIVITIES INCLUDING BUT NOT LIMITED TO OPEN EXCAVATIONS, OVERBURDEN AND BACKFILL REQUIREMENTS, FINAL CUT AND FILL SLOPES AND BENCHING REQUIREMENTS WILL BE IN SUBSTANTIAL CONFORMANCE CONSTRUCTION STANDARDS. EXCAVATION - EXCAVATION WILL NOT BE CLASSIFIED AND WILL INCLUDE ALL MATERIALS ENCOUNTERED, REGARDLESS OF NATURE.
GENERAL CONSTRUCTION SEQUENCE
Prior to beginning land disturbing activities, clearly mark all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area. These shall be clearly marked, both in the field and on the plans, to prevent damage and offsite impacts.
2. Install stone construction entrances at all locations where temporary access roads will be accessing a paved roadway.
3. Install temporary E&S controls (silt fence, ROW diversions, etc.) Prior to any excavation work to ensure, to the maximum extent practicable, that no significant erosion or sedimentation occurs.
4. ROW diversions and/or other erosion and sediment control devices will be installed as needed. If clearing and grubbing is required, see below regarding the management and disposal of debris.
5. After access to and along the proposed utility line has been provided, together with the E&S controls, the general clearing and grubbing of the trees and brush along the ROW for pipe trenching may commence to the width specified in the E&S Plans. Trees shall be windrowed on low side of right-of-way. All pollutants, including waste materials and demolition debris, that occur on-site during construction shall be handled and disposed of in a manner that does not cause contamination of surface waters. Woody debris may be chipped and spread on-site. If burning is chosen method for disposal of woody debris, check local ordinance and regulations for requirements and obtain any necessary permits.
6. Minor grading within the ROW will be conducted where necessary to provide an even surface for safe and efficient operation of construction equipment. Grading will be the minimum amount necessary and BMPs will be installed promptly. Tree stumps, and large rocks and boulders will also be removed for safety at this time.
7. Excavate pipeline trench. Pipeline trench shall be excavated to a width of approximately 5' and a minimum cover of 3' shall be provided above pipeline at all locations except for wetlands and streams. A minimum cover of 5' shall be provided along pipeline at wetland and stream crossings.
8. The proposed construction ROW will be used as a work area for trench excavation, equipment movement, and the storage of soil stockpiles, as needed. Equipment soil stockpiles, and other materials area to remain upslope of BMPs during construction activities.
9. Segregation of topsoil and subsoil will be performed where trench excavation takes place in an agricultural, wetland, or residential area.
10. Temporary E&S controls for stream crossings shall be installed at locations shown on the E&S Plans and associated detail sheets located in Appendix E.
11. Stream and river pipeline crossing construction methods will be installed at locations shown on the E&S Plan sheets and as specified on the detail sheets. Waterbodies will be crossed with temporary bridges, such as timber mats or approved equal crossings, prior to crossing the conveyance, if flowing water is present at the time of the construction of that waterbody. Streambank stabilization will be performed immediately following completion of the pipeline installation.
12. Wetland crossing widths for utility crossings will be kept to a minimum and will be stabilized by placing timber mats, riprap, or pre-fabricated swamp mats, as shown on the detail sheets. No wetland impacts or disturbances are associated with the 12-inch Pearl Jean to Canton Pipeline Project. All materials used to stabilize access roads in wetland areas will be removed from the wetland upon completion of the pipeline construction.
13. Pipeline sections will be transported to the work area and strung along the working side of the ROW parallel to the trench line. The pipeline will be bent to conform to the trench contour, aligned, welded, sealed and placed on temporary supports alongside the trench. Welds will be visually and radio-graphically inspected and repaired as necessary. The pipe section will be lowered into the trench and placed on padding material laid on the trench bottom to protect the pipe coating. Any wetness encountered during construction work will be dewatered by using pumps, hoses, and dewatering bags, and will be discharged to a well-vegetated upland area.
14. Install trench breakers (plugs) at locations as shown on the E&S Plan sheets and as specified on the detail sheets.
15. The trench will be subsequently backfilled with suitable excavated material to prevent any subsidence. The backfill material will be slightly crowned in upland areas to allow for settlement that may occur. Crowning the soil slightly over the pipeline will help prevent future stormwater-related problems from settling of the backfilled area. No crowning of the soils will take place in wetlands, streams, or floodplains, disturbed areas will be restored to their original topographic contours.
16. Exposed and unworked soils shall be stabilized by application of effective BMPs that protect the soil from erosive forces of raindrops, flowing water and wind. All disturbed areas that are at final grade must be seeded and mulched within seven days and areas that will not be worked again for 21 days or more must be seeded and mulched within seven days. For disturbed areas with slopes of 3:1 or greater, the area will be vertically tracked and erosion control fabric shall be installed after seed, mulch, and soil supplements have been applied. The temporary/permanent seeding and mulch tables, on the detail sheets, consist of the type of seed and application rate that shall be applied, including the nurse crop that shall be used during certain time of the year to promote stabilization of the soil until the perennial seedlings establish.
17. In the unlikely event that there are excess excavated materials remaining after the trench has been backfilled, the material will be disposed of within the existing ROW in an upland area. Material will be spread in a thin layer and tied into existing contours to create positive drainage for stormwater runoff.
18. All E&S controls will be inspected, at a minimum, once every seven calendar days and within 24 hours after any storm event greater than 0.5-inch per 24-hour period until there is a uniform, perennial 70 percent vegetative coverage established. Temporary BMPs will be removed upon achieving vegetative stabilization. The 70 percent requirement refers to the total area vegetated and not a percent of the site.
19. No sediment tracking on the roadway is allowed. In the event that sediment is inadvertently tracked onto the road, the road shall be cleaned thoroughly by the end of each day. Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area. Street washing of sediments to the storm drain system is not allowed. If street wash wastewater can be controlled from entering the storm drainage system, then it shall be pumped back onto the site, contained and disposed of properly.

CONSTRUCTION NOTES:

GENERAL CONSTRUCTION SEQUENCE CONTINUED

- 20. Construction access restoration shall be equal or better than the pre-construction condition and grades that were altered during construction activities shall be restored to original grades and match existing drainage patterns.
21. Applicable practices include, but are not limited to, temporary and permanent seeding, sodding, mulching, erosion control fabrics and matting, soil application of polyacrylamide (PAM), the early application of gravel base on areas to be paved, and dust control.
22. Selected soil stabilization measures shall be appropriate for the time of year, site conditions, and estimated duration of use.
23. Soil stockpiles must be stabilized and protected with sediment trapping measures.
24. Linear construction activities such as ROW and easement clearing, roadway development, pipelines, and trenching for utilities, shall be conducted to meet the soil stabilization timeframe requirements. Contractors shall install the bedding materials, roadbeds, structures, pipelines, or utilities and re-stabilize the disturbed soils so that the 7-day requirements are met.
25. Excavated material shall be placed on the uphill side of trenches, consistent with safety and space considerations.

EROSION & SEDIMENT CONTROL NARRATIVE

EROSION CONTROL PROGRAM
EROSION CONTROL SHALL BE MAXIMIZED THROUGH RAPID STABILIZATION OF THE DISTURBED AREAS AND BY DIVERTING CLEAN WATER AND EROSION FLOWS AROUND OR THROUGH DISTURBED AREAS IN A NON-EROSIVE MANNER. WHERE FINAL GRADING HAS BEEN ESTABLISHED, FERTILIZER (OUTSIDE OF STREAM/WETLAND CROSSING AREAS) PERMANENT AND TEMPORARY SEEDING, AND MULCHING SHALL BE APPLIED IMMEDIATELY. BARE SOIL AREAS MUST BE FERTILIZED (OUTSIDE STREAM/WETLAND CROSSING AREAS) SEED, AND MULCHED AFTER 14 DAYS WHEN TEMPORARY OR FINAL GRADE IS ESTABLISHED IF NO WORK IS PLANNED IN THAT AREA DURING THE FOLLOWING 7 DAYS (I.E. 21 CONSECUTIVE DAYS). REVEGETATION ACTIVITIES SHALL BE PERFORMED IN AN AGGRESSIVE MANNER THROUGHOUT THE CONSTRUCTION PROCESS.

SEDIMENT CONTROL PROGRAM
SEDIMENT CONTROL SHALL BE ACCOMPLISHED THROUGH RAPID STABILIZATION AND BY THE INSTALLATION OF STRUCTURAL DEVICES, AS SHOWN ON THE CONSTRUCTION PLANS.

- 1. SURFACE ROUGHENING - AREAS TO BE SEED SHALL BE LIGHTLY ROUGHENED AND LOOSE TO A DEPTH OF 2" TO 4" PRIOR TO SEEDING AREAS WHICH HAVE BEEN GRADED AND WILL NOT BE STABILIZED IMMEDIATELY, MAY BE ROUGHENED TO REDUCE VELOCITY UNTIL SEEDING TAKES PLACE.
2. TOP SOILING (STOCKPILE) - TOPSOIL WILL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATION SHALL BE LOCATED WITHIN CONSTRUCTION ROW, AND TO BE STABILIZED WITH TEMPORARY VEGETATION. AREAS OF STOCKPILE, ONCE REMOVED, SHALL BE GRADED/RESTORED & PERMANENTLY SEED.

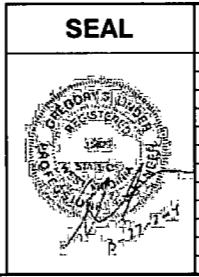
TEMPORARY STABILIZATION - SELECTION OF THE SEED MIXTURE WILL DEPEND ON THE TIME OF THE YEAR IT IS APPLIED AND SHALL BE DONE WITH TEMPORARY SEEDING MEASURES SPECIFIED BELOW. MULCHING SHALL BE APPLIED AT A RATE OF TWO TONS OF STRAW OR WEED FREE HAY PER ACRE. EXCEPT IN STREAM/WETLAND CROSSING AREAS, FERTILIZER SHALL BE APPLIED AT A RATE OF 1,000 LBS/ACRE AND LIME SHALL BE APPLIED AT 1.0 TON/ACRE.

PERMANENT STABILIZATION
ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISHED GRADING. SEEDING SHALL BE DONE WITH PERMANENT SEEDING MEASURES AS SPECIFIED BELOW. IN ALL SEEDING OPERATIONS, SEED WILL BE APPLIED PRIOR TO MULCHING. MULCHING SHALL BE APPLIED AT A RATE OF TWO TONS OF STRAW OR WEED FREE HAY PER ACRE. OUTSIDE OF STREAM/WETLAND CROSSING AREAS, FERTILIZER SHALL BE APPLIED AT A RATE OF 1000 LBS/ACRE AND LIME SHALL BE APPLIED AT 1.0 TON/ACRE.

**NOTE: SEED MIXES SHALL NOT BE MODIFIED WITHOUT APPROVAL OF ENGINEER

SEED MIXTURE: OUTSIDE STREAM/WETLAND CROSSING

Table with columns for Permanent Seeding (Species, Planting Dates, Application Rate) and Temporary Seeding (Kind of Seed, Planting Dates, Application Rate). Includes LIME and FERTILIZER application rates.



REVISION RECORD table with columns for NO., DATE, and DESCRIPTION. Entry 1: 3/25/2014, ISSUED FOR CONSTRUCTION.

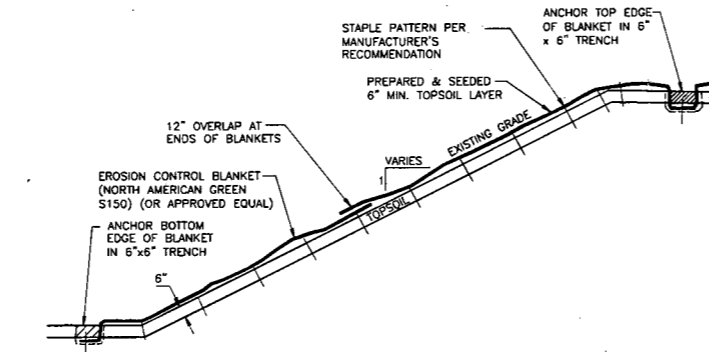
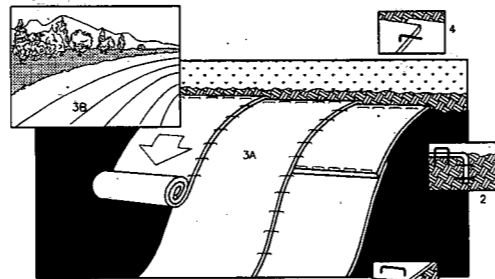
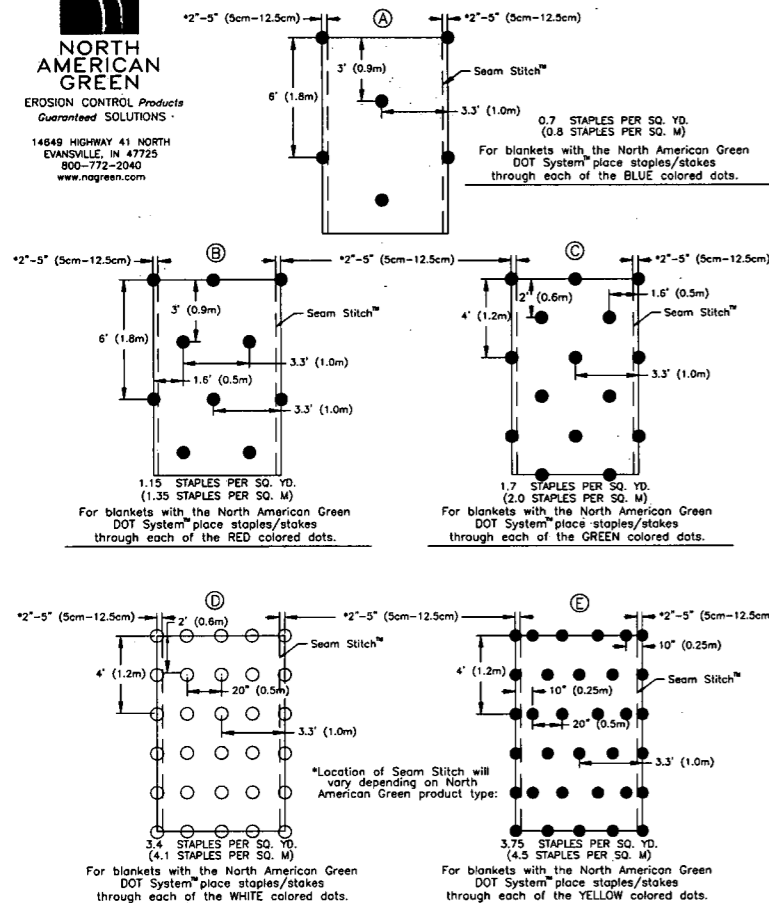
EROSION AND SEDIMENT CONTROL NOTES
Antero Resources logo
PEARL JEAN TO CANTON GASLINE
12" GASLINE
GRANT DISTRICT, DODDRIDGE COUNTY, WV
DATE: 3/25/2014 PROJECT NO: 132-985
SCALE:
DRAWN BY: RLJ SHEET 5 OF 7
CHECKED BY: JHL



NORTH AMERICAN GREEN
EROSION CONTROL PRODUCTS
Guaranteed SOLUTIONS™

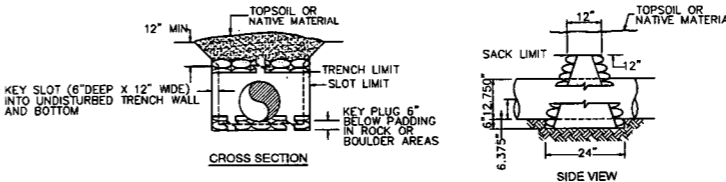
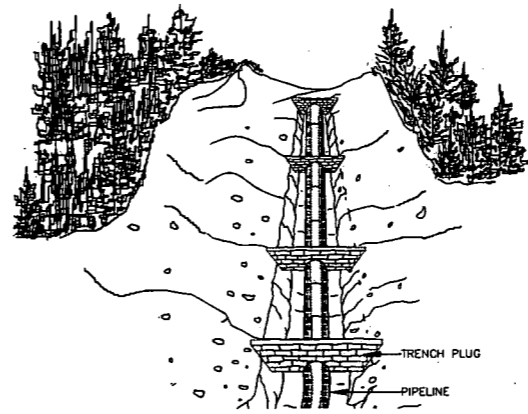
14648 HIGHWAY 41 NORTH
EVANSVILLE, IN 47725
800-772-2040
www.nagreen.com

DOT SYSTEM™ STAPLE PATTERN GUIDE



- NOTES:**
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED.
 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
 3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
 4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
 5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 12" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
 6. EROSION CONTROL BLANKETS SHALL BE INSTALLED ON ALL 3:1 OR STEEPER SLOPES.
 7. REFER TO DETAIL 7, THIS SHEET FOR STAPLE PATTERN.

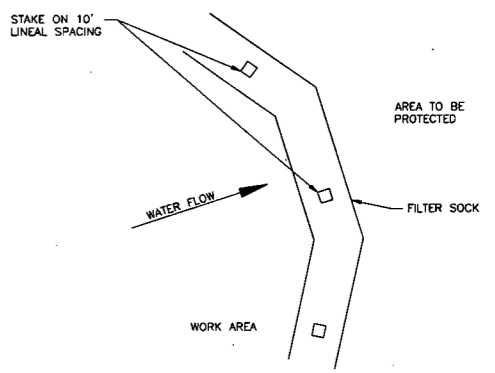
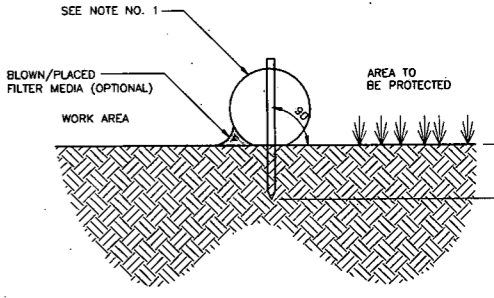
DETAIL 2 EROSION CONTROL BLANKET NOT TO SCALE



- NOTES:**
1. TRENCH PLUG SHALL BE INSTALLED:
 - ON SLOPES ALONG THE TRENCH LINE WHERE THE NATURAL DRAINAGE PATTERN, PROFILE, AND TYPE OF BACKFILL MATERIAL MAY RESULT IN LOSS OF BACKFILL MATERIAL OR ALTERATION OF NATURAL PATTERN;
 - AT THE BASE OF SLOPES ADJACENT TO WATERBODIES AND WETLANDS
 - WHERE NEEDED TO AVOID DRAINING A WETLAND
 - ON UPLAND SLOPES, AT THE SAME SPACING AS SLOPE BREAKERS AND UP SLOPE OF SLOPE BREAKERS
 - IN CULTIVATED LAND AND RESIDENTIAL AREAS WHERE PERMANENT SLOPE BREAKERS ARE NOT TYPICALLY INSTALLED, AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED.
 2. AS AN ALTERNATIVE TO THE MATERIALS SPECIFIED IN THE TABLE BELOW, OPEN WEAVE HEMP OR JUTE SACKS MAY BE FILLED WITH A MINIMUM OF 55lbs. MIXTURE OF 1 PART CEMENT TO 6 PARTS SAND OR SUBSOIL SO THAT NATURAL GROUND WATER WILL PERMIT MIXTURE TO EXUDE AND BOND SACKS TOGETHER.
 3. TRENCH PLUG SPACING AND CONFIGURATION MAY BE CHANGED AS DIRECTED BY COMPANY. DEPTH OF DITCH MAY VARY WITH SITE CONDITIONS.
 4. ALL MATERIALS SHALL BE SUPPLIED BY CONTRACTOR.
 5. GEOTECHNICAL POLYURETHANE FOAM TRENCH PLUGS MAY BE USED IN LIEU OF SACKS FILLED WITH CEMENT / SOIL MIXTURE.
 6. TRENCH PLUG SPACING SHOWN BELOW IS THE MAXIMUM ALLOWABLE PER PADEP REGULATIONS. ALL TRENCH PLUG LOCATIONS SHOWN ARE APPROXIMATE. FINAL LOCATIONS WILL BE FIELD IDENTIFIED BY A QUALIFIED INDIVIDUAL TO ACCOMMODATE PIPELINE FITTINGS, SIDE BENDS, OVER BENDS AND SAG BENDS TO ASSURE THAT ALL TRENCH PLUG INDUCED STRESSES ARE MINIMIZED.

TRENCH SLOPE (%)	SPACING L (FEET)	TRENCH PLUG MATERIAL
0 - 5	1,000	*CLAY, BENTONITE, OR CONCRETE FILLED SACKS, OR AS SPECIFIED IN NOTES 2 AND 5
5 - 15	500	*CLAY, BENTONITE, OR CONCRETE FILLED SACKS, OR AS SPECIFIED IN NOTES 2 AND 5
15 - 25	300	*CLAY, BENTONITE, OR CONCRETE FILLED SACKS, OR AS SPECIFIED IN NOTES 2 AND 5
25 - 35	200	*CLAY, BENTONITE, OR CONCRETE FILLED SACKS, OR AS SPECIFIED IN NOTES 2 AND 5
35 - 100	100	*CLAY, BENTONITE, OR CONCRETE FILLED SACKS, OR AS SPECIFIED IN NOTES 2 AND 5
OVER 100	50	CEMENT FILLED BAGS, (WETTED), MORTARED STONE, OR GEOTECHNICAL POLYURETHANE FOAM

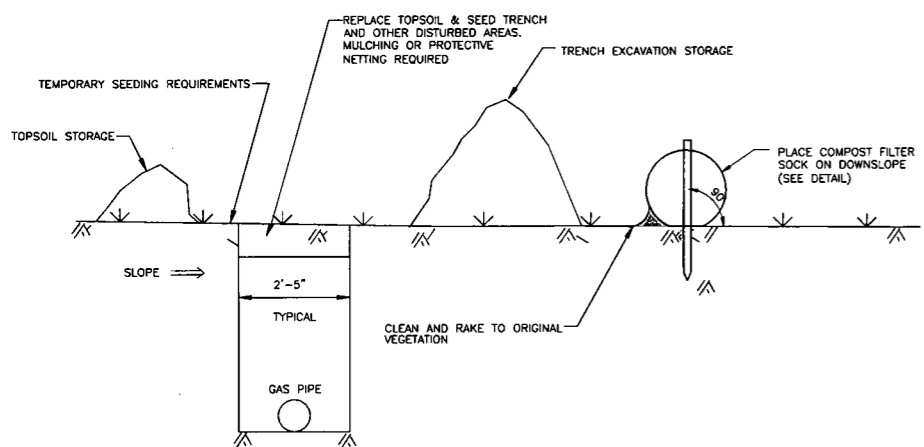
*TOPSOIL MAY NOT BE USED TO FILL SACKS.
**IMPERVIOUS TRENCH PLUGS ARE REQUIRED AT ALL STREAM, RIVER, WETLAND, OR OTHER WATERBODY CROSSINGS.



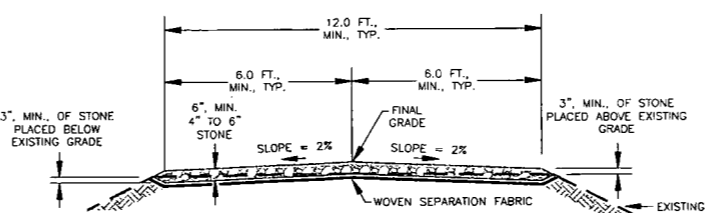
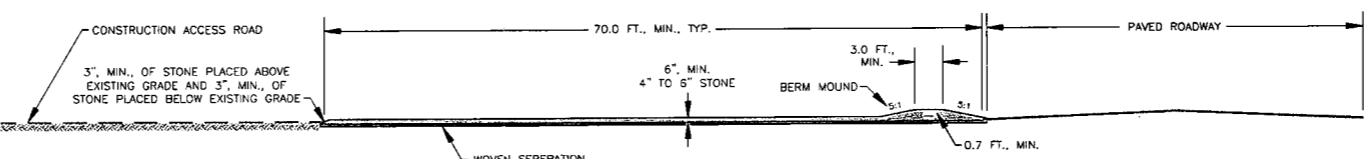
- NOTE:**
1. COMPOST FILTER SOCK TO BE FILTREXX SILTSOXX OR APPROVED EQUIVALENT.
 2. 12", 18", AND 24" COMPOST FILTER SOCK TO BE USED. SEE PLAN SHEET FOR SIZES AND LOCATIONS.
 3. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE COMPOST FILTER SOCK.
 4. COMPOST FILTER SOCK SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED COMPOST FILTER SOCK SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

DETAIL 4 COMPOST FILTER SOCK NOT TO SCALE

DETAIL 1 EROSION CONTROL BLANKET STAPLE PATTERN NOT TO SCALE

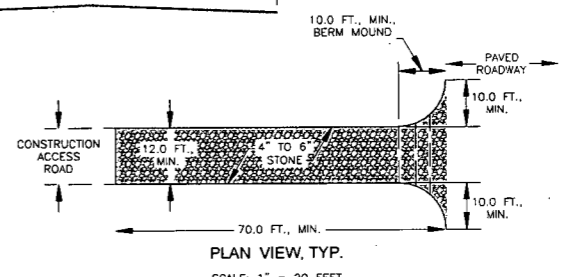


DETAIL 5 EROSION CONTROL MEASURES FOR PIPELINE TRENCHES NOT TO SCALE



DETAIL 6 STABILIZED CONSTRUCTION ENTRANCE NOT TO SCALE

DETAIL 3 TRENCH PLUG NOT TO SCALE



- NOTES:**
1. 4" to 6" STONE SHALL EXTEND THE FULL WIDTH OF THE ACCESS ROAD.
 2. 4" to 6" STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 7 AGGREGATE IN TABLE 704.6.2A OF THE WOOD STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
 3. A MOUNDED BERM MUST BE USED AT ALL STONE CONSTRUCTION ENTRANCES.
 4. TURNOUTS ONTO PAVED ROADS FROM STONE CONSTRUCTION ENTRANCES SHALL BE A MINIMUM OF 10.0 FEET AS MEASURED ALONG THE PAVED ROAD, REGARDLESS OF THE ANGLE AT WHICH THE STONE CONSTRUCTION ENTRANCE ENCOUNTERS THE PAVED ROAD.

C&E
Civil & Environmental Consultants, Inc.
99 Cambridge Place - Bridgeport, WV 26330
Ph: 304.933.3119 - Fax: 304.933.3327
www.cecinc.com

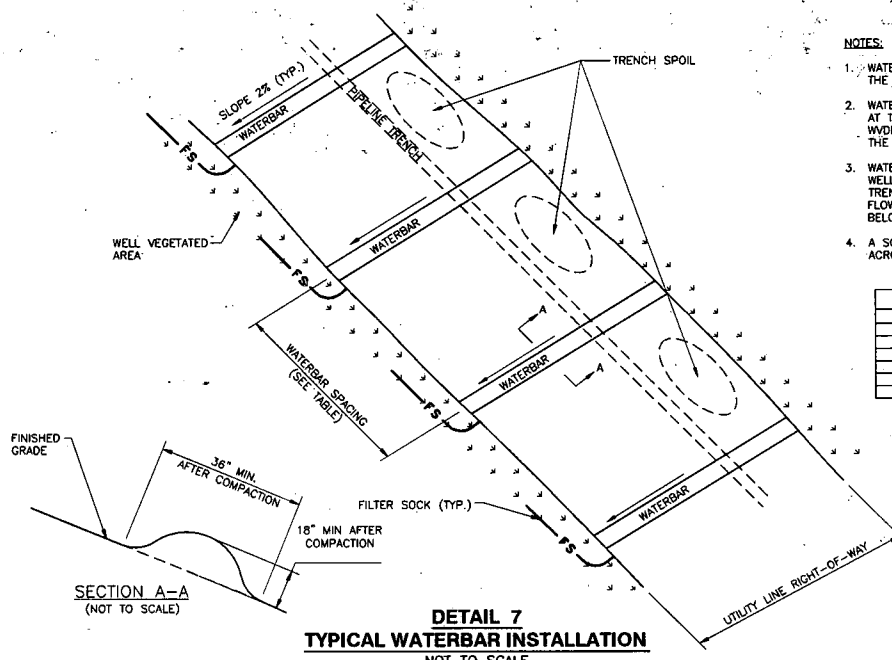
SEAL		REVISION RECORD	
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Antero Resources

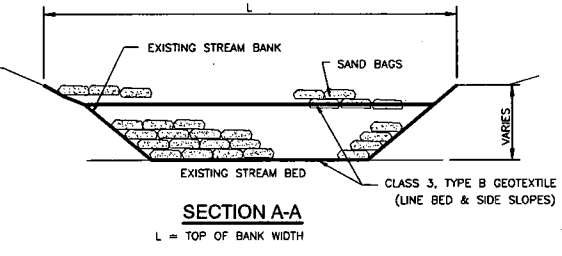
PEARL JEAN TO CANTON GASLINE

12" GASLINE
GRANT DISTRICT, DODDRIIDGE COUNTY, WV

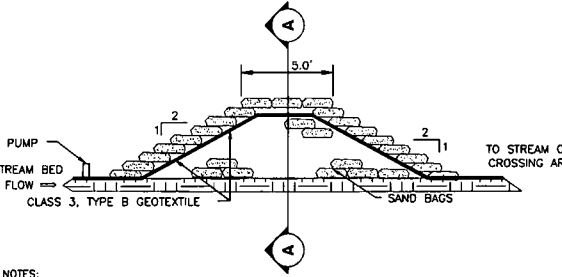
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CHECKED BY: JHL SHEET 6 OF 7



**DETAIL 7
TYPICAL WATERBAR INSTALLATION
NOT TO SCALE**



**SECTION A-A
L = TOP OF BANK WIDTH**



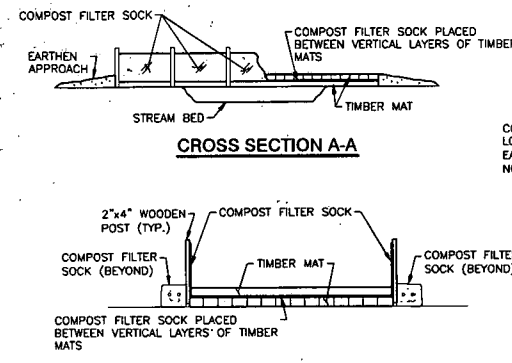
**DETAIL 9
SANDBAG DAM
NOT TO SCALE**

- NOTES:**
1. PUMP OUTLET PIPE TO BE LOCATED AT APPROXIMATE LOCATION SHOWN ON THE PLAN. R-2 STONE TO BE PLACED AT OUTLET. SEE DETAIL 15 AND 16 FOR CONSTRUCTION SEQUENCE OF STREAM AND WETLAND CROSSINGS.
 2. ADDITIONAL SAND BAGS SHALL BE PLACED AS NEEDED TO PREVENT LEAKAGE INTO CONSTRUCTION AREA.

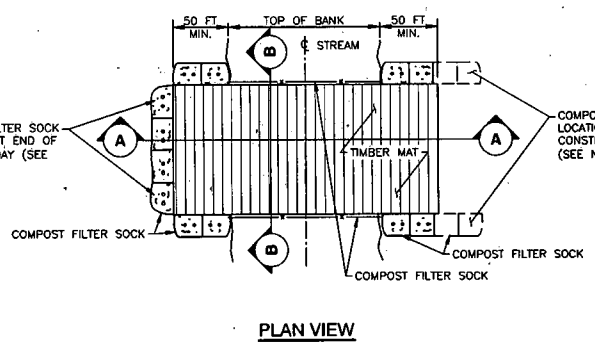
- NOTES:**
1. WATERBARS (SLOPE BREAKERS, INTERCEPTOR DIKES) SHOULD BE INSTALLED ACROSS THE ENTIRE RIGHT-OF-WAY ON ALL SLOPES GREATER THAN 5%.
 2. WATERBARS SHALL BE PLACED ON 2% SLOPE DOWNHILL. THEY SHALL BE SPACED AT THE INCREMENTS AS SHOWN ON THE PLANS, AND IN ACCORDANCE WITH THE WDEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL AND THE WDEP EROSION AND SEDIMENT CONTROL FIELD MANUAL.
 3. WATERBARS SHOULD BE CONSTRUCTED AT A SLOPE OF 2% AND DISCHARGE TO A WELL-VEGETATED AREA. WATERBARS SHOULD NOT DISCHARGE INTO AN OPEN TRENCH. WATERBARS SHOULD BE ORIENTED SO THAT THE DISCHARGE DOES NOT FLOW BACK ONTO THE RIGHT-OF-WAY. COMPOST FILTER SOCK SHOULD BE LOCATED BELOW THE DISCHARGE END OF THE WATERBAR.
 4. A SOFT TRENCH PLUG WILL BE USED IN AREAS WHERE WATER MUST BE CONVEYED ACROSS THE PIPELINE TRENCH.

PERCENT SLOPE	>200' FROM STREAMS	<200' FROM STREAMS
2-5%	400	200
6-12%	300	150
13-21%	200	100
22-34%	100	50
35-50%	50	25

* IT IS DIFFICULT TO INSTALL DIVERSIONS ON SLOPES STEEPER THAN 35%. OTHER CONTROL MEASURES MAY BE REQUIRED.

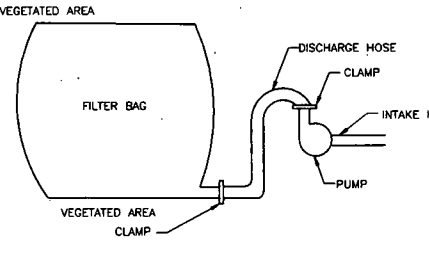


**CROSS SECTION B-B
DETAIL 8
TIMBER MAT BRIDGE EQUIPMENT
CROSSING OVER STREAM
NOT TO SCALE**



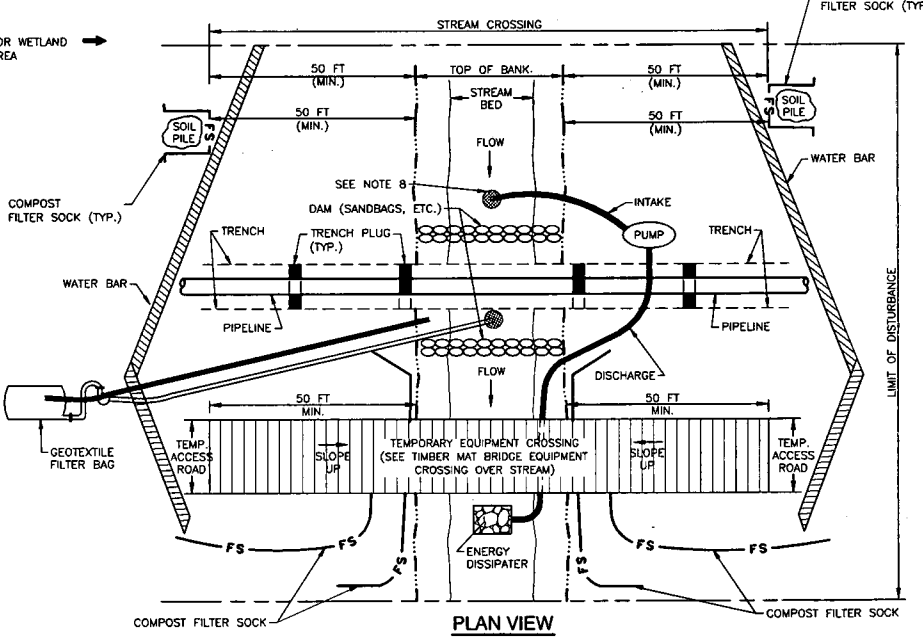
PLAN VIEW

- NOTES:**
1. THIS TYPE OF BRIDGE IS GENERALLY USED FOR SMALL STREAM CROSSINGS LESS THAN 25 FEET IN WIDTH AND A PROPER STREAM BANK CONFIGURATION.
 2. EXTEND TIMBER MAT 50 FEET, FROM TOP OF BANK, ON BOTH SIDES OF STREAM CROSSING IN ORDER TO MINIMIZE DISTURBANCE OF STREAM BANKS AND RIPARIAN AREAS.
 3. BRIDGE WILL BE TEMPORARILY REMOVED IF HIGH WATER RENDERS IT UNSAFE FOR CROSSING.
 4. BRIDGE TO REMAIN IN PLACE UNTIL COMPLETION OF FINAL RESTORATION.
 5. A SKIRT FORMED OF COMPOST FILTER SOCK SHALL BE PLACED ON THE SIDES AND BOTTOM OF THE BRIDGE TO TRAP SEDIMENT AS NECESSARY.
 6. INDIVIDUAL MATS SHALL BE ANCHORED AND BUTTED TIGHTLY TO MINIMIZE THE INTRODUCTION OF SEDIMENT TO THE WATERBODY.
 7. COMPOST FILTER SOCK WILL BE PLACED AT THE EDGE OF THE EQUIPMENT BRIDGE AT THE END OF EACH WORK DAY TO PREVENT EROSION, BUT WILL BE REMOVED DURING CONSTRUCTION ACTIVITY.
 8. TEMPORARY STREAM CROSSINGS SHALL BE INSPECTED ON A DAILY BASIS.
 9. DAMAGED CROSSINGS SHALL BE REPAIRED WITHIN 24 HOURS OF THE INSPECTION, AND BEFORE ANY SUBSEQUENT USE.
 10. SEDIMENT DEPOSITS ON THE CROSSING OR ITS APPROACHES SHALL BE REMOVED WITHIN 24 HOURS OF THE INSPECTION.



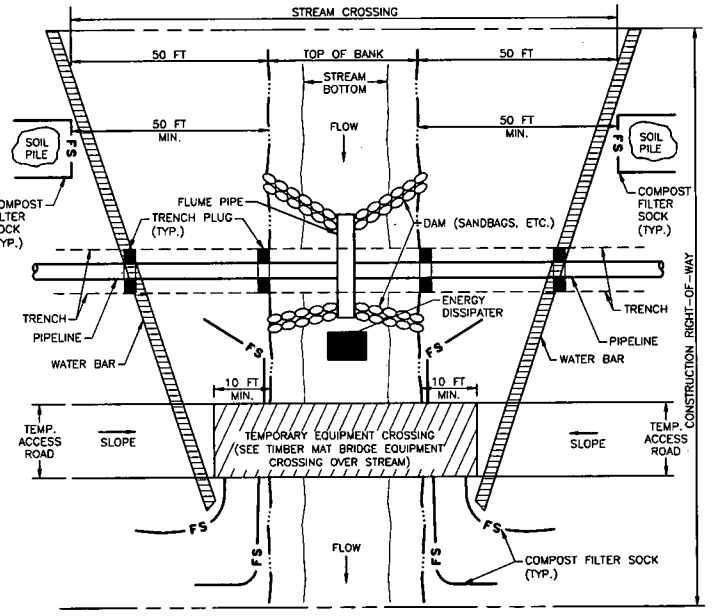
**DETAIL 10
GEOTEXTILE FILTER BAG
NOT TO SCALE**

- NOTES:**
1. FILTER BAGS MAY BE USED TO FILTER WATER PUMPED FROM DISTURBED AREAS SUCH AS UTILITY TRENCHES AND FOOTERS.
 2. FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS.
 3. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE FILLED OR FAILED. FILTER BAGS WILL BE DISPOSED OF AT A WDEP APPROVED FACILITY.
 4. BAGS SHALL BE LOCATED IN WELL VEGETATED (GRASSY) AREAS, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE LINED FLOW PATH SHALL BE PROVIDED. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5 PERCENT.
 5. THE PUMP RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHOULD BE FLOATING AND SCREENED.
 6. FILTER BAGS SHALL BE INSPECTED DAILY AND ANY CORRECTIVE ACTION REQUIRED SHALL BE DONE IMMEDIATELY.



**DETAIL 11
PIPELINE AND EQUIPMENT CROSSING OF STREAM
TRENCHING - PUMP AROUND
NOT TO SCALE**

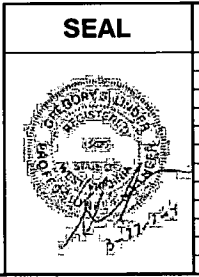
- NOTES:**
1. ALL RUNOFF FROM DISTURBED UP-SLOPE AREAS WITHIN LIMIT OF DISTURBANCE MUST BE TREATED FOR SEDIMENT BEFORE IT REACHES STREAM.
 2. INSTALL COMPOST FILTER SOCK, TRENCH PLUGS, PUMP, ENERGY DISSIPATER, AND DAMS BEFORE TRENCHING WITHIN STREAM BED.
 3. PUMP MUST BE OF SUFFICIENT CAPACITY TO CONVEY NORMAL AND/OR EXISTING STREAM FLOW OVER TRENCH. A BACK-UP PUMP OF EQUAL CAPACITY MUST BE AVAILABLE ON-SITE DURING EXCAVATION AND THE 6 MONTH MAINTENANCE PERIOD.
 4. PLACE SPOIL PILES A MINIMUM OF 50 FEET FROM TOP OF BANK.
 5. INSTALL WATER BARS AT APPROACHES TO STREAM CROSSING AND SILT FENCE ALONG STREAM BANKS AND AT DOWNSLOPE END OF WATER BARS.
 6. MAINTAIN SURFACE OF TEMPORARY EQUIPMENT CROSSING TO PREVENT SOIL DISCHARGES TO STREAM.
 7. EXTEND TIMBER MAT 50 FEET, FROM TOP OF BANK, ON BOTH SIDES OF STREAM CROSSING IN ORDER TO MINIMIZE DISTURBANCE OF STREAM BANKS AND RIPARIAN AREAS.
 8. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 6 INCHES ABOVE ORIGINAL GRADE.
 9. PUMP INTAKE SHALL HAVE AN ANTI-AQUATIC IMPEDIMENT SCREEN.
 10. STREAM CHANNELS 10 FEET IN BOTTOM WIDTH OR LESS SHALL BE COMPLETED WITHIN 24 HOURS FROM START TO FINISH, INCLUDING TRENCH BACKFILL, STABILIZATION OF STREAM BANKS AND STABILIZATION OF THE AREA 50 FEET BACK FROM THE TOP OF EACH STREAM BANK. STREAM CHANNELS BETWEEN 10 FEET AND 100 FEET IN BOTTOM WIDTH SHALL BE COMPLETED WITHIN 48 HOURS OR AS APPROVED IN WRITING FROM WV DNR.



PLAN VIEW

- NOTES:**
1. ALL RUNOFF FROM DISTURBED UP-SLOPE AREAS WITHIN CONSTRUCTION RIGHT-OF-WAY MUST BE TREATED FOR SEDIMENT BEFORE IT REACHES THE STREAM CROSSING.
 2. COMPOST FILTER SOCK, TRENCH PLUGS, PUMP, ENERGY DISSIPATER, AND DAMS BEFORE TRENCHING STREAM.
 3. FOR FLUME PIPE AND ROCK FILL CROSSINGS, INSTALL FLUME PIPE ON EXISTING STREAMBED. MORE THAN 1 FLUME PIPE MAY BE NEEDED TO SPAN STREAM CHANNEL.
 4. PLACE SPOIL PILES A MINIMUM OF 50 FEET FROM TOP OF BANK.
 5. INSTALL WATER BARS AT APPROACHES TO STREAM CROSSING AND COMPOST FILTER SOCKS ALONG STREAM BANKS AND AT DOWN SLOPE END OF WATER BARS.
 6. MAINTAIN SURFACE OF TEMPORARY EQUIPMENT CROSSING TO PREVENT SOIL DISCHARGES TO STREAM.
 7. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 6 INCHES ABOVE ORIGINAL GRADE.

**DETAIL 12
PIPELINE AND EQUIPMENT CROSSING OF STREAM
TRENCHING - FLUME PIPE DIVERSION
NOT TO SCALE**



SEAL			REVISION RECORD		
NO.	DATE	DESCRIPTION			
1	3 / 25 / 2014	ISSUED FOR CONSTRUCTION			

EROSION AND SEDIMENT CONTROL DETAILS

PEARL JEAN TO CANTON GASLINE

12" GASLINE
GRANT DISTRICT, DODDRIIDGE COUNTY, WV

DATE: 3/25/2014 PROJECT NO: 132-965
SCALE:
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C&E
Civil & Environmental Consultants, Inc.
99 Cambridge Place - Bridgeport, WV 26330
Ph: 304.933.3119 - Fax: 304.933.3327
www.cbclinc.com

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