



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

September 24, 2012

WELL WORK PERMIT
Horizontal 6A Well

This permit, API Well Number: 47-3305653, issued to ANTERO RESOURCES APPALACHIAN CORPORATION, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, well operators report of well work, is to be submitted to this office within 90 days of completion of drilling, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: BRUTUS UNIT 1H
Farm Name: CONSOLIDATION COAL CO.
API Well Number: 47-3305653
Permit Type: Horizontal 6A Well
Date Issued: 09/24/2012

Promoting a healthy environment.

05/24/2024

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the fill material shall be within plus or minus 2% of the optimum moisture content as determined by the standard proctor density test. Each lift must meet 95 % compaction of the optimum density based on results from the standard proctor density test of the actual soils used in specific engineered fill sites. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
3. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
4. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within twenty-five hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
5. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION

- 1) Well Operator: Antero Resources Appalachian Corporation 494488557 033- Harrison Union West Millford
Operator ID County District Quadrangle
- 2) Operator's Well Number: Brutus Unit 1H Well Pad Name: Caynor Pad
- 3 Elevation, current ground: ~1070' Elevation, proposed post-construction: 1089' ✓
- 4) Well Type: (a) Gas Oil Other
(b) If Gas: Shallow Deep
Horizontal
- 5) Existing Pad? Yes or No: No
- 6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Marcellus Shale: 7,000' TVD, Anticipated Thickness- 60' feet, Associated Pressure- 3,250#
- 7) Proposed Total Vertical Depth: 7,000' TVD
- 8) Formation at Total Vertical Depth: Marcellus Shale
- 9) Proposed Total Measured Depth: 15,600' MD
- 10) Approximate Fresh Water Strata Depths: 75', 80', 228', 325', 360', 450', 510' ✓
- 11) Method to Determine Fresh Water Depth: Offset well records
- 12) Approximate Saltwater Depths: 1480', 1580', 1720'
- 13) Approximate Coal Seam Depths: 120', 303', 998', 1373' 1496' ✓
- 14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated ✓
- 15) Does land contain coal seams tributary or adjacent to, active mine? No
- 16) Describe proposed well work: Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale

*Antero will be air drilling the fresh water string which makes it difficult to determine when freshwater is encountered, therefore we have built in a buffer for the casing setting depth which helps to ensure that all fresh water zones are covered.

17) Describe fracturing/stimulating methods in detail:

Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

- 18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 10.28 acres
- 19) Area to be disturbed for well pad only, less access road (acres): 3.41 acres

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Handwritten signature
26 June 12

20) CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	New	H-40	94#	40'	40'	CTS
Fresh Water	13-3/8"	New	J-55	54.5#	560'	560' *see above	CTS, 778 Cu. Ft. ✓
Coal	9-5/8"	New	J-55	36#	2480'	2480'	CTS, 1010 Cu. Ft. ✓
Intermediate							
Production	5-1/2"	New	P-110	20#	15600'	15600'	3894 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7300'	
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1.18
Intermediate						
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12630	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200		
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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21) Describe centralizer placement for each casing string.

Conductor: no centralizers

Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.

Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.

Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

22) Describe all cement additives associated with each cement type.

Conductor: no additives, grout cement.

Surface: Class A cement with 2% calcium and 1/4 lb flake, 5 gallons of clay treat

Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat

Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51

Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

23) Proposed borehole conditioning procedures.

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.

Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

*Note: Attach additional sheets as needed.

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EXHIBIT 4.a. to SSP- WW-6B FORM

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.V.A. CODE §22-6A - WELL WORK PERMIT APPLICATION

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Other _____
(b) If Gas: Shallow Deep _____
Horizontal

5) Existing Pad? Yes or No: No

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20) CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft.</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill -up (Cu. Ft.)</u>
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Tubing	2-3/8"	New	N-80	4.7#		7300'	
Liners							

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield</u>
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Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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*Note: Attach additional sheets as needed.

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

**CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE**

Operator Name Antero Resources Appalachian Corporation OP Code 494488557

Watershed West Fork River Quadrangle Wolf Summit

Elevation 1089' County Harrison District Union

Description of anticipated Pit Waste: Drilling and Flowback Fluids and Cuttings

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a synthetic liner be used in the pit? Yes If so, what mil.? 60 mil

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34)
- Off Site Disposal (Meadowfill Landfill Permit #SWF-1032-98)
- Other (Explain _____)

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Surface - Air/Freshwater, Intermediate - Dust/Stiff Foam, Production - Water Based Mud

-If oil based, what type? Synthetic, petroleum, etc. N/A

Additives to be used? Please See Attachment

Will closed loop system be used? Yes

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Removed offsite and taken to landfill

-If left in pit and plan to solidify what medium will be used? Cement, lime, N/A

-Landfill or offsite name/permit number? Meadowfill Landfill (Permit #SWF-1032-98)

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature _____

Company Official (Typed Name) Gerry G. Alberts

Company Official Title Environmental & Regulatory Manager

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Subscribed and sworn before me this 13 day of June, 2012

WV Department of
Environmental Protection

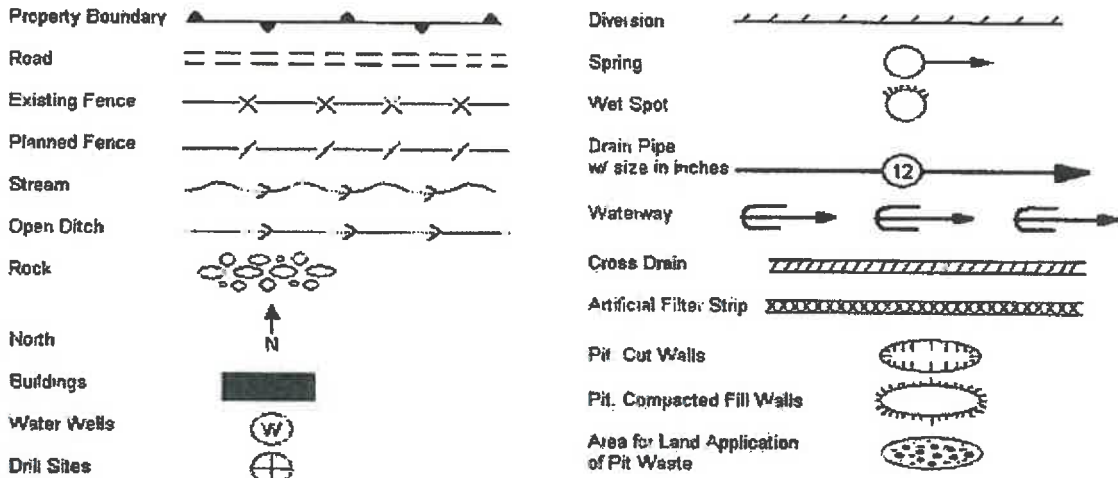
Maggie McManigal

Notary Public

My commission expires 12-21-2015



05/24/2024



New Pad 3.41 + New Access Road .89 + New Frac Pit 1.94 + Additional Clearing 4.04 = 10.28 Acres

Proposed Revegetation Treatment: Acres Disturbed 10.28 Prevegetation pH _____

Lime 2-3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch 2-3 Tons/acre Hay or straw or Wood Fiber (will be used where needed)

Seed Mixtures

Seed Type	Area I (Temporary) lbs/acre	Seed Type	Area II (Permanent) lbs/acre
Annual Rye Grass	40	Fox Tail/Grassy	40
		Perennial Rye Grass	30
		Crown Vetch	20

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: _____

Title: Oil & Gas Impactol

Date: 26 Jun 12

Field Reviewed? Yes No

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Well Site Safety Plan Antero Resources

Well Name: Caynor Unit 1H, Thrash Unit 1H, Thrash Unit 2H, Brutus Unit 1H, Ira Unit 1, Ira Unit 1H, Ira Unit 2H

Pad Location: CAYNOR PAD
Harrison County/Union District

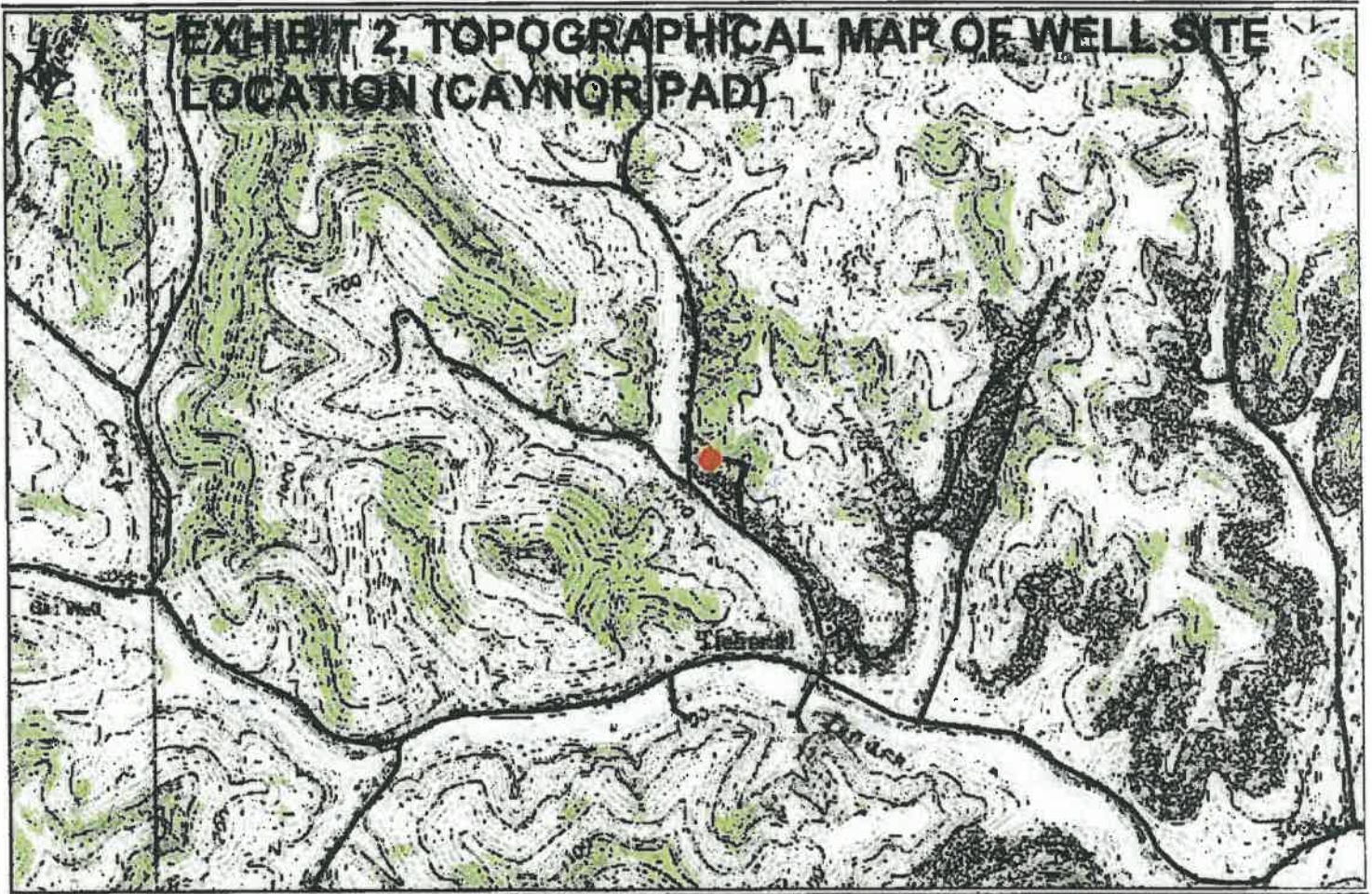
GPS Coordinates: Lat 39°11'46.6"/Long 80°28'47.8"

Driving Directions: From the town of Lost Creek off I79 head west on W Virginia 270 for 4.5 miles. Turn left onto W Virginia 270 W/Main St for 0.5 miles. Turn left onto US-19 S/Milford St for 2.8 miles. Turn right onto Issacs Creek Rd for 1 mile. Continue onto Co Route 38/ Industrial Isaacs Creek Rd for 1.2 miles. Turn right to stay on Co Route 38/ Industrial Isaacs Creek Rd. Continue onto Co Route 32/6 for 0.5 miles. Lease road will be near the intersection of Stone Coal Rd.

TAJ 2012 Jun 17

JUN 28 2012

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Antero Resources Corporation
APPALACHIAN BASIN
Caynor Pad Harrison County
REMARKS QUADRANGLE: WEST MILFORD WATERSHED: WEST FORK RIVER DISTRICT: UNION
Date: 5/3/2012

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that -

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
Travis Ray Bruce Lease			
Karen Smith, Trustee for Travis Ray Bruce	Antero Resources Appalachian Corp.	1/8	1464/1168
Karen Sue Smith & Robert Smith, h/w	Antero Resources Appalachian Corp.	1/8	1464/1172
Cheryl Caynor, POA for Betty Ann Caynor	Antero Resources Appalachian Corp.	1/8	1468/0034
Virginia L. Henning, heir of Joy Fortney	Antero Resources Appalachian Corp.	1/8	1467/0030
Ronald L. Fortney, heir of Joy Fortney	Antero Resources Appalachian Corp.	1/8	1467/0236
Dale E. Fortney, heir of Joy Fortney	Antero Resources Appalachian Corp.	1/8	1467/0240
Robert Keith Caynor	Antero Resources Appalachian Corp.	1/8	1468/0853
Elemental Resources	Antero Resources Appalachian Corp.	1/8	1468/0866
Barbara J. Fox	Antero Resources Appalachian Corp.	15.00%	1472/1069
Betty Jean Inscore, heir of Floy Post	Antero Resources Appalachian Corp.	1/8	1470/1041
Elaine Jones	Antero Resources Appalachian Corp.	15.00%	1472/0943
Kathy Paxton	Antero Resources Appalachian Corp.	15.00%	1472/1074
Patty Phillips	Antero Resources Appalachian Corp.	15.00%	1473/0033
Perry Post & Debbie Post, h/w, heirs of Floy Post	Antero Resources Appalachian Corp.	1/8	1471/0049
R.L. Caynor, et ux Lease DV011650			
R.L. Caynor & Ida M. Caynor, his wife	Reserve Gas Company	Flat Rate	0234/0206
Dominion E&P, Inc. acquired rights under the original lease by mesne and sundry conveyances, mergers, and/or assignments from the original lessee, Reserve Gas Company			
Dominion E&P, Inc.	Antero Resources Appalachian Corp.	Assignment	1423/1068
Waldo B. & Mary E. Brown Lease			
Waldo B. Brown & Mary E. Brown, h/w	South Penn Oil Company	Flat Rate	0116/0573
Woodville Brown & Minnie M. Brown, his wife and S. U.	South Penn Oil Company	Flat Rate	0116/0574
Lawson & Flora J. Lawso, his wife			
John L. Snider & Christine A. Snider, his wife and Nince A. Snider	Consolidated Gas Supply Corp	1/8	1082/1013
Mary Lee Griffith, et vir	Consolidated Gas Supply Corp	1/8	1113/0422
PDC Mountaineer, LLC. acquired rights under the original lease by mesne and sundry conveyances, mergers, and/or assignments from the original lessee, South Penn Oil Company and Consolidated Gas Supply Corp.			
PDC Mountaineer, LLC	Antero Resources Appalachian Corporation	Assignment	1478/0656
Orie and Maggie Bennett #052913			
Orie Bennett & Maggie Bennett his wife	Reserve Gas Company	Flat Rate	0179/0469
Dominion E&P, Inc. acquired rights under the original lease by mesne and sundry conveyances, mergers, and/or assignments from the original lessee, Reserve Gas Company			
Dominion E&P, Inc.	Antero Resources Appalachian Corp.	Assignment	1423/1068
Andrew N. and Etta C. Sutton Lease# DV011645			
A.N. Sutton & Etta Sutton, his wife	South Penn Oil Company	Flat Rate	0113/0494
Dominion E&P, Inc. acquired rights under the original lease by mesne and sundry conveyances, mergers, and/or assignments from the original lessee, South Penn Oil Company			
Dominion E&P, Inc.	Antero Resources Appalachian Corp.	Assignment	1423/1068

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WW-6A1

Operator's Well Number

Brutus Unit 1H

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE Chapter 22, Article 6A, Section 5(a)(5) IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

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Table with 4 columns: Grantor, lessor, etc.; Grantee, lessee, etc.; Royalty; Book/Page. Includes entries for W.A. Law et ux Lease #052829, Simon S. Stutler Lease Chesapeake, Samuel G. & Ida Stutler Lease# DV011642, and Ira C. Bennett et ux Lease# 005904.

*Partial Assignments to Antero Resources Appalachian Corporation include 100% interest to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well

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WV Department of Environmental Protection

05/24/2024

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Lease # 005906			
Stephen E. and E.G. Bennett, his wife	Hope Natural Gas Company	Flat Rate	0171/0064
<small>Dominion E&P, Inc. acquired rights under the original lease by mesne and sundry conveyances, mergers, and/or assignments from the original lessee, Hope Natural Gas Company</small>			
Dominion E& P, Inc.	Antero Resources Appalachian Corp	Assignment	1423/1068

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Antero Resources Appalachian Corporation
 By: Randy Kloberdanz
 Its: Director - Regulatory and Environmental Affairs

05/24/2024

33-05653



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

June 13, 2012

West Virginia Department of Environmental Protection
Chief, Office of Oil and Gas
Attn: Mr. James Martin
601 57th Street SE
Charleston, WV 25304

RE: Brutus Unit 1H
Quadrangle: West Milford
Harrison County/Union District, West Virginia

Mr. Martin:

Antero Resources Appalachian Corporation (Antero) is submitting the following application for a new well work permit for the Brutus Unit 1H horizontal shallow well. As an authorized representative, I certify that Antero has the right to extract, produce or market the oil or gas for all leases through which the Brutus Unit 1H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

Kenneth Vaughn
Landman

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**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION**

Date of Notice Certification: 06/13/2012

API No. 47- 033 - _____
Operator's Well No. Brutus Unit 1H
Well Pad Name: Caynor Pad

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>544,921.970m</u>
County:	<u>Harrison</u>		Northing:	<u>4,338,686.638m</u>
District:	<u>Union</u>	Public Road Access:	<u>CR 32/1</u>	
Quadrangle:	<u>West Milford</u>	Generally used farm name:	<u>Consolidation Coal Company</u>	
Watershed:	<u>West Fork River</u>			

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:

*PLEASE CHECK ALL THAT APPLY

- 1. NOTICE OF SEISMIC ACTIVITY or NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED
- 2. NOTICE OF ENTRY FOR PLAT SURVEY or NO PLAT SURVEY WAS CONDUCTED
**Not applicable, Plat Survey was done prior to Implementation of WV Code 22-6A
- 3. NOTICE OF INTENT TO DRILL or NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or
 WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)
- 4. NOTICE OF PLANNED OPERATION
- 5. PUBLIC NOTICE
- 6. NOTICE OF APPLICATION

OOG OFFICE USE ONLY

- RECEIVED/
NOT REQUIRED
- RECEIVED
- RECEIVED/
NOT REQUIRED
- RECEIVED
- RECEIVED
- RECEIVED

Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

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05/24/2024

Certification of Notice is hereby given:

THEREFORE, I Kevin Kilstrom, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>Antero Resources Appalachian Corporation</u>	Address:	<u>1625 17th Street</u>
By:	<u>Kevin Kilstrom</u>		<u>Denver, CO 80202</u>
Its:	<u>Vice President of Production</u>	Facsimile:	<u>(303) 357-7315</u>
Telephone:	<u>(303) 357-7310</u>	Email:	<u></u>



Subscribed and sworn before me this 13 day of June 2012.
Maggie McManigal Notary Public
 My Commission Expires 12-21-2015

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**
Date of Notice: 06/14/2012 **Date Permit Application Filed:** 06/14/2012

Notice of:

- PERMIT FOR ANY WELL WORK CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE REGISTERED MAIL METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b), no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner.

Notice is hereby provided to:

SURFACE OWNER(s)
Name: Consolidation Coal Company (Attr: Dave Botjos) ✓
Address: CNX Center-1000 Consol Energy Drive
Canonsburg, PA 15317
Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: Robert M. Lewis (Clearing Area) ✓
Address: RR 1, Box 73-1
Lost Creek, WV 26385
Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments/Pits)
Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: SEE ATTACHED LIST
Address: _____

COAL OPERATOR
Name: SEE ATTACHED LIST
Address: _____

WATER PURVEYOR(s)/OWNER(s) OF WATER WELL, SPRING OR OTHER WATER SUPPLY SOURCE
Name: SEE ATTACHED LIST
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

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Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall also include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No wellpad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such

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factors, if necessary.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

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Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

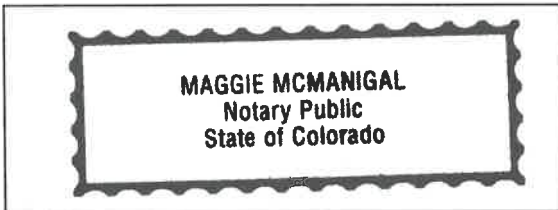
Notice is hereby given by:

Well Operator: Antero Resources Appalachian Corporation
Telephone: 303-357-7310
Email: amihalcin@anteroresources.com

Address: 1625 17th Street
Denver, CO 80202
Facsimile: 303-358-7315

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.



Subscribed and sworn before me this 13 day of June, 2012.
Maggie McManigal Notary Public
My Commission Expires 12-31-2015

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WW-6A Notice of Application Attachment:**Coal Owner, Operator, Lessee(s):**

Owner: Consolidation Coal Company ✓
c/o Leatherwood, Inc., CNX Center
Attn: Don Puglio

Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

Operator: Gregory & Poole Coal Company ✓
Address: 1101 Union Building
Charleston, WV 26426

Operator: R & L Coal Corporation ✓
Address: P.O. Box 144
Delbarton, WV 25670

Operator: Bitner Fuel Company ✓
Address: Route 1
Bloomingdale, OH 43910

Operator: Byron Construction Company ✓
Address: P.O. Box 421
Lost Creek, WV 26385

Operator: S & M Construction Company ✓
Address: 10504 Lucasville Road
Manassas, VA 20112

Operator: S & M Construction Company ✓
Address: 5400D Big Tyler Road
Charleston, WV 25313

Water Well Owners:

WW Owner: James W. & Doris E. Wickenhofer (1 water well) ✓
Address: RR 5, Box 595A
Clarksburg, WV 26301

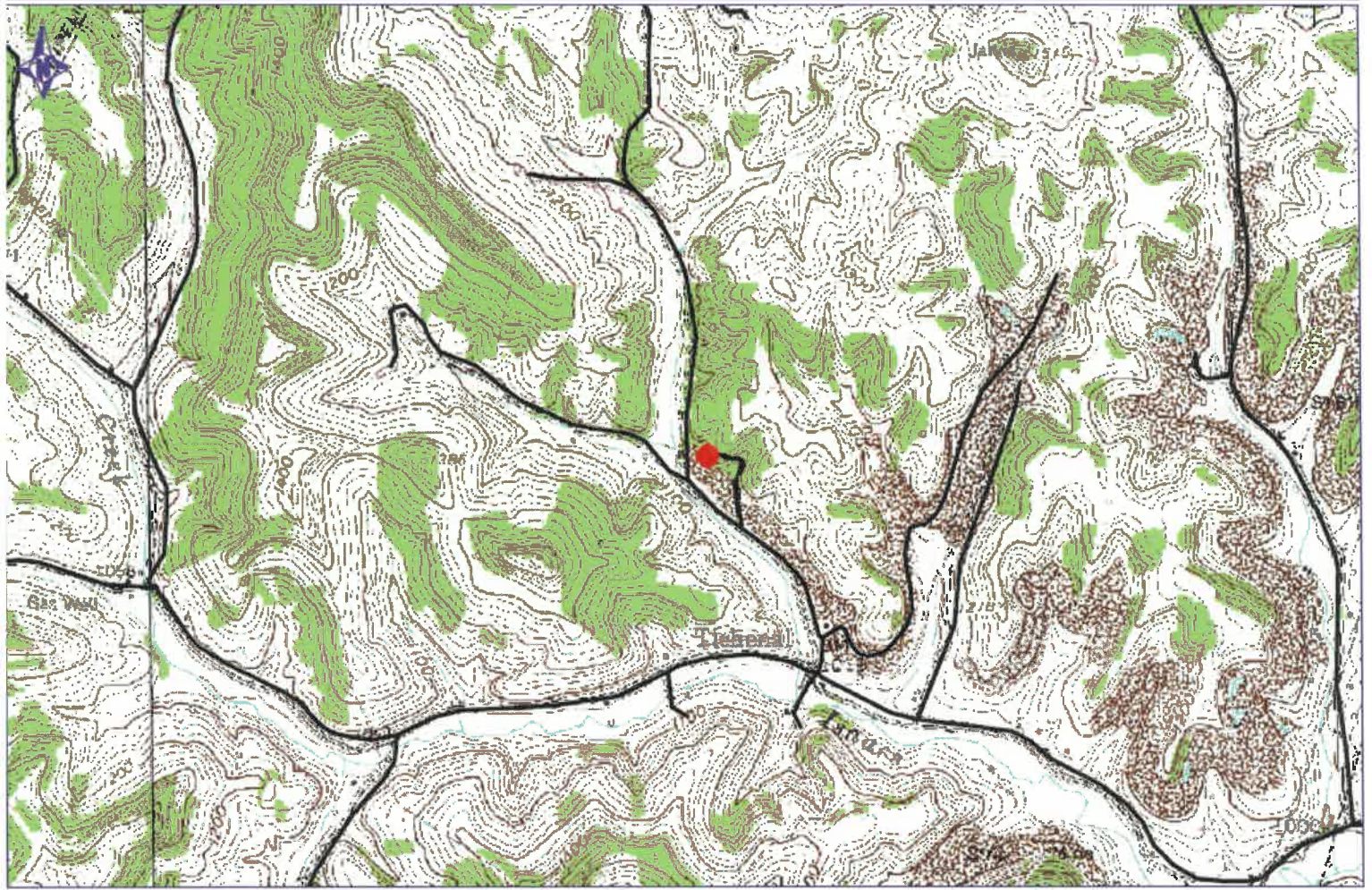
(Note: On attached water well map, 1 other water well owner was identified but they are located greater than 1500' from the subject well pad location)

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Antero Resources Corporation
APPALACHIAN BASIN
Brutus Unit 1H Harrison County
REMARKS QUADRANGLE: WEST MILFORD WATERSHED: WEST FORK RIVER DISTRICT: UNION
Date: 5/3/2012

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.
Date of Notice: 01/23/2012 **Date Permit Application Filed:** 06/14/2012

Delivery method pursuant to West Virginia Code § 22-6A-16(b)

- HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Consolidation Coal Company (Attn: Dave Botjos) Name: _____
Address: CNX Center-1000 Consol Energy Drive ✓ Address: _____
Canonsburg, PA 15317 _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: West Virginia UTM NAD 83 Easting: 544921.970m
County: Harrison Northing: 4338686.638m
District: Union Public Road Access: CR 32/1
Quadrangle: West Milford Generally used farm name: Consolidation Coal Company
Watershed: West Fork River

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Antero Resources Appalachian Corporation Authorized Representative: Ashlie Mihalcin
Address: 1625 17th Street Address: 1625 17th Street
Denver, CO 80202 Denver, CO 80202
Telephone: (303) 357-7310 Telephone: (303) 357-6412
Email: amihalcin@anteroresources.com Email: amihalcin@anteroresources.com
Facsimile: (303) 357-7315 Facsimile: (303) 357-7315

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 06/14/2012 **Date Permit Application Filed:** 06/14/2012

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

- CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

Name: <u>Consolidation Coal Company (Attn: Dave Botjos)</u>	Name: _____
Address: <u>CNX Center-1000 Consol Energy Drive</u> <u>Canonsburg, PA 15317</u>	Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>544921.970m</u>
County: <u>Harrison</u>		Northing: <u>4338686.638m</u>
District: <u>Union</u>	Public Road Access: <u>CR 32/1</u>	
Quadrangle: <u>West Milford</u>	Generally used farm name: <u>Consolidation Coal Company</u>	
Watershed: <u>West Fork River</u>		

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: <u>Antero Resources Appalachian Corporation</u>	Address: <u>1625 17th Street</u>
Telephone: <u>(303) 357-7310</u>	<u>Denver, CO 80202</u>
Email: <u>amihalcin@anteroresources.com</u>	Facsimile: <u>(303) 357-7315</u>

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

JUN 19 2012
WV Department of
Environmental Protection

05/24/2024

**CERTIFICATION OF AGREEMENT WITH WVDOH
to fulfill WV Code 22, Article 6A, Section 20**

**OIL AND GAS ROAD
STATEWIDE BONDING AGREEMENT**

THIS AGREEMENT, executed in duplicate, made and entered into this 28 day of February, 2012, by and between the WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, hereinafter called "DEPARTMENT," and Antero Resources Appalachian Corporation, a DELAWARE company, hereinafter called "COMPANY."

WITNESSETH:

WHEREAS, Company has horizontal gas well drilling operations in certain areas of West Virginia; and

WHEREAS, the Department believes that the frequent and repetitive use of certain sections of highways in the State by Company, its contractors, agents, independent contractors or suppliers of drilling materials or drilling equipment, and employees contributes to increased wear and tear to public roads in the state road system in the State, including local roads ("State Owned Roads"); and,

WHEREAS, the Department and Company have entered into this Agreement to satisfy the requirements of the Department's policy entitled "Oil & Gas Road Policy" dated January 3, 2012, as issued by Paul A. Mattox, Jr., Secretary of Transportation / Commissioner of Highways, and any subsequent related policies, hereinafter called "Policy", a copy of which is made a part of this Bonding Agreement and is identified as Attachment 1.

NOW, THEREFORE, for and in consideration of the mutual agreements hereinafter set forth, the parties agree as follows:

I. For purposes of this Bonding Agreement, "Project Transportation Usage" of the Company shall be understood to mean use of one or more State Owned Roads for the delivery and removal of drilling materials and drilling equipment at the site or location of one or more of Company's horizontal gas well pad locations. To the extent reasonably practical, prior to commencing use of a State Owned Road for Project Transportation Usage after January 1, 2011, the Company shall submit to the Department a section or sections of current official WVDOH County Highway maps identifying the exact location of the proposed project and the State Owned Roads that the Company will utilize for the Project Transportation Usage.

II. Company and Department shall within 14 days of the Company's submittal, agree to a list of these sections of State Owned Roads, hereinafter called "Project Roads List", to be utilized for each of Company's projects, identified by route number and milepost; at a time to be mutually agreed to by the parties prior to initial commencement of Project Transportation Usage of a particular State Owned Road on a Project Roads List, the Company and Department will jointly review the condition of the roads and bridges on the Project Roads List. The Department will document the road type and surface condition and general right-of-way width of each section of road on the Project Road List. Either party may supplement this documentation with photographs, video or other evidence of the present condition of the road surface, shoulders, ditches, culverts, bridges or other structures or appurtenances of roads on the Project Road List, as well as approaches to the roads, utility facilities located within or along the right-of-way, or any other condition, including third-party activities, that may affect the duties and responsibilities of the parties under this Agreement. A copy of any such documentation must be made and provided to the other party within ten business days after the joint review of the roads on the Project Roads List.

III. Department shall issue a Project Agreement or Project Permit, as appropriate, to Company to use State Owned Roads and may include any minor or major improvements required of Company prior to, during or after Project with the assignment of responsibilities of

Division of Oil & Gas
WV Department of Environmental Protection

both parties prior to, during and after the operator has completed well fracturing..

IV. In the Project Agreement/Project Permit, the Department shall not require the use of State Owned Roads other than the roads proposed by Company unless the Department has safety concerns as to the Company's proposed roads. A failure to agree on roads that may otherwise be lawfully used for a particular Project Transportation Usage shall result in the designation of the State Owned Roads proposed by Company, with milepost determinations as designated by Department. This Agreement shall only cover portions of State Owned Roads designated on the Project Roads List.

V. For the duration of Company's Project Transportation Usage of the Stated Owned Roads on the Project Roads List, whether by the Company, its contractors (while working on behalf of Company), agents, independent contractors or suppliers of drilling materials or drilling equipment, or employees, the Company agrees to pay for all reasonable maintenance and repair costs incurred by the Department to repair areas of the State Owned Roads included in the Project Roads List that were directly damaged by Company's Project Transportation Usage, as determined to be reasonably necessary and appropriate by the Department. The Department shall keep a record of all labor performed by Department employees and contractors for such maintenance and repairs and shall send an invoice for the same to Company.

VI. Company shall be responsible for the cost of all maintenance and repairs reasonably necessary to put the existing roadways, bridges and appurtenances on the Project Roads List utilized for the Project Transportation Usage in the condition that existed immediately prior to the Project Transportation Usage. Company shall not be required to pay for maintenance or repairs to put any areas of such roadways, bridges and appurtenances on the Project Roads List in a condition better than the condition that existed immediately prior to the Project Transportation Usage. Company shall also not be required to pay for maintenance or repairs to any areas of these roadways, bridges or appurtenances on the Project Roads List that are not actually utilized for the Project Transportation Usage or for damage not caused by Project Transportation Usage.

VII. Company shall notify the Department in writing of Company's final completion of Project Transportation Usage for particular roadways, bridges and appurtenances on the Project Roads List. Within fourteen days after its receipt of written notification of the completion of the Project Transportation Usage for all roads on a Project Roads List, the Department will review the condition of the roadways, bridges and appurtenances on the Project Roads List actually utilized for the Project Transportation Usage and advise Company of any final repairs reasonably necessary to leave these roads, bridges and appurtenances in a condition reasonably deemed by Department to be equal to their condition prior to commencement of Project Transportation Usage; and, upon completion of all such final repairs by or on behalf of Company and acceptance by Department, the Company shall be released from all further liability for maintenance or repairs to roads, bridges, or appurtenances on said Project Roads List. Any maintenance or repair work under the Project Agreement/Project Permit for roads, bridges or appurtenances on the Project Roads List may be performed by a contractor directly chosen by the Company as approved by the Department, the Department's workforce, or a private contractor hired by the Department through the public bid process in accordance with state law, all of which work shall be subject to the standards and specifications of the Department.

VIII. In order to ensure performance of Company's performance and payment obligations under this Bonding Agreement, the Company shall post a corporate surety bond, hereinafter called "Master Bond", with the Department named as the beneficiary, which form of bond shall be subject to the consent of the Department, not to be unreasonably withheld. The amount and form of the bond shall be in accordance with the Policy as set forth above. However, the amount of the Master Bond does not limit the amount of claims that may be made by the Department against the Company under this Bonding Agreement. The Company shall provide the Master Bond to the Department within one (1) month after the execution of this Bonding Agreement. The Master Bond shall secure the good faith performance of all payment obligations of Company under the terms of this Bonding Agreement respecting the roads, bridges and appurtenances on the Project Roads List for each Project Transportation Usage undertaken by the Company, and shall remain in effect until termination of this Agreement. Company shall not be obligated to provide any other bonds, sureties, or other guarantees of performance to the Department for Company's use of State Owned Roads, except as required in this Agreement.

05/24/2024

IX. Company shall maintain Commercial General Liability Insurance in the amount of two million dollars, with a minimum coverage of one million dollars per occurrence, for personal injury or death to persons, or for property damage, resulting from Company's Project Transportation Usage and shall present evidence of such insurance to Department upon request.

X. Company's usage of State Owned Roads under the Project Agreement/Project Permit shall comply with all applicable Federal, State and local laws and regulations including, but not limited to, to the extent applicable, the National Environmental Policy Act, Section 404 of the Clean Water Act, Section 106 of the National Historic Preservation Act, Rare, Threatened and Endangered Species Act, Section 401 Water Quality Certification, and hazardous waste requirements. Further, upon reasonable written request of Department, Company shall furnish Department with acceptable documentation of such compliance which is in the possession of the Company.

XI. Company shall defend, indemnify and hold Department harmless from and against any and all losses, damage, and liability, and from all claims for damages on account of or by reason of bodily injury, including death, which may be sustained, or claimed to be sustained, by any person or persons, including employees of Department, and from and against any and all claims, losses or liabilities for damages to property, arising out of the negligent or willful acts or omissions of Company, its agents, independent contractors and suppliers of drilling materials or drilling equipment, employees and contractors, in the performance of all Project Transportation Usage activities undertaken pursuant to this Agreement (collectively, "claims"). The Company shall not be responsible to indemnify, defend or hold harmless Department for any claims caused by the negligent or willful acts or omissions of the Department or its agents, employees and contractors or third parties not performing work at the direction of Company or delivering drilling equipment or drilling materials, including water, for use by or for company.

XII. If a provision of this Agreement is or becomes illegal, invalid or unenforceable in any jurisdiction, that shall not affect the validity or enforceability of any other provision of this Agreement; or the validity or enforceability in other jurisdictions of that or any other provision of this Agreement.

XIII. Department shall give Company a minimum of thirty days written notice of default under the terms of this Bonding Agreement and the opportunity to cure this default during such thirty-day period. If a default is not cured to the satisfaction of Department, or provision acceptable to Department is not made for a cure, Department may then elect to terminate this Bonding Agreement in whole or in part, and may in addition exercise its rights under the Master Bond or seek any other lawful relief available. Company may terminate this Bonding Agreement upon thirty days written notice to Department for any reason. In the event Company terminates this Agreement for any reason, it shall be liable for the repair and maintenance costs set forth above for prior Project Transportation Usage.

XIV. Nothing herein shall be construed to mean that Company shall have any jurisdiction or control over any public roads in the state road system.

XV. Company, its contractors, agents, employees and suppliers shall at all times be subject to applicable provisions of state and federal law, including without limitation laws requiring operation of vehicles in accordance with legal size and weight restrictions and posted weight limits. Oversize/overweight permits for vehicle or loads not otherwise conforming with law must be obtained in accordance with law; Department agrees to work in good faith with Company to review and grant (where authorized by law) such permits in a timely manner upon request by Company.

XVI. This Bonding Agreement shall be construed and enforced in accordance with the laws of the State of West Virginia, as they may be amended.

XVII. This Bonding Agreement shall be binding upon the successors and assigns of each party hereto.

RECEIVED
Office of the Gas
JUN 10 2024
WV Department of
Environmental Protection

05/24/2024

IN WITNESS WHEREOF, the parties hereto have caused this Bonding Agreement to be executed by their duly authorized officers effective as of the date first above written.

WEST VIRGINIA DEPARTMENT OF
TRANSPORTATION,
DIVISION OF HIGHWAYS

Doreen Baria
Witness

By: Maingz Murphy
State Highway Engineer

Avenue Resources Appalachia Corporation

Rachel Bouchard
Witness

By: A. Schupp
Title: VP ACCOUNTING AND ADMINISTRATION

(To be executed in duplicate)

APPROVED AS TO FORM THIS
8th DAY OF Mar, 2012

[Signature]
ATTORNEY LEGAL DIVISION
WEST VIRGINIA DEPARTMENT
OF HIGHWAYS

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JUN 19 2012

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05/24/2024

Form WW-9 Additives Attachment

SURFACE INTERVAL

1. Fresh Water
2. Soap –Foamer AC
3. Air

INTERMEDIATE INTERVAL

STIFF FOAM RECIPE:

- 1) 1 ppb Soda Ash / Sodium Carbonate-Alkalinity Control Agent
- 2) 1 ppb Conqor 404 (11.76 ppg) / Corrosion Inhibitor
- 3) 4 ppb KLA-Gard (9.17 ppg) / Amine Acid Complex-Shale Stabilizer
- 4) 1ppb Mil Pac R / Sodium Carboxymethylcellulose-Filtration Control Agent
- 5) 12 ppb KCL / Potassium Chloride-inorganic Salt
- 6) Fresh Water 80 bbls
- 7) Air

PRODUCTION INTERVAL

1. Alpha 1655
Salt Inhibitor
2. Mil-Carb
Calcium Carbonate
3. Cottonseed Hulls
Cellulose-Cottonseed Pellets – LCM
4. Mil-Seal
Vegetable, Cotton & Cellulose-Based Fiber Blend – LCM
5. Clay-Trol
Amine Acid Complex – Shale Stabilizer
6. Xan-Plex
Viscosifier For Water Based Muds
7. Mil-Pac (All Grades)
Sodium Carboxymethylcellulose – Filtration Control Agent
8. New Drill
Anionic Polyacrylamide Copolymer Emulsion – Shale Stabilizer
9. Caustic Soda
Sodium Hydroxide – Alkalinity Control
10. Mil-Lime
Calcium Hydroxide – Lime
11. LD-9
Polyether Polyol – Drilling Fluid Defoamer
12. Mil Mica
Hydro-Biotite Mica – LCM

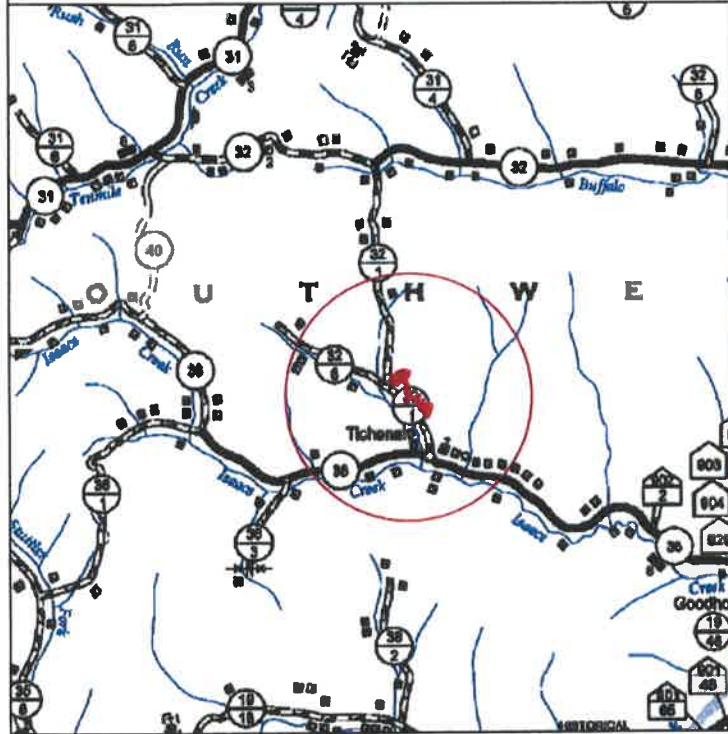
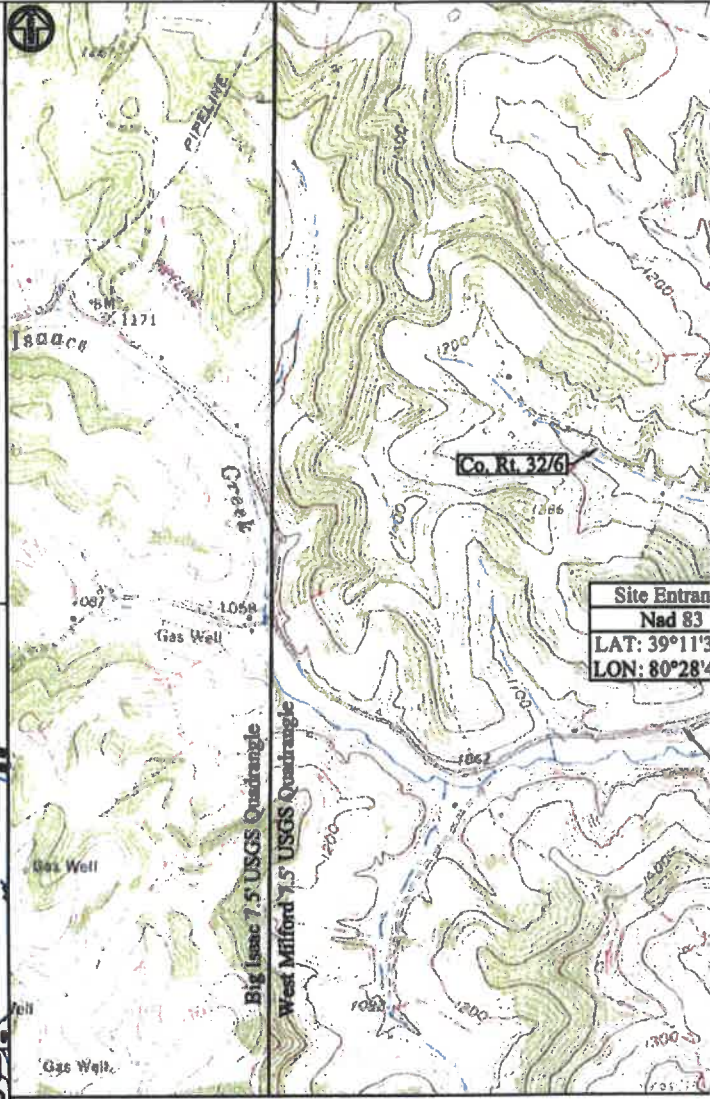
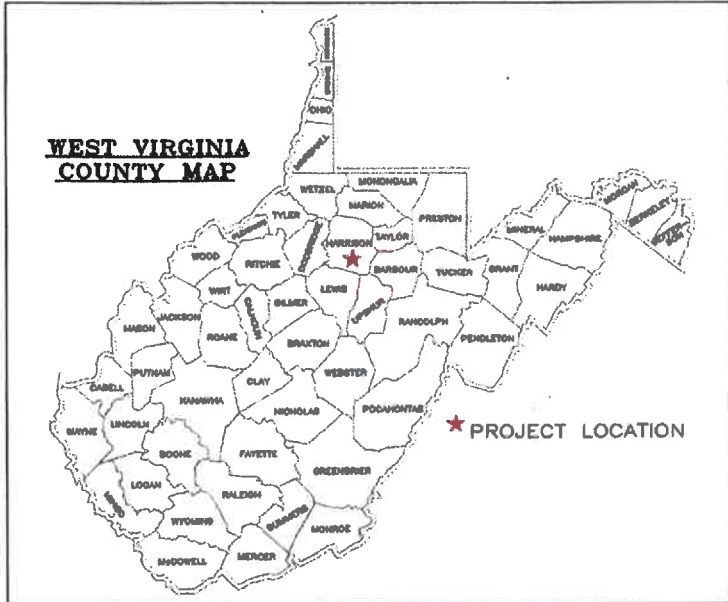
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Environmental Regulation

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13. Escaid 110
Drilling Fluid Solvent – Aliphatic Hydrocarbon
14. Ligco
Highly Oxidized Leonardite – Filtration Control Agent
15. Super Sweep
Polypropylene – Hole Cleaning Agent
16. Sulfatrol K
Drilling Fluid Additive – Sulfonated Asphalt Residuum
17. Sodium Chloride, Anhydrous
Inorganic Salt
18. D-D
Drilling Detergent – Surfactant
19. Terra-Rate
Organic Surfactant Blend
20. W.O. Defoam
Alcohol-Based Defoamer
21. Perma-Lose HT
Fluid Loss Reducer For Water-Based Muds
22. Xan-Plex D
Polysaccharide Polymer – Drilling Fluid Viscosifier
23. Walnut Shells
Ground Cellulosic Material – Ground Walnut Shells – LCM
24. Mil-Graphite
Natural Graphite – LCM
25. Mil Bar
Barite – Weighting Agent
26. X-Cide 102
Biocide
27. Soda Ash
Sodium Carbonate – Alkalinity Control Agent
28. Clay Trol
Amine Acid complex – Shale Stabilizer
29. Sulfatrol
Sulfonated Asphalt – Shale Control Additive
30. Xanvis
Viscosifier For Water-Based Muds
31. Milstarch
Starch – Fluid Loss Reducer For Water Based Muds
32. Mil-Lube
Drilling Fluid Lubricant

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WV Department of
Environmental Protection

05/24/2024



Location Map
Scale: 1" = 1 Mile
USGS 7.5' Quadrangle: West Milford
Watershed: Isaacs Creek - West Fork River

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

APPROVED
WVDEP OOG
8/31/2012

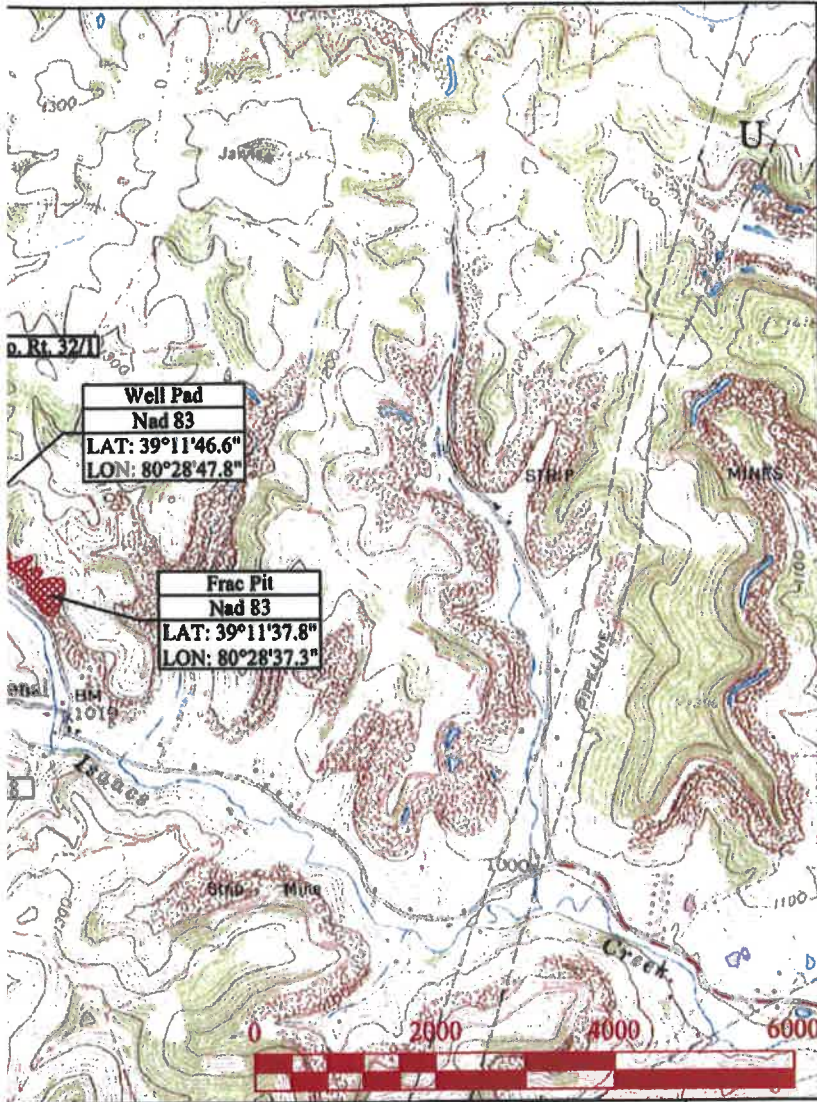
Caynor S.
Construction P
Erosion and Sedimen
Harrison Co
Union Dist
Latitude 39°11'
Longitude 80°28'

Kelly Surveying
P.O. Box 284
Dolley, WV 26259
304-338-6985

District: Union
County: Harrison
State: West Virginia

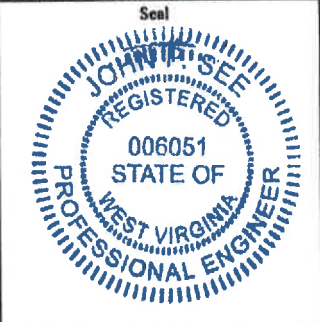
John Kawcak
Mobile: (817) 368-1553
Email: jkawcak@anteroresources.com
Dusty W
M

05/24/2024



Project Site		Sheet 1 of 22	
Caynor Site			
District	County	State	
Union	Harrison	W.V.	
WV Lands Inquiry Approval Date: 7-27-11			
WV State Historic Preservation Office Approval Date: 8/19/11			
This Pad is not in a flood zone as scaled from FIRM Insurance Rate Map Community Panel No.: 540053 0106C			
Gas Wells		Brutus Unit 1H ♦	♦ Caynor Unit 1H
	Ira Unit 2H ♦	♦ Thrash Unit 2H	
	Ira Unit 1H ♦	♦ Thrash Unit 1H	
	Ira Unit 1 ♦		
Sheet	Description		
1	Cover		
2	Specifications		
3-4	Erosion and Sediment Control		
5	Original Ground		
6	Well Pad Plan View		
7	Frac Pit Plan View		
8	Well Pad E&S Plan View		
9	Frac Pit E&S Plan View		
10-11	Well Pad Cross Sections		
12	Well Pad Profile		
13-15	Frac Pit Cross Sections		
16	Pad Access Road Cross Sections		
17	Frac Pit Access Road Cross Sections		
18	Access Road Profiles		
19	Frac Pit Reclamation		
20	Well Pad Reclamation		
21	Disturbed Areas		
22	Volume Report		
Date:	Note:		
Dec. 29, 2011	Design		

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5.2"

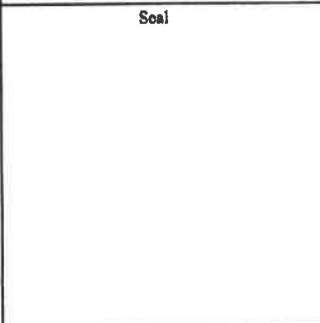


Design Certification

The drawings, construction notes and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas §35-4-21

The information reflects a temporary frac pit and gas well drilling pad.
The computed above ground volume is less than 15 acre feet, filling method pumped, pit is lined.

John P. See RPE 6051: _____ Date: 01/14/12
Kelly Surveying PLLC
COA: C04232-00



As-Built Certification

This as-built certification certifies that the well pad and temporary frac pit was constructed in reasonable close conformance with the design drawings.
The attached reference drawings are a representation of the temporary frac pit as constructed and the design volume does not exceed 15 acre feet above ground.
The as-built information was field surveyed prior to the placement or installation of the approved liner. It is recommended that the liners installation be inspected and approved by an individual familiar with the manufacturers specifications and requirements prior to the water filling operation.
It is also recommended this temporary frac pit is included in the existing comprehensive maintenance and inspection program for temporary frac pits or that a comprehensive maintenance and inspection program be developed to monitor the pits condition to insure the continued safe operation.

John P. See RPE 6051: _____ Date: _____

Antero Resources Contact Information

<p>Eli Wagoner 771-1436 Work: (304) 622-3842 Mobile: (304) 476-9770 Email: ewagoncr@anteroresources.com</p>	<p>Tom Wince Work: (304) 869-3405 Mobile: (304) 483-0933 Email: twince@anteroresources.com</p>	
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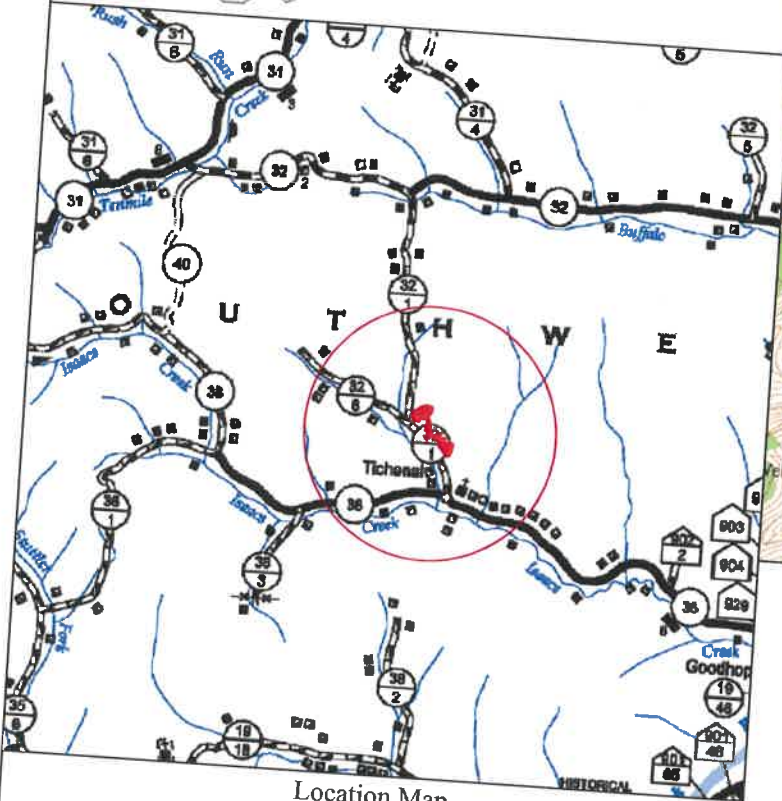
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05/24/2024

**WEST VIRGINIA
COUNTY MAP**



★ PROJECT LOCATION



Location Map

Scale: 1" = 1 Mile

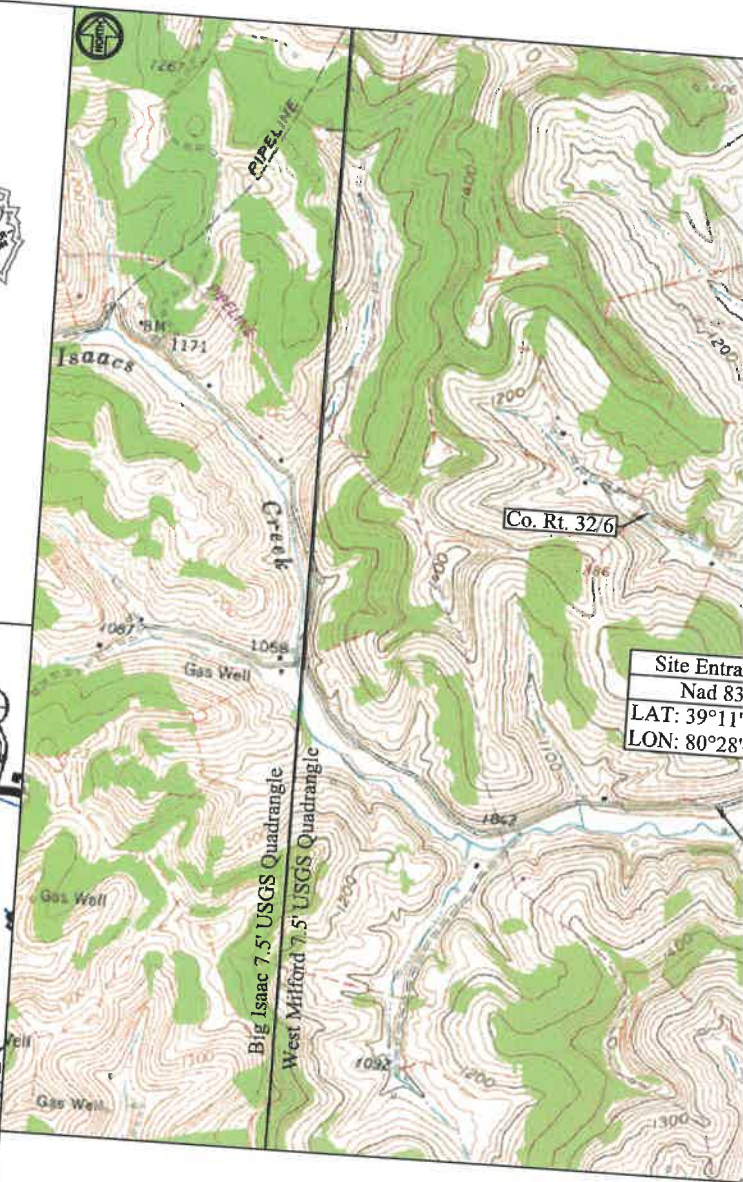
USGS 7.5' Quadrangle: West Milford
Watershed: Isaacs Creek - West Fork River



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

Kelly Surveying
P.O. Box 254
Dalley, WV 26259
(304) 338-6985

District: Union
County: Harrison
State: West Virginia



Site Entrance
Nad 83
LAT: 39°11'
LON: 80°28'

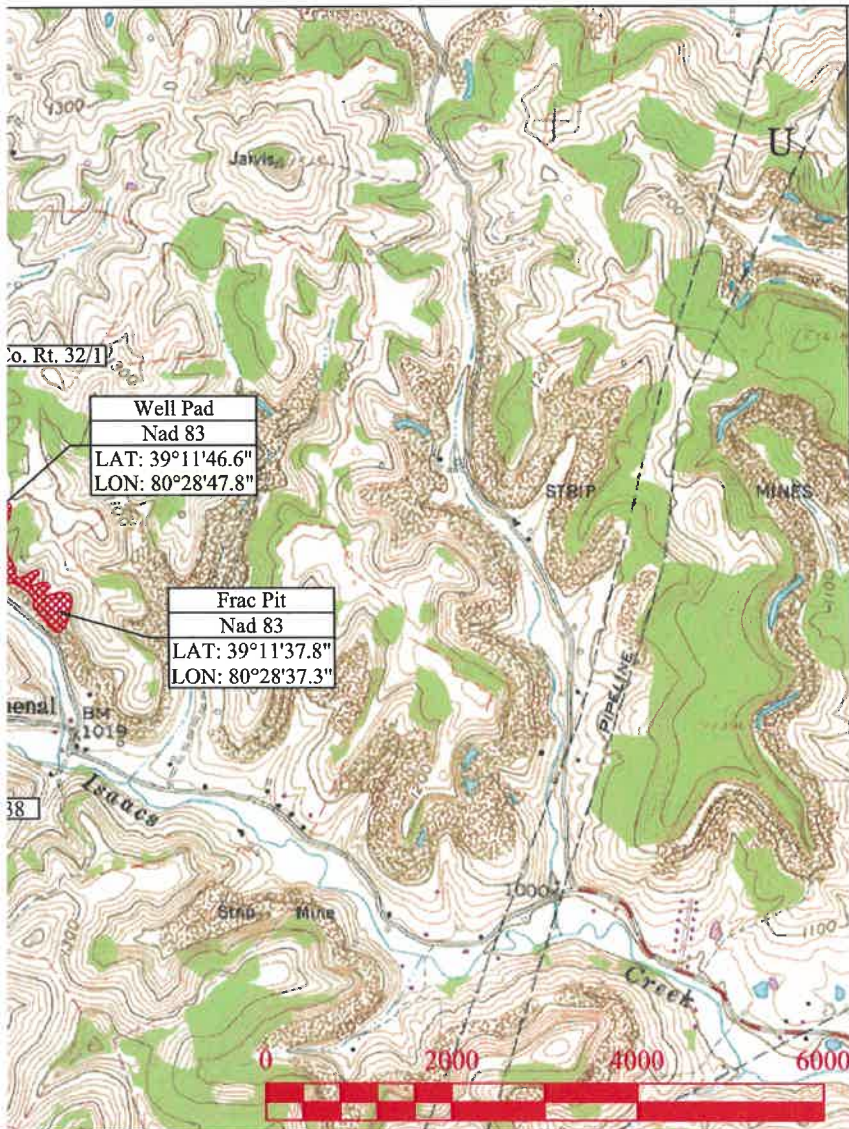
**Caynor Site
Construction Plan
Erosion and Sediment
Control Plan
Harrison County
Union District
Latitude 39°11'
Longitude 80°28'**

John Kawcak
Mobile: (817) 368-1553
Email: jkawcak@anteroresources.com

Dusty Woods
Mobile

05/24/2024

Project Site		Sheet 1 of 22
Caynor Site		
District	County	State
Union	Harrison	W. V.



Sheet	Description
1	Cover
2	Specifications
3-4	Erosion and Sediment Control
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12	Well Pad Profile
13-15	Frac Pit Cross Sections
16	Pad Access Road Cross Sections
17	Frac Pit Access Road Cross Sections
18	Access Road Profiles
19	Frac Pit Reclamation
20	Well Pad Reclamation
21	Disturbed Areas
22	Volume Report

Date:	Note:
Dec. 29, 2011	Design

and
 Control Plan
 y
 9.3"
 5.2"

Seal

Design Certification

The drawings, construction notes and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas §35-4-21

The information reflects a temporary frac pit and gas well drilling pad.
 The computed above ground volume is less than 15 acre feet, filling method pumped, pit is lined.

John P. See RPE 6051: _____ Date: _____
 Kelly Surveying PLLC
 COA: C04232-00

Seal

As-Built Certification

This as-built certification certifies that the well pad and temporary frac pit was constructed in reasonable close conformance with the design drawings.
 The attached reference drawings are a representation of the temporary frac pit as constructed and the design volume does not exceed 15 acre feet above ground.
 The as-built information was field surveyed prior to the placement or installation of the approved liner. It is recommended that the liners installation be inspected and approved by an individual familiar with the manufacturers specifications and requirements prior to the water filling operation.
 It is also recommended this temporary frac pit is included in the existing comprehensive maintenance and inspection program for temporary frac pits or that a comprehensive maintenance and inspection program be developed to monitor the pits condition to insure the continued safe operation.

John P. See RPE 6051: _____ Date: _____

Antero Resources Contact Information

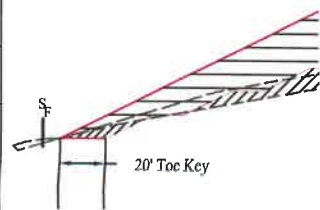
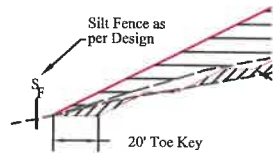
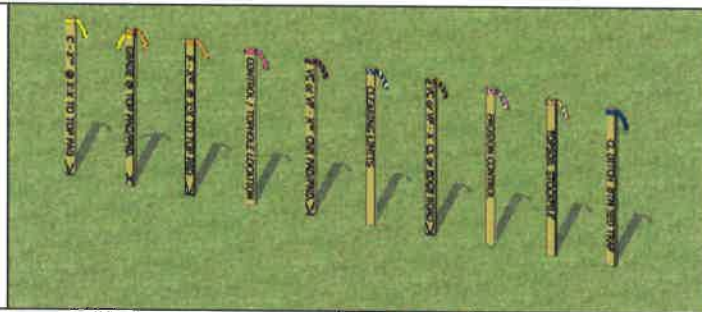
Eli Wagoner
 Work: (304) 622-3842
 Mobile: (304) 476-9770
 Email: ewagoner@anteroresources.com











Tom Wince
 Work: (304) 869-3405
 Mobile: (304) 483-0933
 Email: twince@anteroresources.com



05/24/2024

1. The Construction Drawings present the proposed lines, grades, and appurtenances to accomplish the intent of the Scope of Work.
2. The Construction Drawings show the construction lines, grades, depths and dimensions on which estimated quantities are based. The construction lines, grades, depths and dimensions are subject to variation necessary to obtain subgrade and/or final grade satisfactory to the Engineer. The Engineer reserves the right to increase or diminish construction lines, grades, depths and dimensions as necessary and according to site conditions.
3. All work performed and all material furnished shall conform to the lines, grades, cross sections, dimensions, and material requirements in reasonable close conformance with the Construction Drawings.
4. The Contractor shall provide all reasonable facilities and furnish the Engineer, the information, assistance, and samples required by the Engineer for proper monitoring and testing of materials and workmanship. The Contractor shall have on the Project at all times, a competent superintendent capable of reading and understanding the Construction Documents and thoroughly experienced in impoundment pond construction and who shall receive information from the Engineer.
5. Clearing shall be completed in accordance with Section 201 of the WVDOH Specifications. Clearing is defined as the removal of trees, brush, down timber, rotten wood, rubbish, and other vegetation, and objectionable materials at or above original ground elevation not designated to be retained. Clearing also includes removal of fences, posts, signs, and demolition or removal of other obstructions interfering with the proposed work.
6. Grubbing shall be completed in accordance with Section 201 of the WVDOH Specifications. Removal all stumps and roots within the cleared area unless otherwise approved by the Engineer. Grubbing is defined as the removal from below the original ground elevation of stumps, roots, stubs, brush, organic materials and debris as well as concrete and brick, and other obstructions interfering with the proposed work.
7. Strip topsoil to whatever depth it may occur from areas to be excavated, filled, or graded and stockpile at a location approved for use in finish grading. The topsoil shall not be used as backfill. Strip topsoil to full depth encountered in areas indicated to be graded in a manner to prevent intermingling with underlying subsoil or waste materials. Stockpile sufficient topsoil material to facilitate seeding and landscaping. Stockpile away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Protect soil stockpiles using erosions and sediment control measures as directed by the Engineer or project manager.
8. DO NOT deposit or bury on the site debris resulting from the clearing and grubbing without written permission from the Engineer or project manager.
9. All earthwork shall be in accordance with WVDOH Standard Specifications, Section 207, unless otherwise specified or altered by the additional specifications herein.
10. Subsequent to the removal of the topsoil, and prior to fill placement, exposed surface should be compacted and/or proof rolled until a relatively unyielding surface is achieved.
11. Suitable soil materials are as those complying with WVDOH Standard Specifications, Section 207.
12. On-site material for use as fill shall consist of excavated soil from other portions of the site. The Contractor shall use the on-site soil judiciously to facilitate the construction schedule including the use of the most readily compactable soil for fill. Topsoil shall not be utilized as engineered fill. Excavated material containing rock, stone or masonry debris smaller than six inches in its largest dimension, may be mixed with suitable material and utilized except in the impoundment pond core.
13. Excavated material containing rock, stone or masonry debris larger than two inches in its largest dimension may NOT be mixed with suitable material and utilized in the impoundment pond core.
14. No material greater than six inches in its largest dimension may be utilized inside filling operations.
15. Imported fill shall be free of all hazardous substances. Certification of compliance and, if requested, test results substantiating compliance shall be furnished to the Engineer by the Contractor not less than one week prior to its intended use. The size of rock lifts shall not exceed thirty-six (36) inches. The rock shall not be greater in any dimension than thirty-six (36) inches. Rock is defined as follows:
 - a. General Excavation - Any material that cannot be excavated with a single-tooth ripper drawn by a crawler tractor having a minimum draw bar pull rated at not less than 71,000 lbs (Caterpillar D9N or equivalent), and occupying an original volume of at least 2 cubic yards or more.
16. Prevent surface water and subsurface water from flowing into excavations and flooding the work. Remove water from excavations to prevent softening of foundation soils and creating soil changes detrimental to the stability of subgrades. Provide and maintain pumps, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from the site. Convey water removed from excavations to collection locations or to runoff areas. During periods of inclement weather, temporary slope drains may be utilized as necessary.



	Yellow Ribbon: Yellow Ribbon used to indicate top of Cuts (C) Cut to be determined at time of stakeout Slope determined by site design		Blue & White Stripe Ribbon: Blue & White Stripe Ribbon used to indicate clearing limits/construction limits
	Yellow & Orange Ribbon: Yellow and Orange Ribbon used to indicate Grade at Top of Pad/Pond/Pit		Orange & Black Stripe Ribbon: Orange & Black Stripe Ribbon used to indicate Vertical Cut (VC) at Centerline or edge of access road Orange & Black Stripe Ribbon used to indicate Vertical Fill (VF) at centerline or edge of access road
	Orange Ribbon: Orange Ribbon used to indicate toes of Fills (F) Fill to be determined at time of stakeout Slope determined by site design		Pink & White Stripe Ribbon: Pink & White Stripe Ribbon used to indicate Erosion and Sediment Control Structures Silt Fence (SF) Reinforced Filter Fence (RFF) Super Silt Fence (SSF) Filter Sock (FS)
	Pink Ribbon: Pink Ribbon used to indicate Top Hole Location Pink Ribbon used to indicate Survey Control Location		Orange & White Stripe Ribbon: Orange & White Stripe Ribbon used to indicate Topsoil Stockpile Locations
	Pink & Black Stripe Ribbon: Pink & Black Stripe Ribbon used to indicate Vertical Cut (VC) at Pad/Pond/Pit corner or edge Pink & Black Stripe Ribbon used to indicate Vertical Fill (VF) at Pad/Pond/Pit corner or edge Vertical Cut/Vertical Fill to be determined at time of stakeout		Blue Ribbon: Blue Ribbon used to indicate Centerline (CL) Ditch Blue Ribbon used to indicate Bottom (BTM) Sediment Traps

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Dolley, WV 26259
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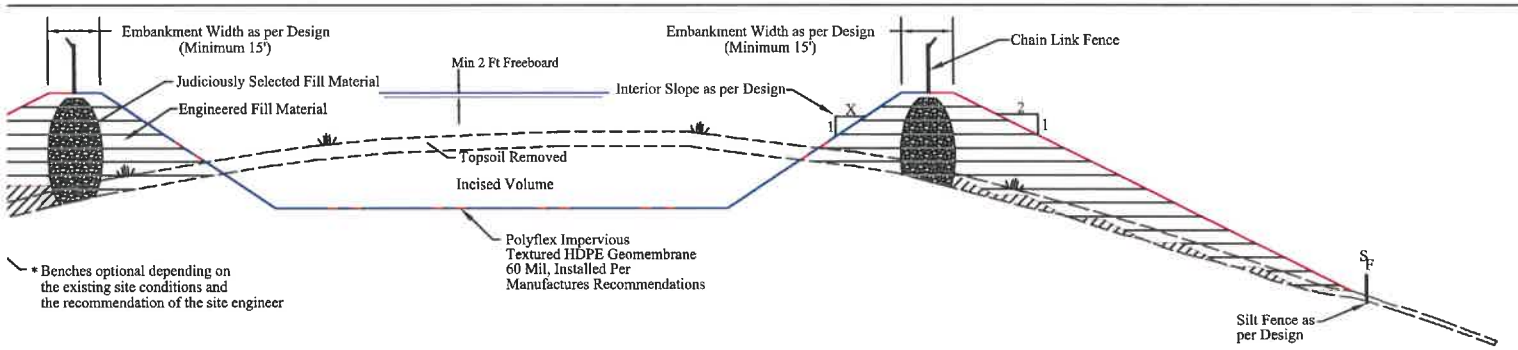
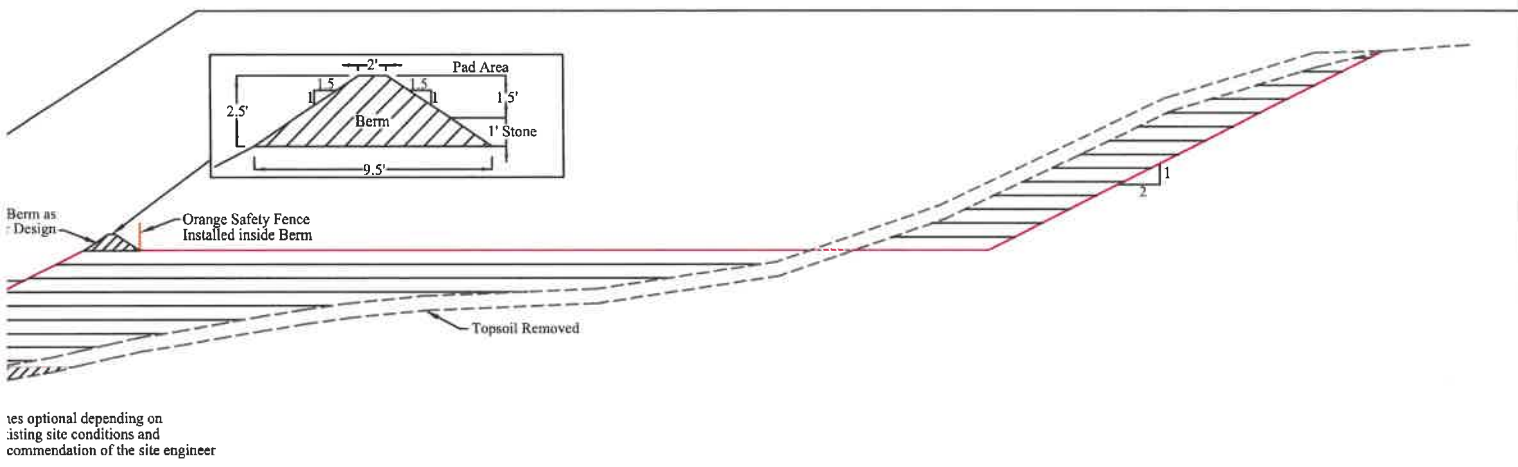
District: Union
County: Harrison
State: West Virginia

Sp

05/24/2024

Project Site	Sheet 2 of 22	
Caynor Site		
District	County	State
Union	Harrison	W.V.

- 1. Stockpile excavated materials classified as satisfactory soil material where directed, shape the stockpiles for proper drainage.
- 2. Notify the engineer if unsuitable soil materials encountered excavate unsuitable soil materials encountered that extend below the required elevations, to the additional depth directed by the Engineer
- 3. Fill shall be placed in horizontal lifts of maximum loose depth of 12 inches. Compactor for mass earthwork shall be minimum five ton static drum weight vibratory roller or five ton static drum weight sheeps footed compactor as appropriate for the type of soil material at the site or other compactor approved by the Engineer. The impoundment pond core of the embankment shall be compacted using a sheeps foot compactor to provide integration of lifts. The fill material placed shall be compacted to 95% of the maximum proctor density of the fill material's optimum moisture content.
- 4. In areas to receive fill and at the final cut subgrade, proof roll and compact the exposed ground surface following clearing and grubbing and any required excavation with a minimum of four passes of an approved compactor and obtain at least the density required for a suitable impoundment pond foundation and as indicated below. Proof rolling shall be under the observation of the engineer as described herein. Immediately following the completion of excavation to proposed subgrades in cut areas, proof rolling shall be performed as specified. Any areas which deflect, rut or pump under the loaded dump truck shall be undercut and replaced with compacted fill material or stone base course as directed by the Engineer. Proof rolling shall be done with one pass of a fully loaded tandem dump truck equal to or exceeding 50,000 lbs or other construction equipment if approved by the Engineer. Proof rolling methods shall be as follows:
 - a. After the subgrade has been completed the subgrade shall then be proof rolled. The coverage areas and methods will be identified by the Engineer;
 - b. the equipment shall be operated at a speed that the Engineer can comfortably and slowly walk along side the equipment;
 - c. If it becomes necessary to take corrective action, such as but not limited to underdrain installation, undercut and backfill of an unsuitable material, and aeration of excessively wet material in areas that have been proof rolled. These areas shall be proof rolled again following the completion of the necessary corrections.
- 5. Photographic Documentation is required during all phases of construction.
 - Photo documentation shall include:
 - The site after clearing and grubbing operations are completed
 - Toe key construction
 - Daily photos of fill and cut operations
- 6. Before any as-built can be considered certifiable, a complete construction schedule detailing site conditions project areas worked, approximate depth of fill placed and weather conditions will be provided to the design engineer.
- 7. Prior to the installation of the impervious liner, the design engineer will be contacted to perform a grade verification survey for the as-built. Any variance in grade will be at the engineer's discretion as to the effect on the impoundment.
- 8. This design to be used in conjunction with the acknowledgement of all regulatory agencies and obtained pertinent permits per current regulations. These plans do not indicate that all pertinent permits have been obtained.



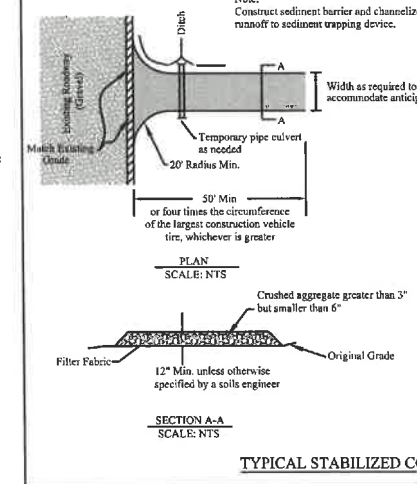
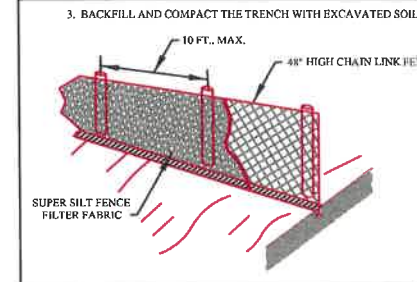
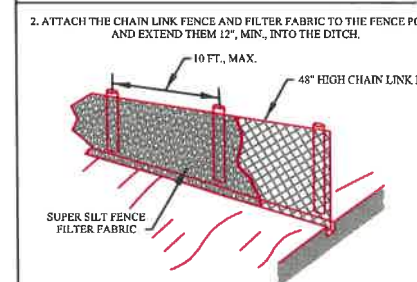
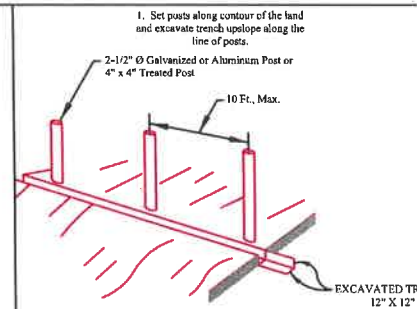
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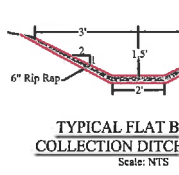
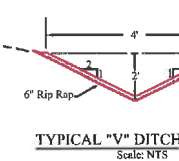
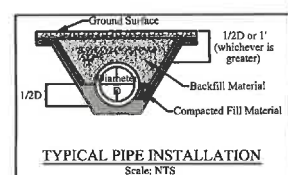
STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES:

1. Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter.
2. The operator shall assure that the approved erosion and sediment control plan is properly implemented. Seeding and Mulching to be in accordance with WVDOT Standard Specifications unless specified otherwise in the plans or unless specified otherwise by the construction engineer, or unless specified otherwise by the company representative.
3. Until the site achieves final stabilization, the operator shall assure that the best management practices are implemented, inspected, operated, and maintained. The operator will maintain written inspection logs. All maintenance work, including cleaning, repair, replacement, regrading, and restabilization shall be performed immediately upon discovery of deficiency.
4. Erosion and sediment BMP's must be constructed, stabilized, and functional before site disturbance begins within the tributary areas of those BMP's.
5. After final site stabilization has been achieved, temporary erosion and sediment BMP's controls shall be removed. Areas disturbed during removal of the BMP's must be stabilized immediately.
6. An area shall be considered to have achieved full stabilization when it has a minimum uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics to resist sliding and other movements.
7. At least three (3) days before starting any earth disturbance activity, all contractors involved in those activities shall notify Miss Utility of West Virginia at 1-800-245-4848 for buried utility locations.
8. In a timely manner after earth disturbance activities cease, the operator shall stabilize any areas disturbed by the activities. During non-germinating periods, mulch must be applied at the specified rates. Disturbed areas which are not at finished grade and which will be re-disturbed within 1 year must be stabilized in accordance with the temporary vegetative stabilization and specifications. Disturbed areas which are finished grade or which will not be re-disturbed within 1 year must be stabilized in accordance with the permanent vegetative stabilization specifications.
9. At stream crossings, 10' buffer areas should be maintained. On buffers, clearing, sod disturbances, excavation, and equipment traffic should be minimized. Activities such as stacking logs, burning cleared brush, discharging of rainwater from trenches, welding pipe sections, refueling and maintaining equipment should be accomplished outside the buffers.
10. Mulch or erosion control blankets must be installed on all slopes 3:1 and steeper.
11. Sediment removed from BMP's shall be disposed of in landscaped areas outside of steep slopes, wetlands, floodplains or drainage swales and immediately stabilized, or placed in topsoil stockpiles.
12. Sediment and materials removed from the pad sumps shall be pumped to on site holding/storage tanks and subsequently removed from the site by an approved commercial vendor.



Seeding Chart				
Temporary Seed Chart				
Plant Name	Application Rate (lbs/acre)	Liming Rate (T./acre)	Mulching Rate (T./acre)	Mulch Type
Annual Ryegrass	40	2	2.5	Straw Mulch
Permanent Seed Chart				
Plant Name	Application Rate (lbs/acre)	Liming Rate (T./acre)	Mulching Rate (T./acre)	Mulch Type
Fox Tail / Grassy	40	3	2.5	Straw Mulch
Perennial Rye	30			
Crown Vetch	20			

*Or as recommended by a local recognized seed supplier approved by the Owner's Representative.



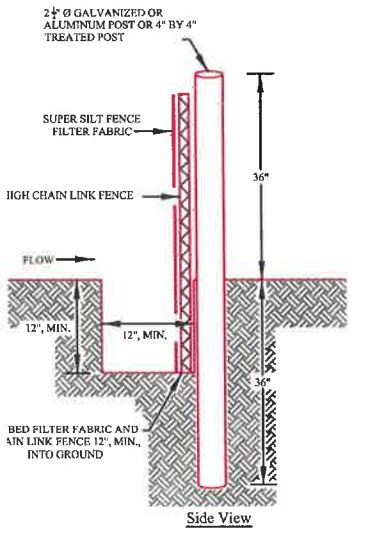
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 (304)332-6985

District: Union
 County: Harrison
 State: West Virginia

Erosion

05/24/2024

District	County	State
Union	Harrison	W.V.



- SUPER SILT FENCE NOTES:**
- CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 608 OF THE WVDOT SPECIFICATIONS. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE POSTS WITH WIRE TIES OR STAPLES.
 - POSTS NEED NOT BE SET IN CONCRETE.
 - THE FILTER FABRIC SHALL BE FASTENED TO THE CHAIN LINK FENCE WITH TIES EVERY 24" AT THE TOP AND MIDDLE SECTION.
 - FABRIC AND FENCE SHALL BE EMBEDDED 12", MINIMUM, INTO THE GROUND.
 - A 6", MINIMUM, OVERLAP SHALL BE PROVIDED WHERE TWO SECTIONS OF FABRIC ADJOIN. THE OVERLAPPED FABRIC SHALL BE FOLDED TOGETHER AND ATTACHED TO THE CHAIN LINK FENCE.
 - 4" BY 4" PRESSURE TREATED POSTS MAY BE SUBSTITUTED FOR METAL FENCE POSTS WITH THE APPROVAL OF THE ENGINEER.
 - THE LENGTH OF SLOPE ABOVE THE FENCE SHALL NOT EXCEED 400 FEET IN STEEP TERRAIN. IN FLATTER AREAS THE LENGTH CAN BE EXTENDED WITH THE APPROVAL OF THE ENGINEER.

Super Silt Fence
Scale: NTS

Table Applications:

- Where dirt or mud can be tracked onto public roads adjacent to water bodies.
- Where poor soils are encountered.
- Where dust is a problem during dry weather conditions.

Design and Layout

- Construct on level ground where possible.
- Use 3 to 6 in. diameter stones.
- Use minimum depth of stones of 12 in. or as recommended by soils engineer.
- Provide ample turning radii as part of the entrance.
- Limit speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
- Designate combination or single purpose entrances and exits to the construction site.
- Require that all employees, subcontractors, and suppliers utilize the stabilized construction entrance/exit.

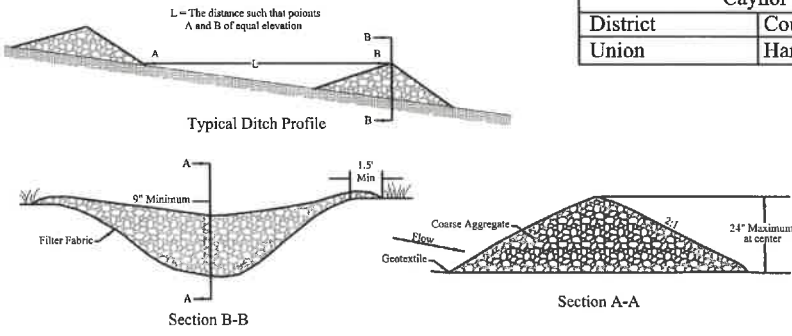
Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMPs are under way, inspect weekly during the rainy season and two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect local roads adjacent to the site daily.
- Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment.
- Keep all temporary roadway ditches clear.
- Check for damage and repair as needed.
- Replace gravel material when surface voids are visible.
- Remove gravel and filter fabric at reclamation.

CONSTRUCTION ENTRANCE

TYPICAL STONE CHECK DAM

Scale: NTS



Construction

Stone check dams to be installed as required by site specific conditions as directed by the project engineer or company representative.

Install check dams and erosion control blanket immediately after drainageway grading is complete.

Make sure that the channel reach above the most-upstream dam is stable.

Ensure that channel appurtenances, such as culvert entrances below check dams, are not subject to damage or blockage from displaced rocks.

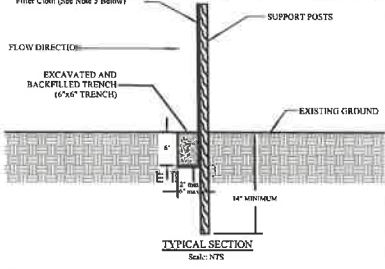
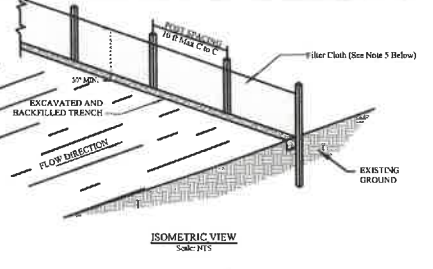
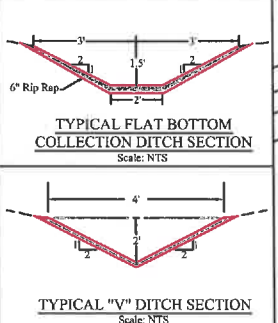
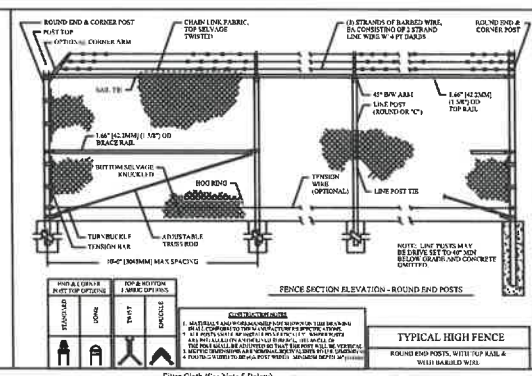
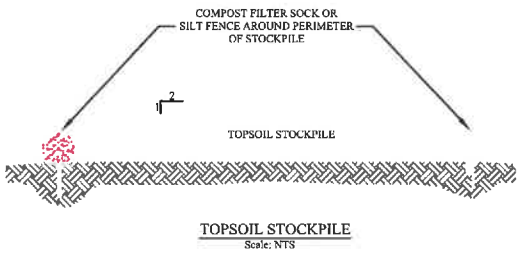
Maintenance

Inspect check dams and drainageways for damage after each storm event.

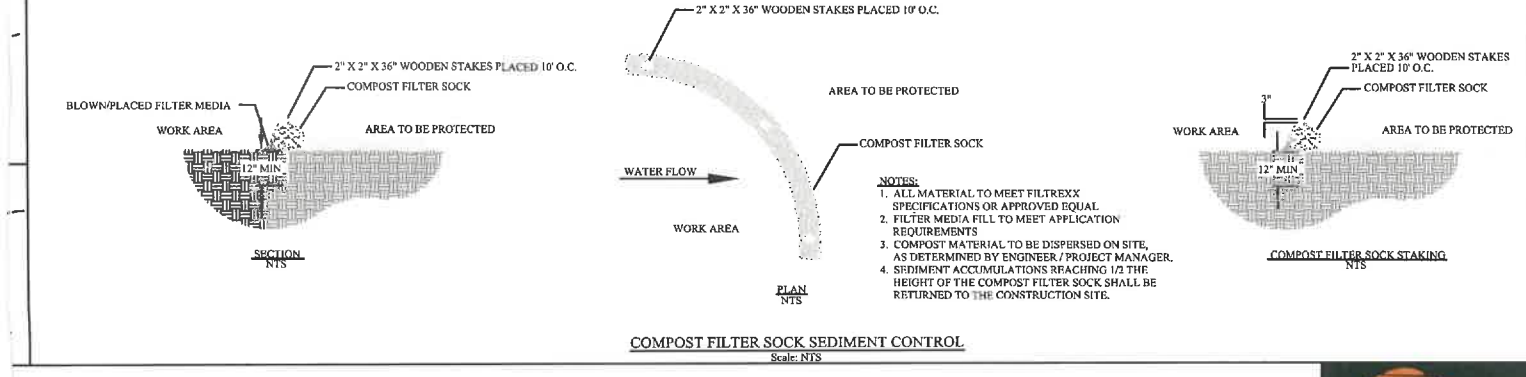
Anticipate submergence and deposition above the check dam and erosion from high flows around the edges of the dam.

During storm events, expect submergence, sediment deposition and erosion between check dams and correct any damage as soon as possible. This may include a protective riprap liner in the damaged channel section or providing additional check dams. Remove sediment accumulated behind the dams as needed to prevent damage to channel vegetation, allow the channel to drain through the stone check dam, and prevent large flows from carrying sediment over the dam.

Add rock or remove and replace rock to dams as needed to maintain height, cross section, and flow-through characteristics.



- FILTER CLOTH TO BE FASTENED SECURELY TO FENCE POSTS WITH TIES/STAPLES.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED TO PREVENT LEAKAGE.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED PRIOR TO "BUILDING" OF SILT FENCE. SILT FENCE SHALL BE CHECKED AFTER EACH STORM EVENT.
- POSTS SHALL BE CONSTRUCTED OF STEEL, EITHER "T" OR "U" TYPE OR 1 1/2" HARDWOOD.
- FILTER CLOTH SHALL BE "FILTER X", "MIRAFI 1002", "LUNKA T1400", "EXXON GTF 180" OR APPROVED EQUAL.

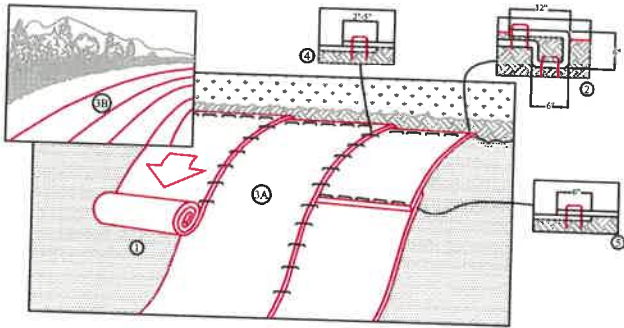


COMPOST FILTER SOCK SEDIMENT CONTROL
Scale: NTS

and Sediment Control



05/24/2024



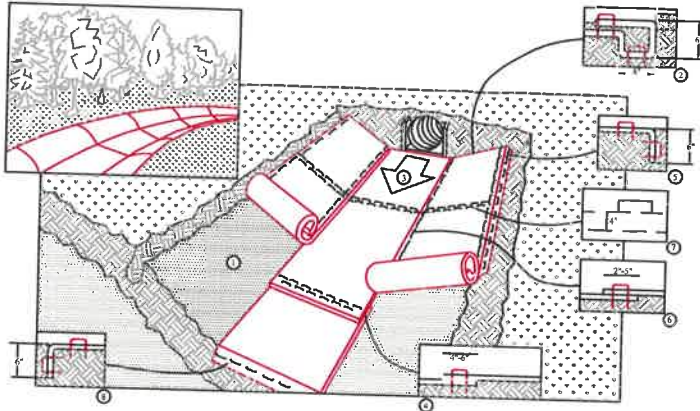
NOTES:

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
NOTE: When using Cell-O-Seed, DO NOT seed prepared area. Cell-O-Seed must be installed with paper side down.
2. Begin at the top of the slope by anchoring the RECPs in a 6" Deep X 6" Wide Trench with approximately 12" of RECPs extended beyond the Up-Slope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12" apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to compacted soil and fold remaining 12" portion of RECP's back over seed and compacted soil. Secure RECP's over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the RECP's.
3. Roll the RECP's (A.) down or (B.) horizontally across the slope. RECP's will unroll with appropriate side against the soil surface. All RECP's must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staples pattern guide. When using the DOT system, staples/stakes should be placed through each of the colored dots corresponding to the appropriate staple pattern.
4. The edge of parallel RECP's must be stapled with approximately 2"-5" overlap depending on RECP's type.
5. Consecutive RECP's spliced down the slope must be placed end over end (shingle style) with an approximate 6" overlap. Staple through overlapped area, approximately 12" apart across entire RECP's width.

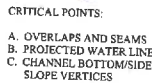
NOTE:
*In loose soil conditions, the use of staple or stake lengths greater than 6" may be necessary to properly secure the RECP's.

Erosion Control Blanket - Slope Installation

Scale: NTS



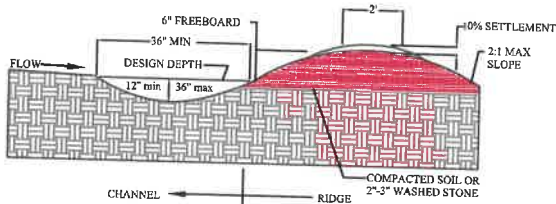
1. Prepare soil before installing blankets, including any necessary application of lime, fertilizer, and seed.
NOTE: When using Cell-O-Seed, do not seed prepared area. Cell-O-Seed must be installed with paper side up.
2. Begin at the top of the channel by anchoring the blanket in a 6" Deep x 6" Wide trench with approximately 1' extended beyond the up-slope portion of the trench. Anchor the blanket with a row of staples/stakes approx 12" apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to compacted soil with a remaining 12" portion of blanket back over seed and compact soil. Secure blanket over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the blanket.
3. Roll center blanket in direction of water flow in bottom of channel. Blankets will unroll with appropriate side to surface. All blankets must be securely fastened to soil surface by placing staples/stakes in appropriate locations in appropriate locations as shown in the staples pattern guide. When using optional DOT System, staples/stakes should be placed through each of the colored dots corresponding to the appropriate staple pattern.
4. Place consecutive blankets end over end (shingle style) with a 4"-6" overlap. Use a double row of staples staggered 4" apart and 4" on center to secure blankets.
5. Full length edge of blankets at top of side slopes must be anchored with a row of staples/stakes approximately 12" apart in a 6" Deep x 6" wide trench. Backfill and compact the trench after stapling.
6. Adjacent blankets must be overlapped approximately 2"-5" (depending on blanket type) and stapled to ensure proper alignment, place the edge of the overlapping blanket (blanket being installed on top) even with the colored dots on the blanket being overlapped.
7. In high flow channel applications, a staple check slot is recommended at 30'-40' intervals. Use a double row of staples staggered 4" apart and 4" on center over entire width of the channel.
8. The terminal end of the blankets must be anchored with a row of staples/stakes approximately 12" apart in a 6" Deep x 6" wide trench. Backfill and compact the trench after stapling.



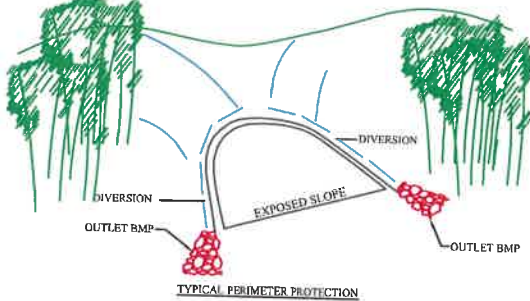
CRITICAL POINTS:

Erosion Control Blanket - Channel Installation

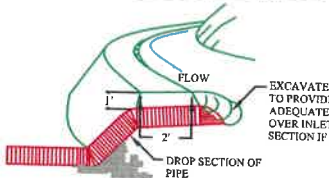
Scale: NTS



CROSS SECTION
ALL SURFACES STABILIZED WITH MULCH, SEED OR GRAVEL



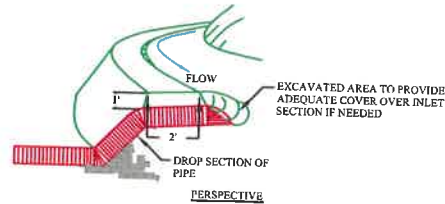
TYPICAL PERIMETER PROTECTION



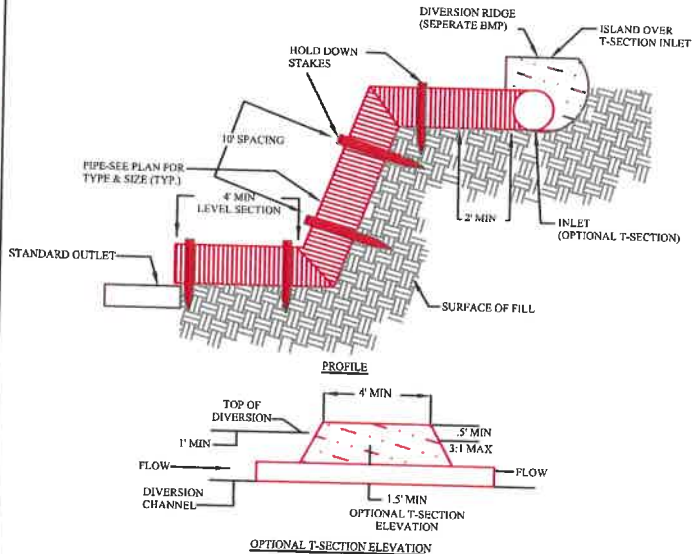
TYPICAL TOP OF SLOPE INSTALLATION

EARTH BERMS & SWALES

Scale: NTS



PERSPECTIVE



PROFILE

OPTIONAL T-SECTION ELEVATION

SLOPE DRAINS

Scale: NTS

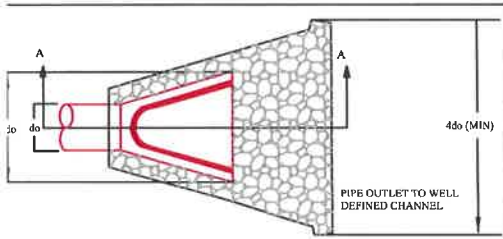
Kelly Surveying
P.O. Box 254
Dalley, WV 26259
(304)338-6985

District: Union
County: Harrison
State: West Virginia

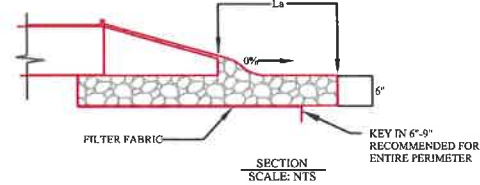
Erosion Control

05/24/2024

District	County	State
Union	Harrison	W.V.



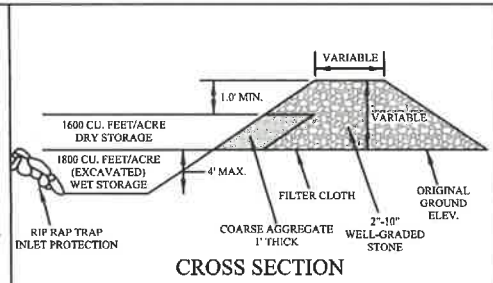
PLAN
SCALE: NTS



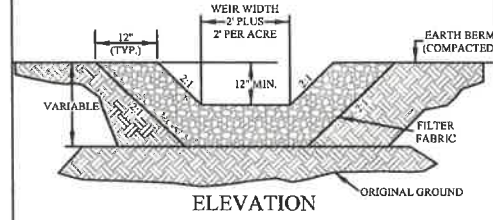
SECTION
SCALE: NTS

PIPE DIAMETER (INCHES)	DISCHARGE (CFS)	APRON LENGTH, La (FEET)	RIP RAP D50 DIAMETER (MIN INCHES)
12	5	10	4
18	10	10	6

INLET / OUTLET PROTECTION
Scale: NTS

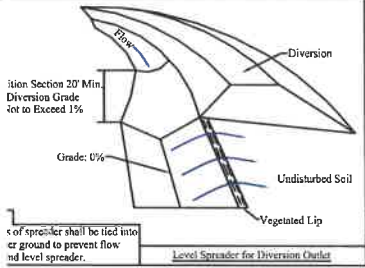


CROSS SECTION

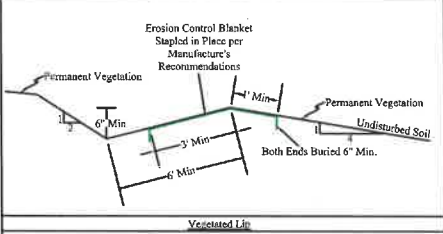


ELEVATION

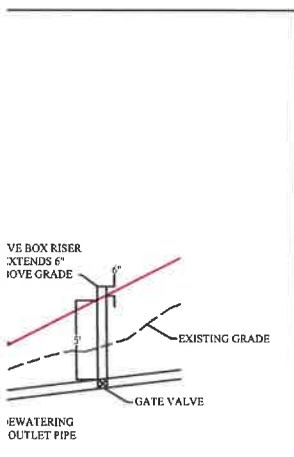
ROCK OUTLET SEDIMENT TRAP



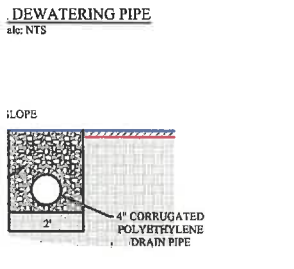
Level Spreader for Diversion Outlet
Scale: NTS



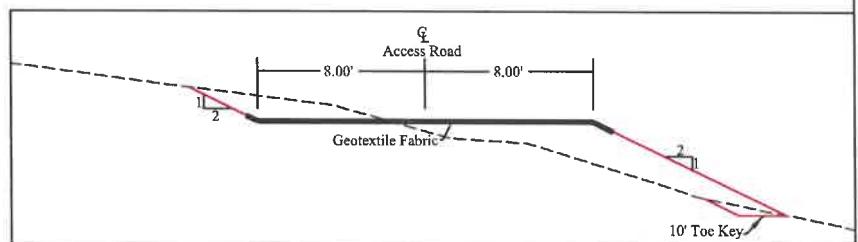
Vegetated Lip



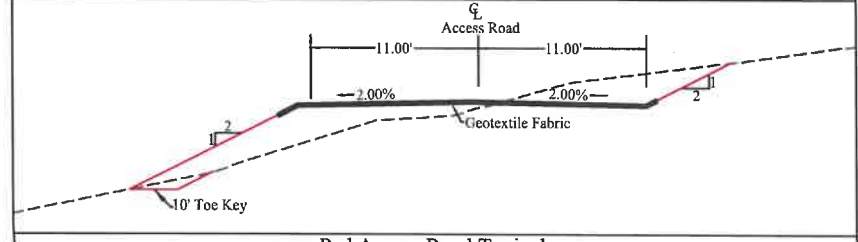
DEWATERING PIPE RISER
SCALE: NTS



DEWATERING TRENCH
SCALE: NTS



Frac Pit Access Road Typical
Scale: NTS

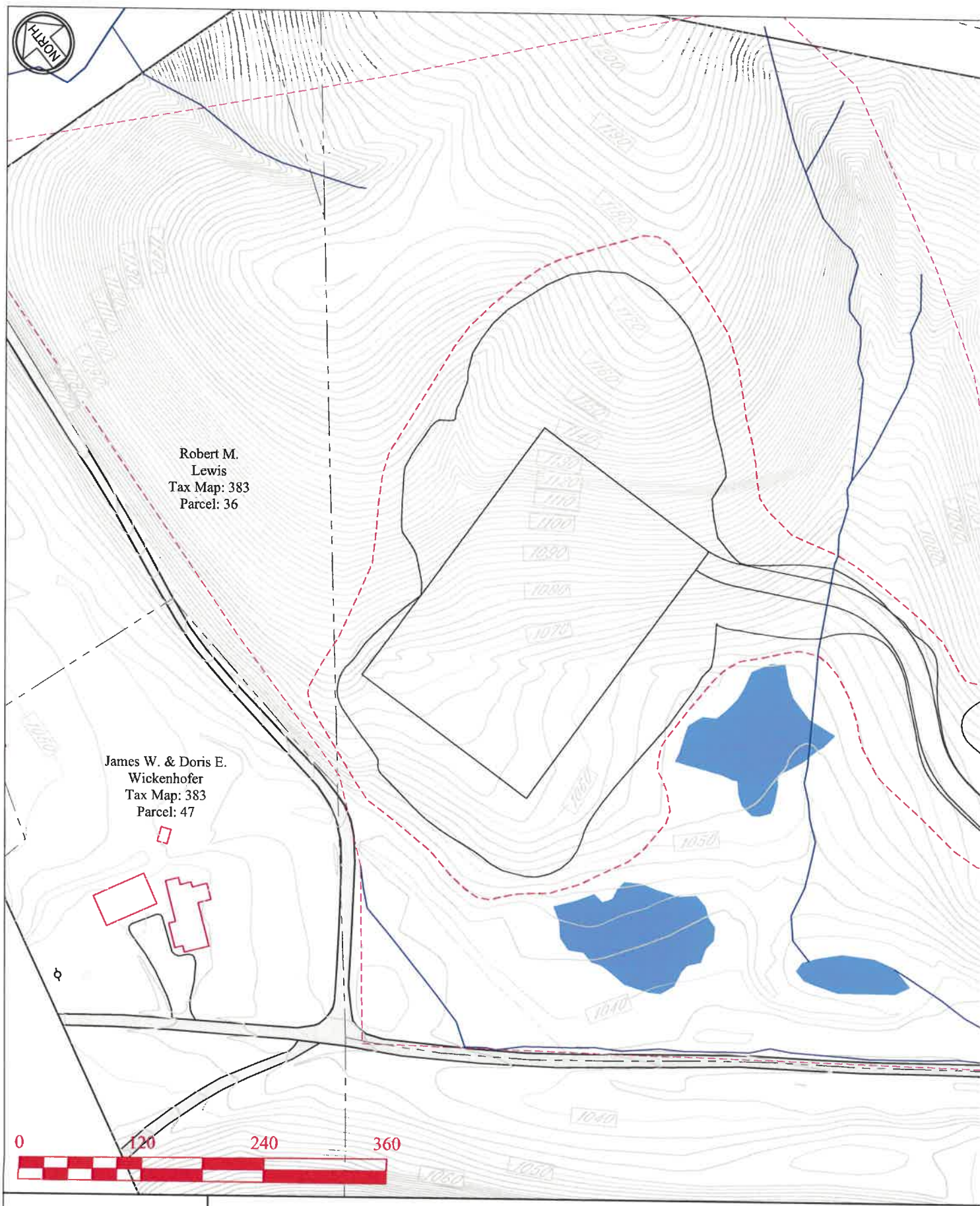


Pad Access Road Typical
Scale: NTS

and Sediment Control



05/24/2024



Robert M.
Lewis
Tax Map: 383
Parcel: 36

James W. & Doris E.
Wickenhofer
Tax Map: 383
Parcel: 47



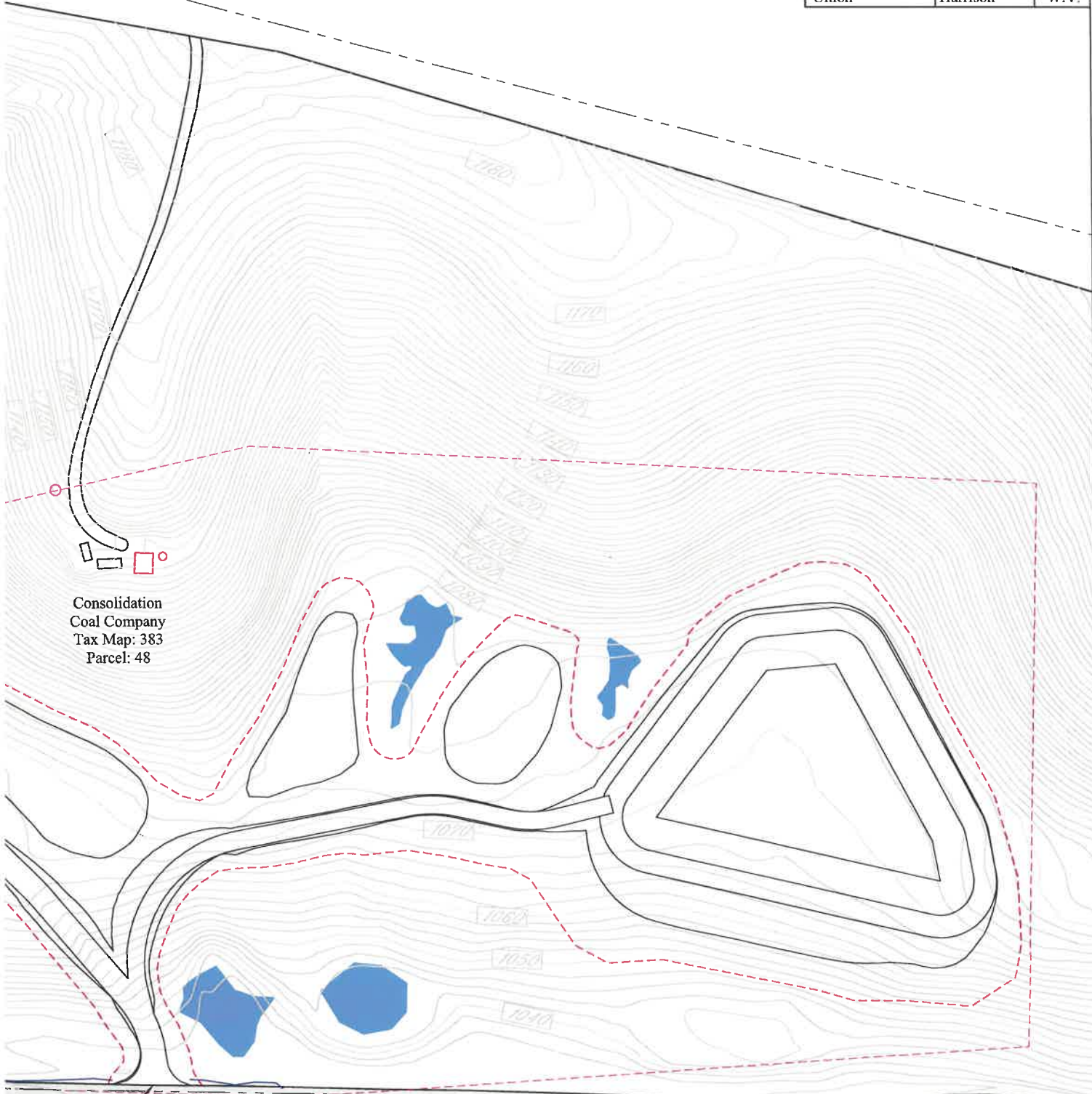
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P.O. Box 254
Dalley, WV 26259
(304) 328-6985

District: Union
County: Harrison
State: West Virginia

Caynor Site P1

05/24/2024

Project Site	Sheet 5 of 22	
Caynor Site		
District	County	State
Union	Harrison	W.V.



Consolidation
Coal Company
Tax Map: 383
Parcel: 48

Site Entrance
Nad 83
AT: 39°11'39.3"
ON: 80°28'45.2"

Sharon M.
Perry
Tax Map: 403
Parcel: 13

	Clearing Limits
	Area of Interest
	Property Line
	Stream
	Wetland

Construction Site Conditions



05/24/2024

Well Pad Corner Coordinates (Nad 83)

Pad NE Corner
LAT: 39°11'47.9"
LON: 80°28'46.3"

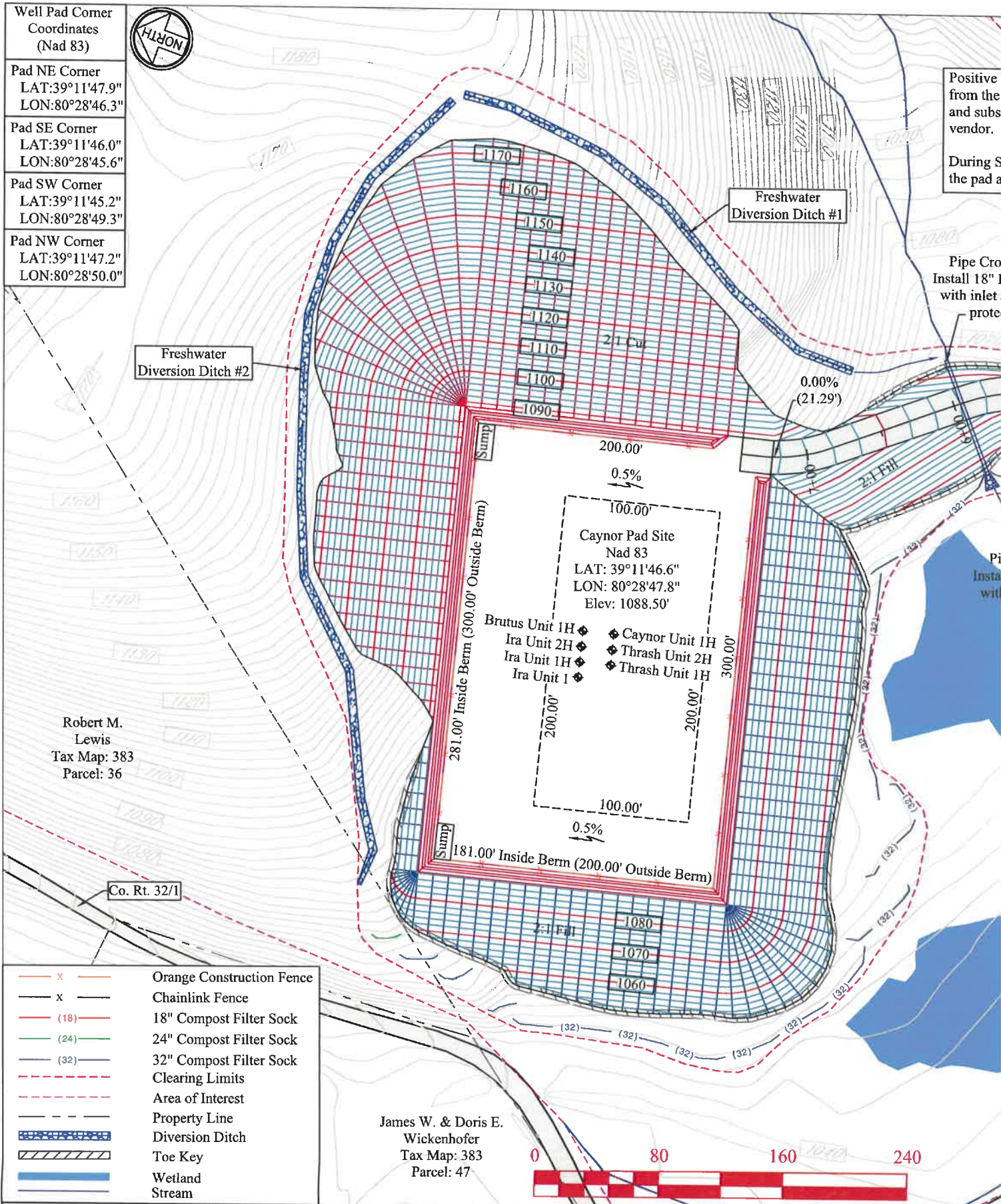
Pad SE Corner
LAT: 39°11'46.0"
LON: 80°28'45.6"

Pad SW Corner
LAT: 39°11'45.2"
LON: 80°28'49.3"

Pad NW Corner
LAT: 39°11'47.2"
LON: 80°28'50.0"



Positive from the and subs vendor.
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District: Union
County: Harrison
State: West Virginia

Caynor Site

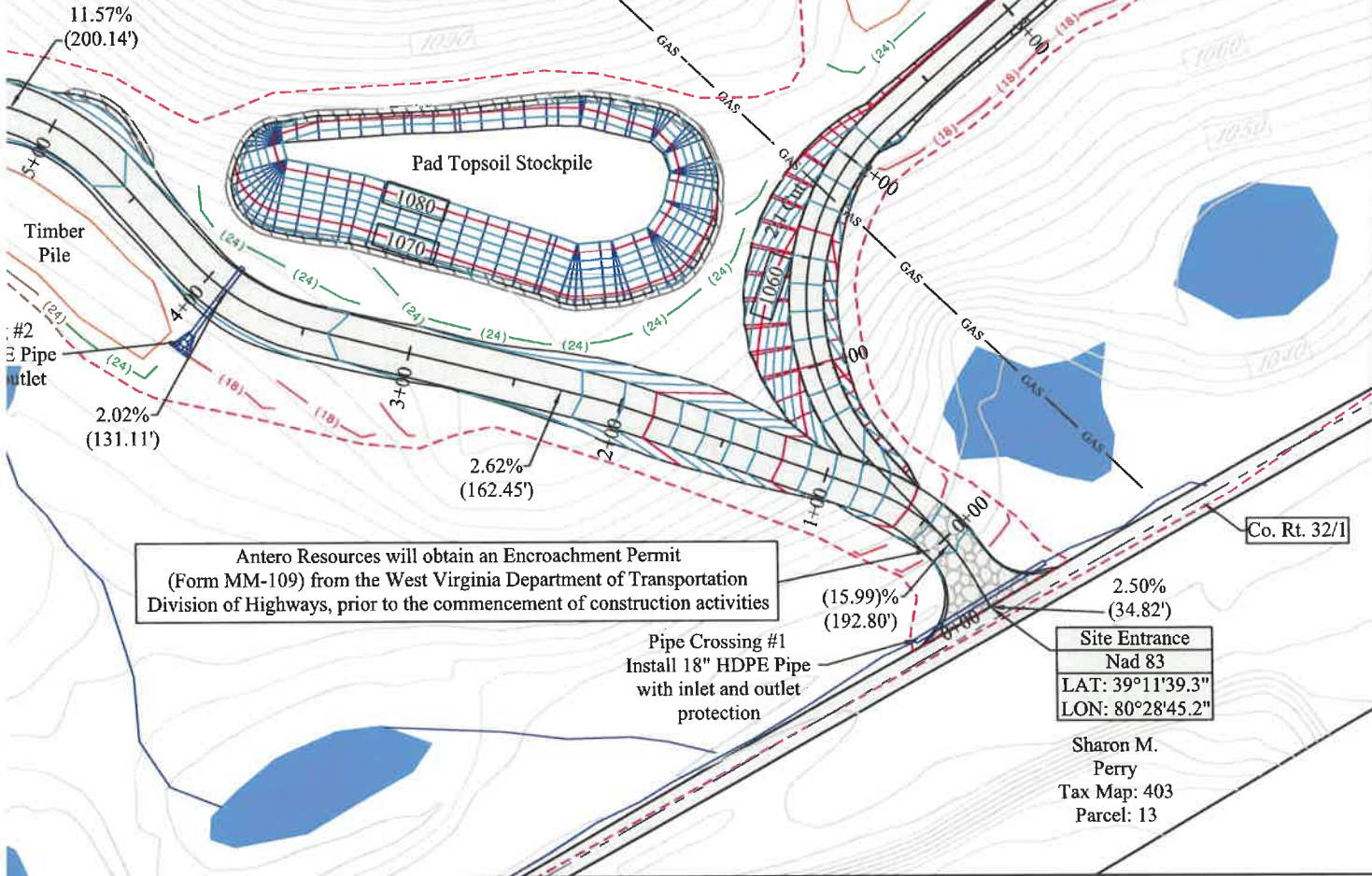
05/24/2024

District	County	State
Union	Harrison	W.V.

ad to Sumps. Sediment and materials removed shall be pumped to on site holding/storage tanks removed from the site by an approved commercial as to be lined.

an approved commercial vendor will dewater ed.

Consolidation Coal Company
Tax Map: 383
Parcel: 48



Antero Resources will obtain an Encroachment Permit (Form MM-109) from the West Virginia Department of Transportation Division of Highways, prior to the commencement of construction activities

Pipe Crossing #1
Install 18" HDPE Pipe with inlet and outlet protection

Site Entrance
Nad 83
LAT: 39°11'39.3"
LON: 80°28'45.2"

Sharon M. Perry
Tax Map: 403
Parcel: 13

CONSTRUCTION SEQUENCE

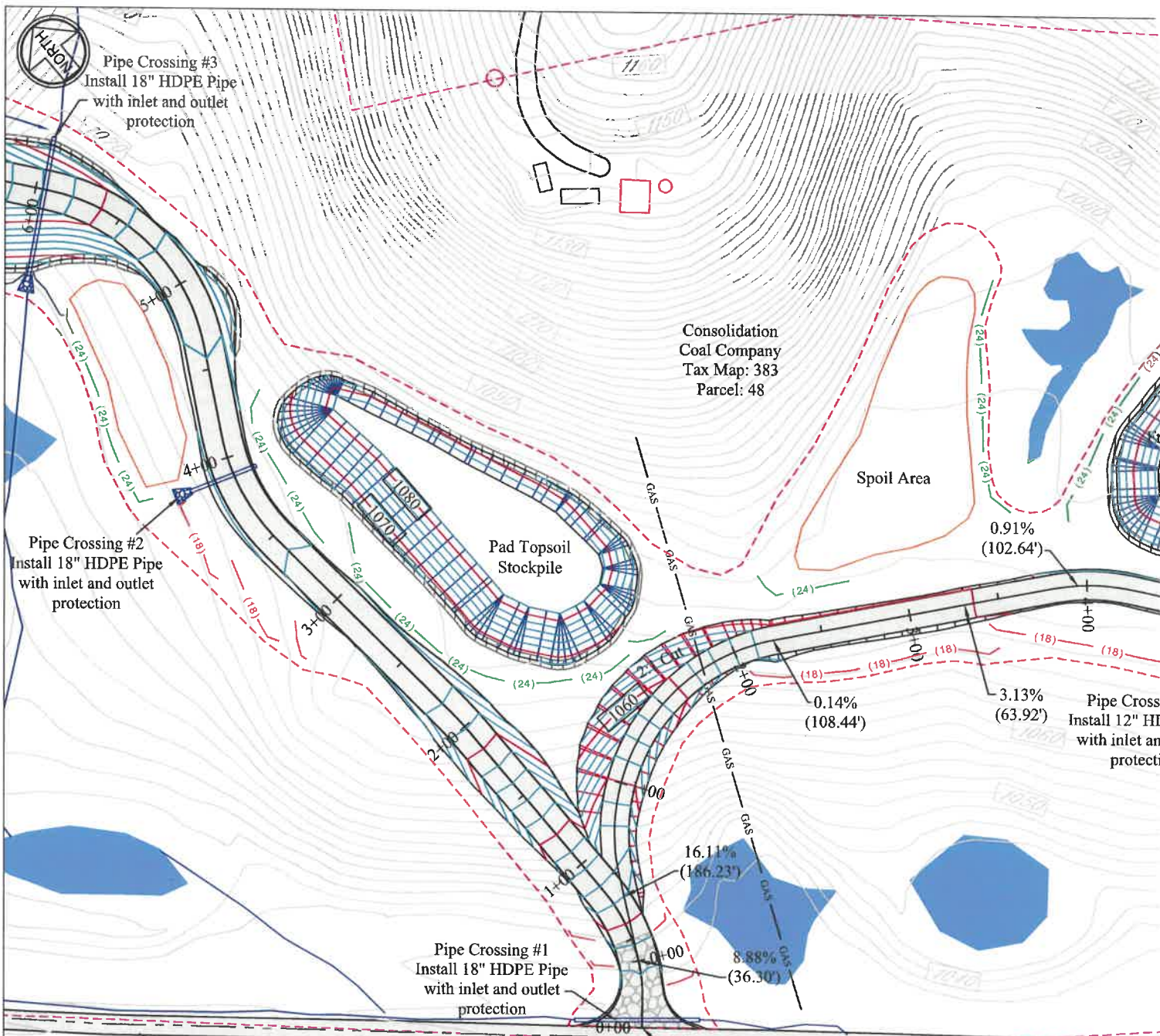
- A: Make utility one-call.
- B: Erect sign at entrance and ensure copy of E/S Plan is present in mailbox.
- C: Construct according to on-site E/S Plan:

- 1.) Install Stabilized Construction Entrance at beginning of Access Road and Pipe Crossing #1.
- 2.) Install 18" Compost Filter Sock #1-#11, Install 24" Compost Filter Sock #1-#11, and Install 32" Compost Filter Sock #1-#11.
- 3.) Clear and Grub and Remove topsoil from the Proposed Well Pad Access Road and Proposed Frac Pit Access Road and place topsoil at the top of cut slopes to be reused for Access Road Seeding.
- 4.) Construct Proposed Well Pad Access Road from Station 0+50 - 7+43 and Construct Proposed Frac Pit Access Road from Station 0+00 - 5+65.
Install Pipe Crossings #2 - #4.
Place Geo-Textile on Proposed Access Roads
Place Clean Stone (No Fines) on Proposed Access Roads
- 5.) Seed and Mulch all Disturbed Areas along Proposed Access Roads. Place stockpiled topsoil on the access road slopes prior to seeding and mulching.
- 6.) Clear and Grub and Remove topsoil from Proposed Well Pad and place in Pad Topsoil Stockpile. Clear and Grub and Remove topsoil from Proposed Frac Pit and place in Frac Pit Topsoil Stockpile.
- 7.) Construct Proposed Well Pad.
Construct Proposed Well Pad Berm
Construct access road swell
Install Orange Construction Fence around inside berm of Proposed Well Pad
- 8.) Construct Proposed Frac Pit
Install Frac Pit liner in Proposed Frac Pit (an impoundment volume survey must be completed prior to the installation of the impoundment liner).
Install Chainlink Fence around Frac Pit.
- 9.) Keep All Erosion and Sedimentation Controls in place until there is 70% growth over the entire site.

Well Pad Plan View



05/24/2024



Pipe Crossing #3
Install 18" HDPE Pipe
with inlet and outlet
protection

Consolidation
Coal Company
Tax Map: 383
Parcel: 48

Spoil Area

Pipe Crossing #2
Install 18" HDPE Pipe
with inlet and outlet
protection

Pad Topsoil
Stockpile

Pipe Cross
Install 12" HI
with inlet an
protecti

Pipe Crossing #1
Install 18" HDPE Pipe
with inlet and outlet
protection

Co. Rt. 32/1

Site Entrance
Nad 83
LAT: 39°11'39.3"
LON: 80°28'45.2"

Sharon M.
Perry
Tax Map: 403
Parcel: 13

- x — Orange Construction Fence
- x — Chainlink Fence
- (18) 18" Compost Filter Sock
- (24) 24" Compost Filter Sock
- (32) 32" Compost Filter Sock
- - - - Clearing Limits
- - - - Area of Interest
- - - - Property Line
- [hatched] Diversion Ditch
- [hatched] Toe Key
- [solid] Wetland
- [dashed] Stream



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Caynor Site Frac

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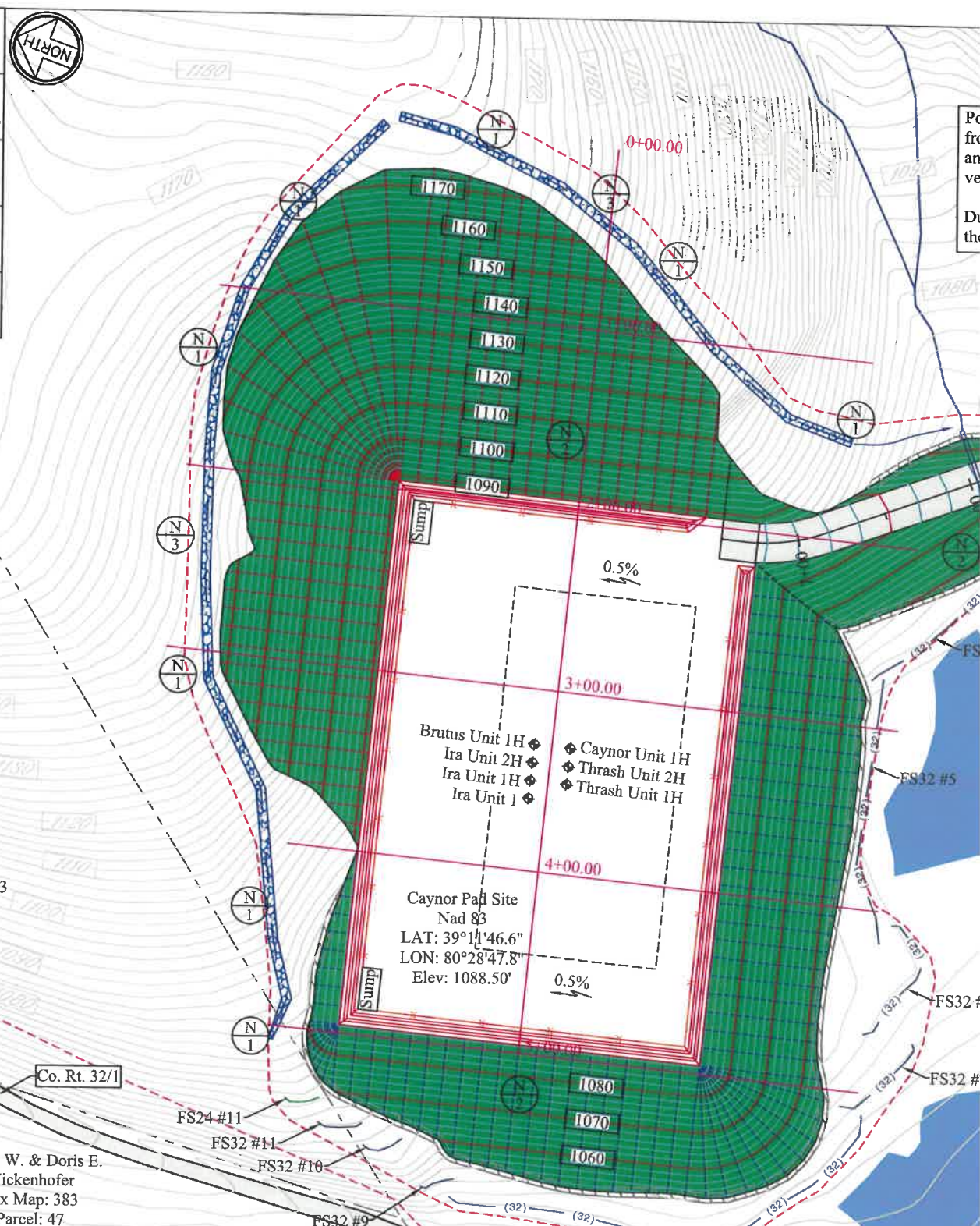
Well Pad Corner Coordinates (Nad 83)

Pad NE Corner
LAT:39°11'47.9"
LON:80°28'46.3"

Pad SE Corner
LAT:39°11'46.0"
LON:80°28'45.6"




Pad SW Corner
LAT:39°11'45.2"
LON:80°28'49.3"

Pad NW Corner
LAT:39°11'47.2"
LON:80°28'50.0"



Robert M. Lewis
Tax Map: 383
Parcel: 36

James W. & Doris E. Wickenhofer
Tax Map: 383
Parcel: 47

-  Provide stone check dams as required per field conditions. Provide erosion control blankets between check dams. See Stone Check Dam Detail. Sheet 3
-  Provide erosion control blankets on all cut and fill slopes. See Erosion Control Blanket Detail. Sheet 4
-  Diversion Ditch. See Typical "V" Ditch Detail. Sheet 3

Access Road			
Surface Owner	Tax Map Parcel	Road Length	Type
Consolidation Coal Company	383 - 48	742.61'	New Access Road Constr
Consolidation Coal Company	383 - 48	564.67'	New Access Road Constr

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State: West Virginia

Caynor Site Well Pa

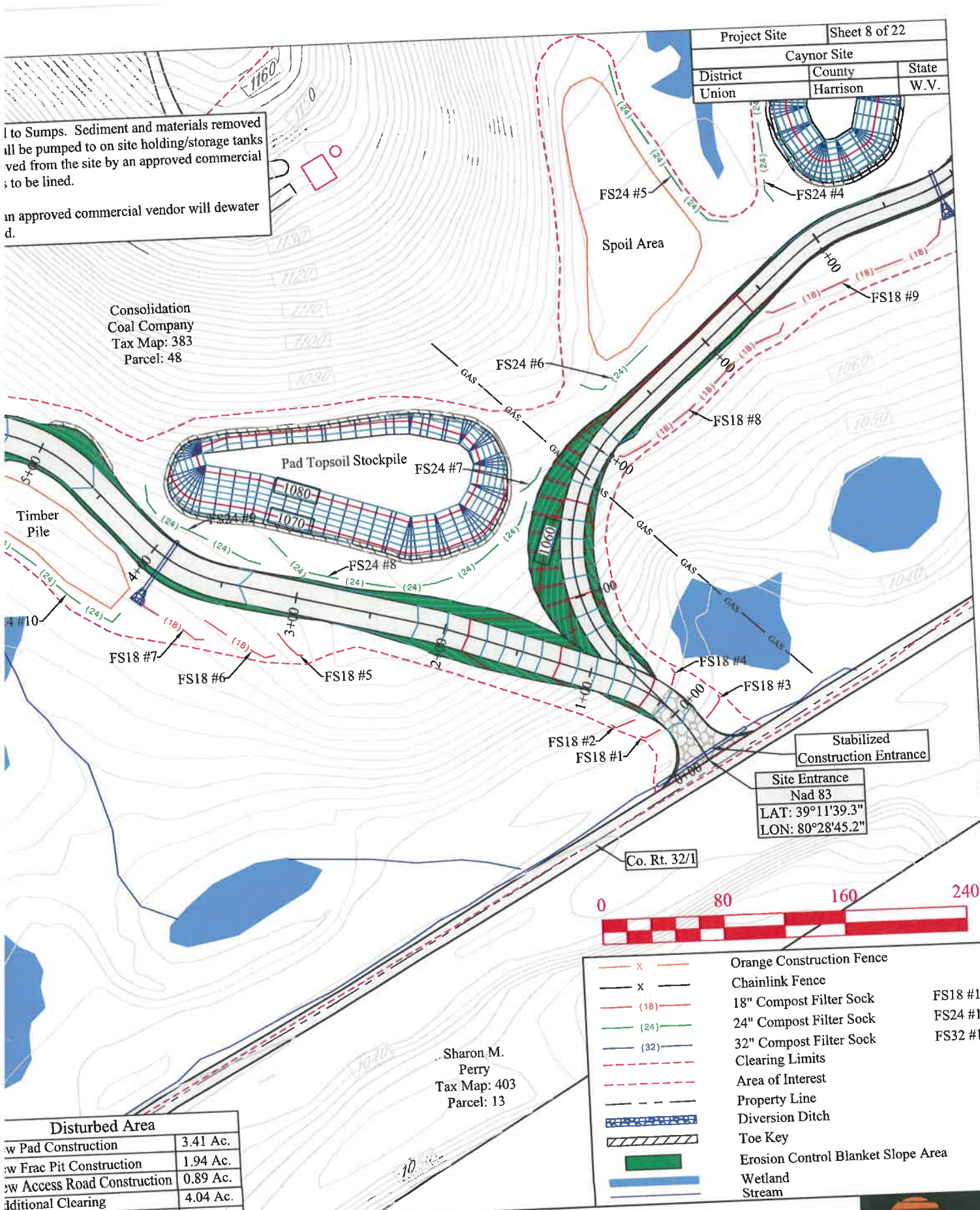
05/24/2024

District	County	State
Union	Harrison	W.V.

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An approved commercial vendor will dewater and dewater.

Consolidation Coal Company
Tax Map: 383
Parcel: 48



Stabilized Construction Entrance
Site Entrance
Nad 83
LAT: 39°11'39.3"
LON: 80°28'45.2"



Orange line with 'x'	Orange Construction Fence	
Black line with 'x'	Chainlink Fence	
Red line with (18)	18" Compost Filter Sock	FS18 #1
Green line with (24)	24" Compost Filter Sock	FS24 #1
Blue line with (32)	32" Compost Filter Sock	FS32 #1
Dashed red line	Clearing Limits	
Dashed black line	Area of Interest	
Dotted black line	Property Line	
Blue hatched area	Diversion Ditch	
Green hatched area	Toe Key	
Green solid area	Erosion Control Blanket Slope Area	
Blue wavy line	Wetland	
Blue solid line	Stream	

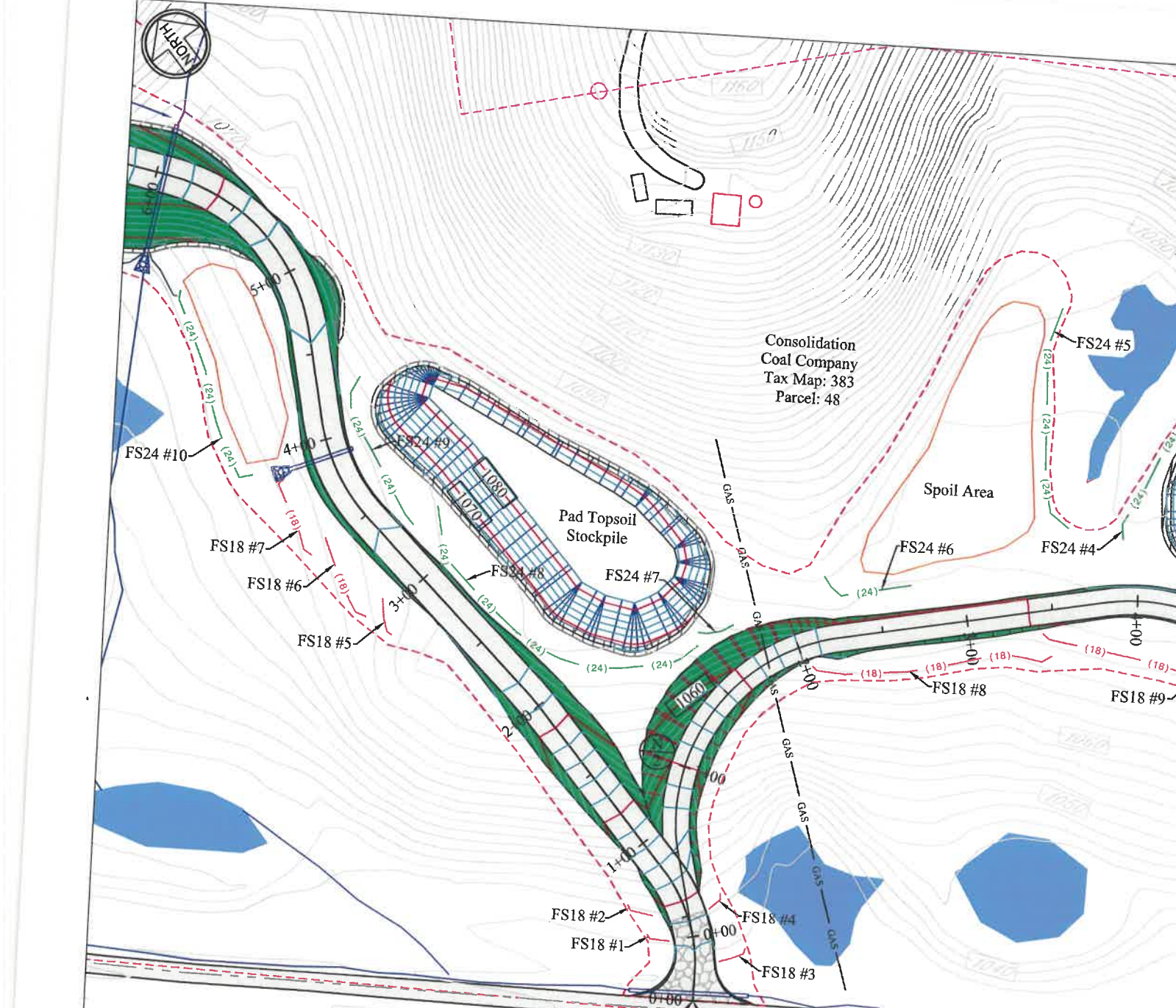
Sharon M. Perry
Tax Map: 403
Parcel: 13

Disturbed Area	
New Pad Construction	3.41 Ac.
New Frac Pit Construction	1.94 Ac.
New Access Road Construction	0.89 Ac.
Additional Clearing	4.04 Ac.
Total Disturbed Area	10.28 Ac.

Erosion and Sediment Control Plan



05/24/2024



Consolidation
Coal Company
Tax Map: 383
Parcel: 48

Stabilized
Construction Entrance

Site Entrance
Nad 83
LAT: 39°11'39.3"
LON: 80°28'45.2"

Sharon M.
Perry
Tax Map: 403
Parcel: 13

	Orange Construction Fence	
	Chainlink Fence	
	18" Compost Filter Sock	FS18 #1
	24" Compost Filter Sock	FS24 #1
	32" Compost Filter Sock	FS32 #1
	Clearing Limits	
	Area of Interest	
	Property Line	
	Diversion Ditch	
	Toe Key	
	Erosion Control Blanket Slope Area	
	Wetland	
	Stream	

Provide stone check dams as required per field conditions. Provide erosion control blankets between check dams. See Stone Check Dam Detail. Sheet 3

Provide erosion control blankets on all cut and fill slopes. See Erosion Control Blanket Detail. Sheet 4

Diversion Ditch See Typical "V" Ditch Detail. Sheet 3

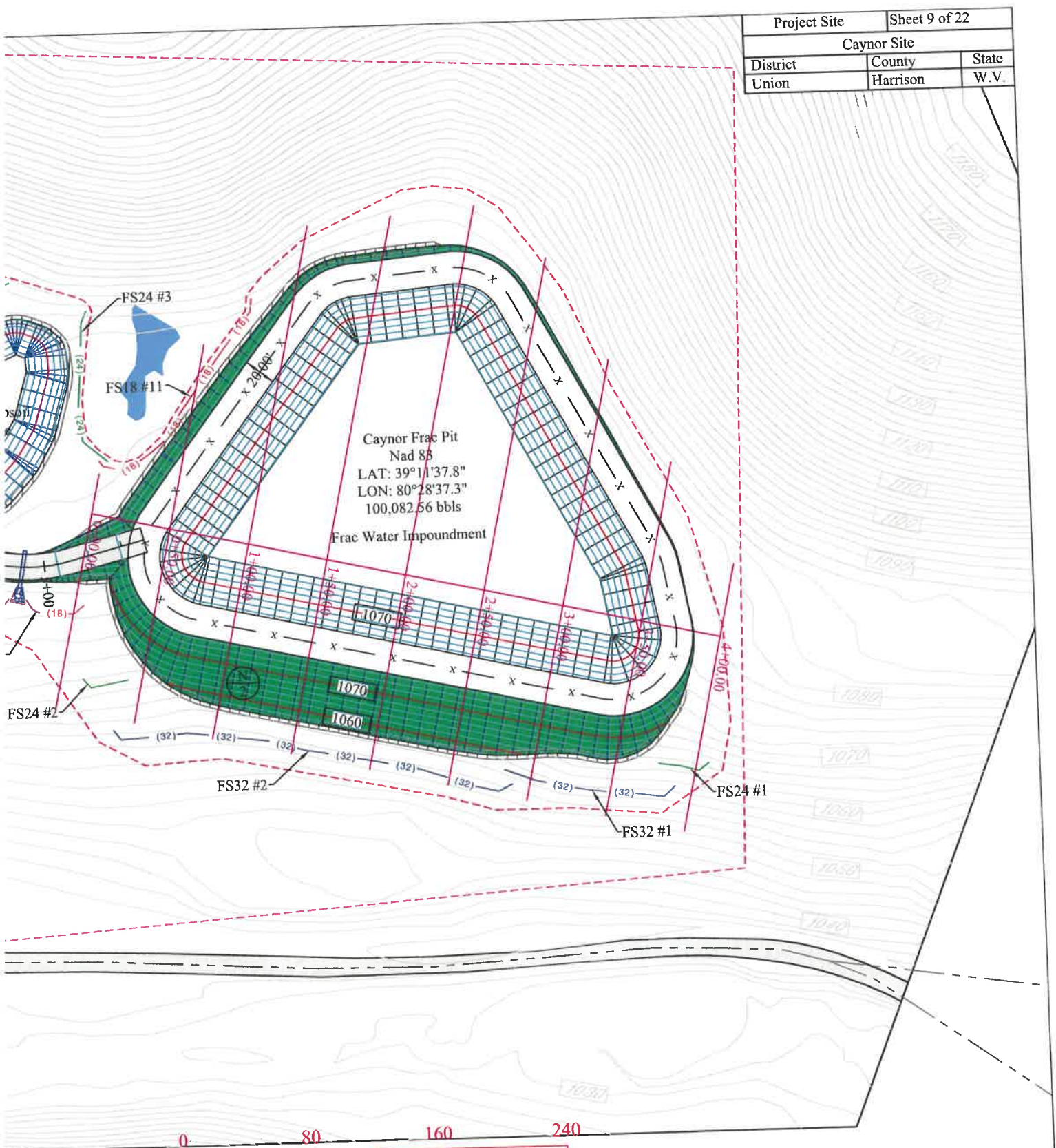
Disturbed Area:	
	New Pad Construction
	New Frac Pit Construction
	New Access Road Construction
	Additional Clearing
	Total Disturbed Area

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District: Union
County: Harrison
State: West Virginia

Caynor Site Frac Pi

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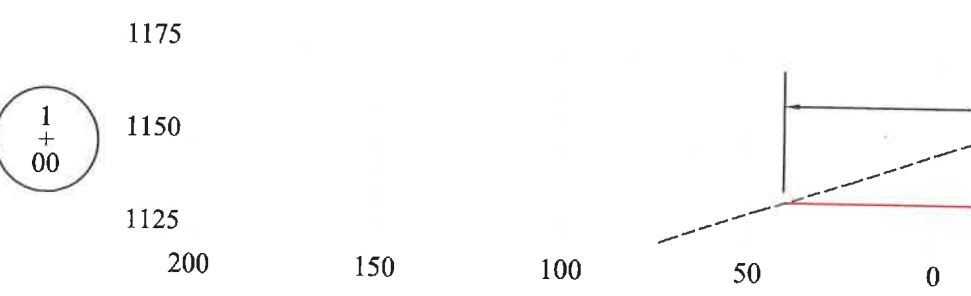
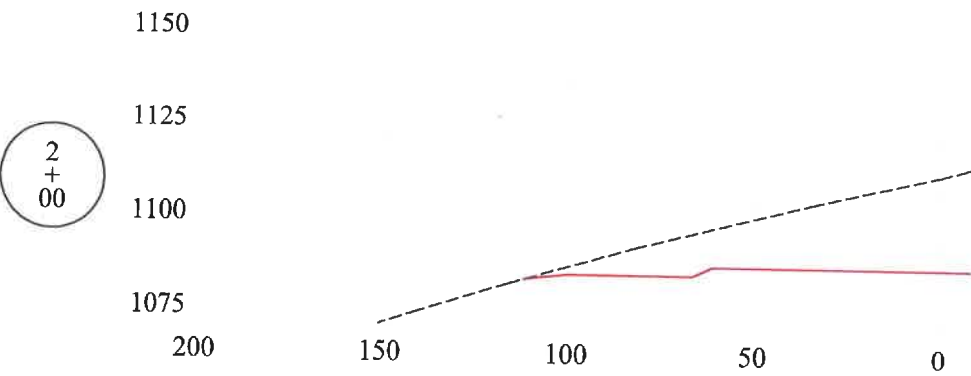
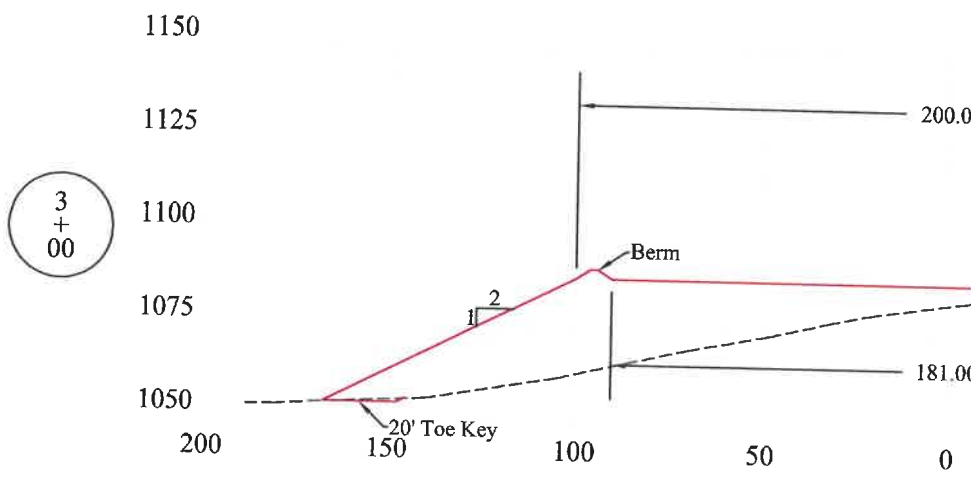


Area	Surface Owner	Tax Map Parcel	Road Length	Type
3.41 Ac.				
1.94 Ac.				
0.89 Ac.	Consolidation Coal Company	383 - 48	742.61'	New Access Road Construction
4.04 Ac.	Consolidation Coal Company	383 - 48	564.67'	New Access Road Construction
10.28 Ac.				

Erosion and Sediment Control Plan



05/24/2024



----- Original Ground
 _____ Design

A Geotechnical Engineering Study Was Not Performed For The Purpose of This Design

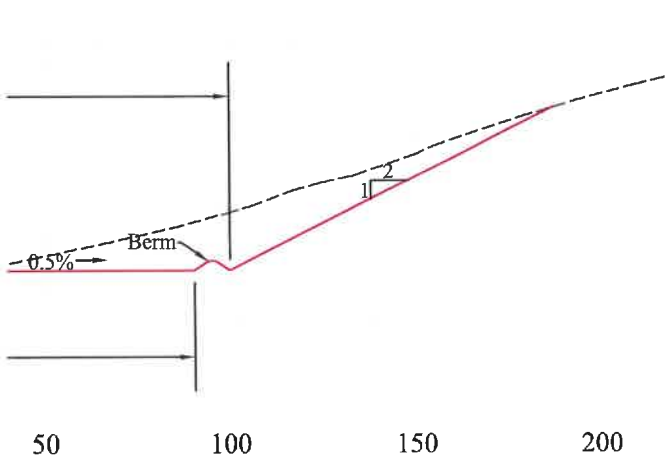
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District: Union
 County: Harrison
 State: West Virginia

Caynor Sit

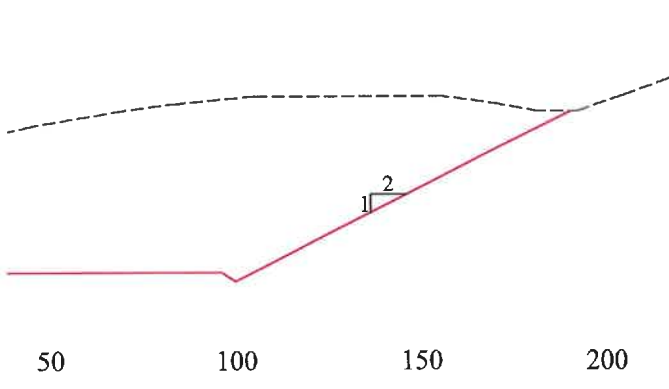
05/24/2024

Project Site		Sheet 10 of 22
Caynor Site		
District	County	State
Union	Harrison	W.V.



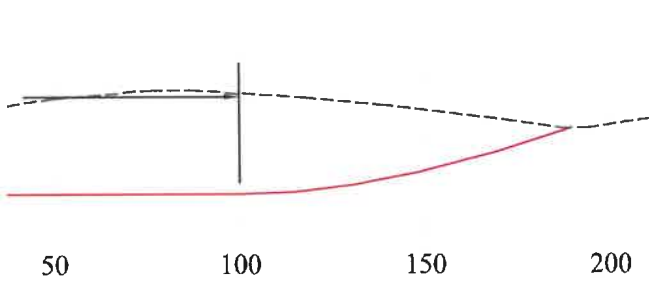
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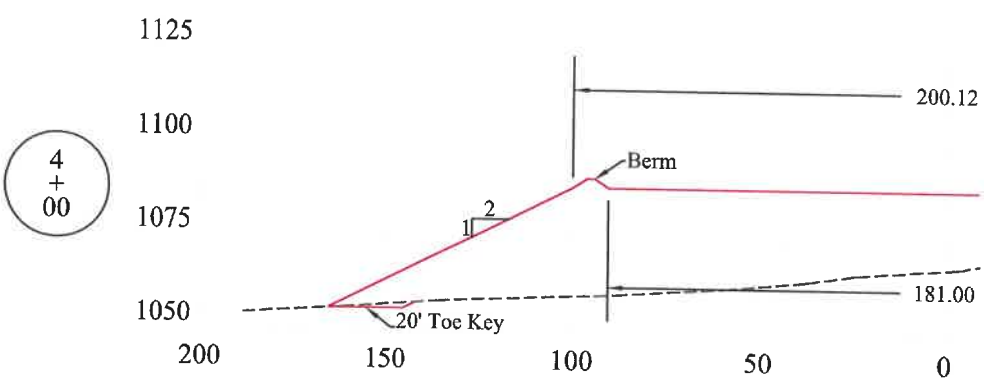
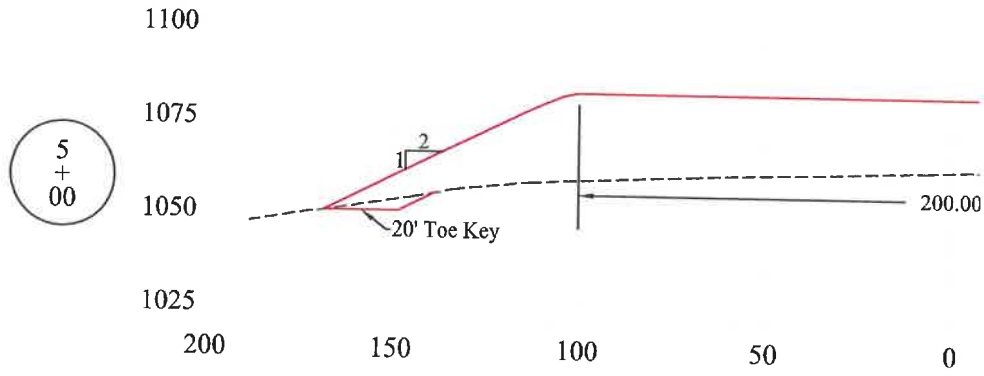
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Pad 1+00 - 3+00



05/24/2024



----- Original Ground
 _____ Design

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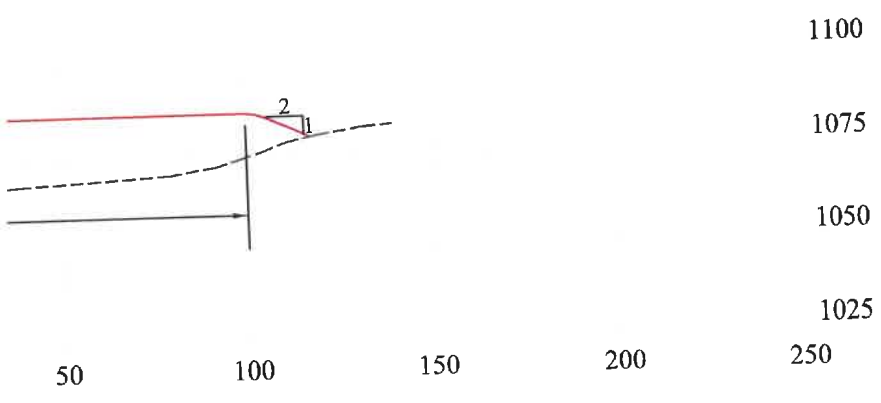
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 County: Harrison
 State: West Virginia

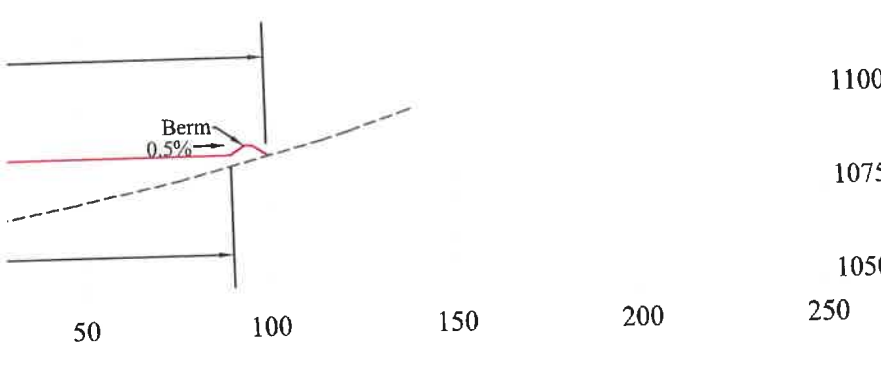
Caynor Sit

05/24/2024

Project Site	Sheet 11 of 22	
Caynor Site		
District	County	State
Union	Harrison	W.V.



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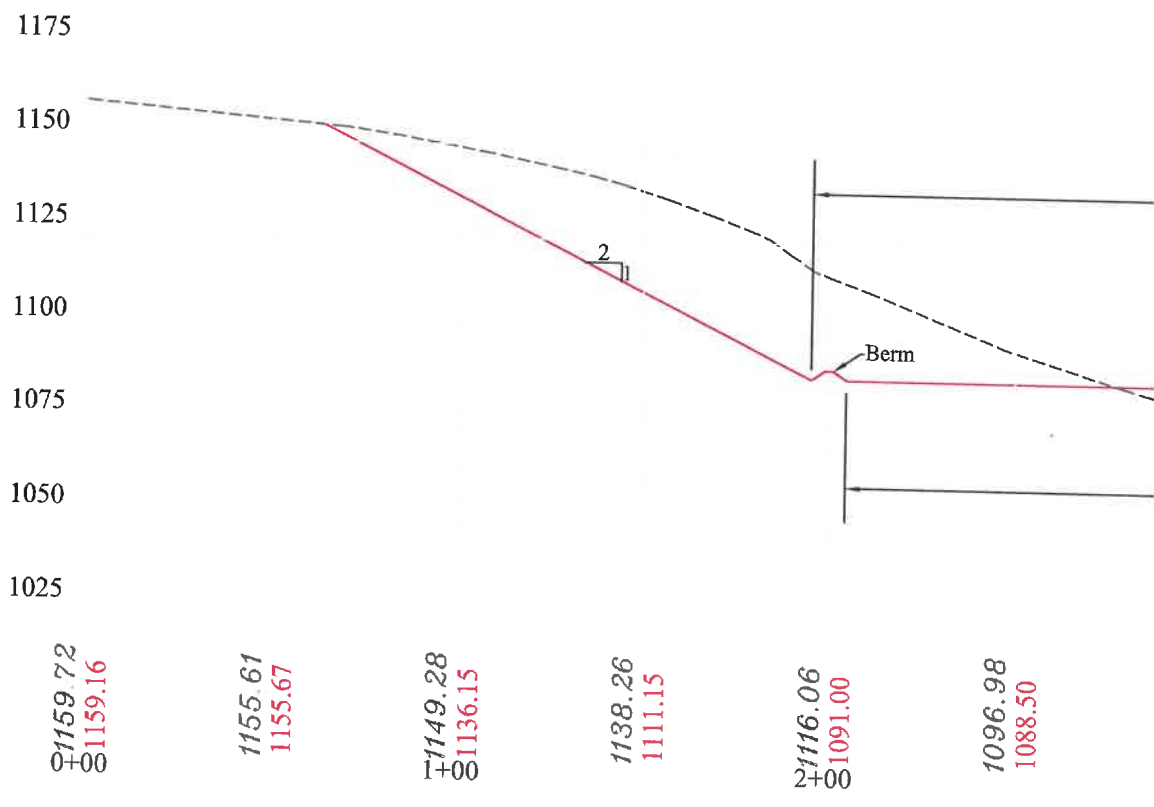
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Pad 4+00 - 5+00



05/24/2024



--- Original Ground
 — Design

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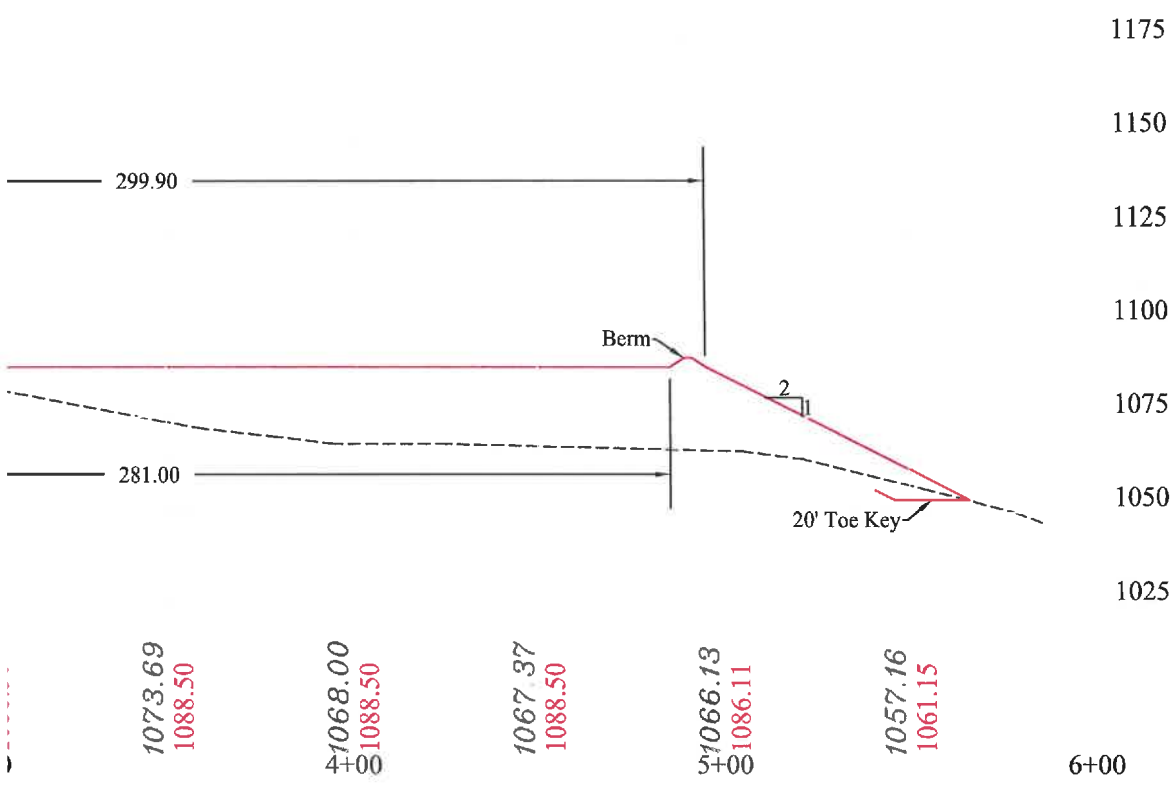
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District: Union
 County: Harrison
 State: West Virginia

Caynor Site

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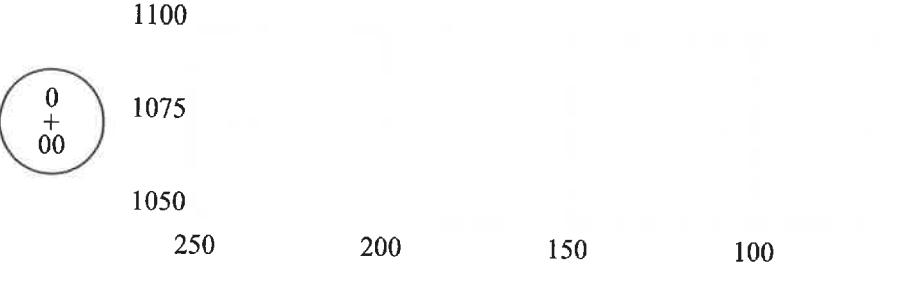
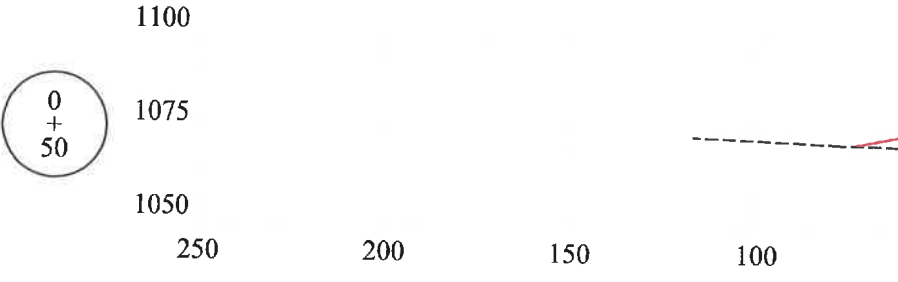
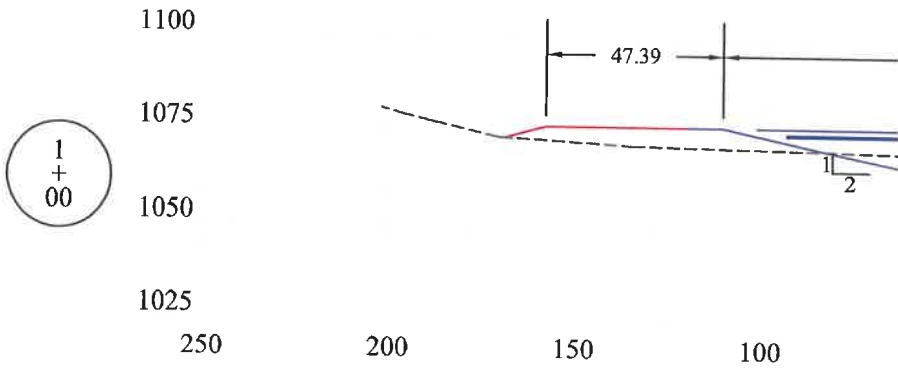
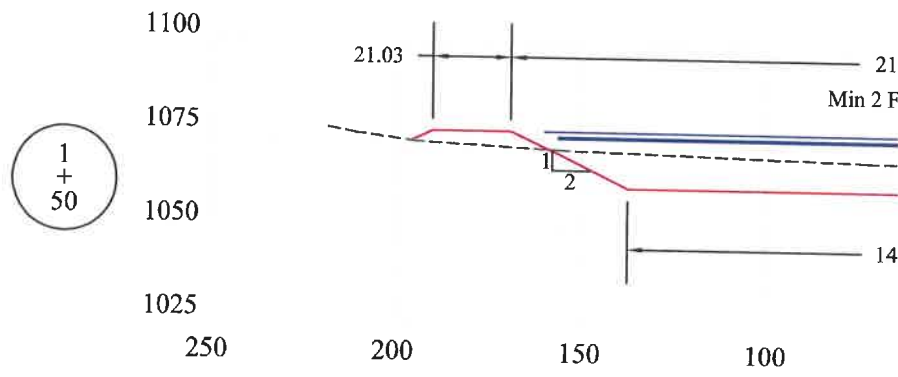
Project Site	Sheet 12 of 22	
Caynor Site		
District	County	State
Union	Harrison	W.V.



Pad Profile



05/24/2024



- - - - - Original Ground
 ——— Design
 ——— Water Level

A Geotechnical Engineering Study Was Not Performed For The Purpose of This Design

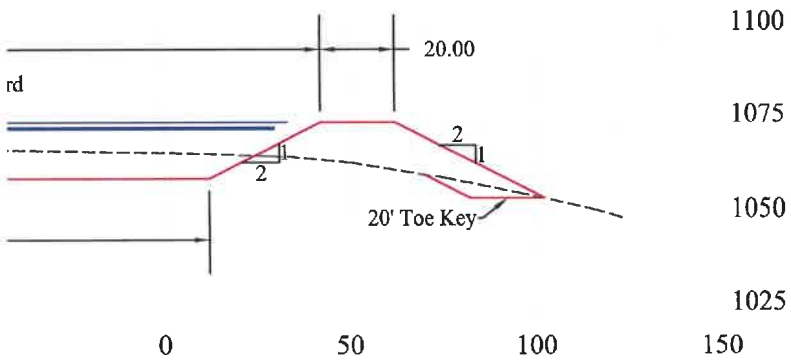
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District: Union
 County: Harrison
 State: West Virginia

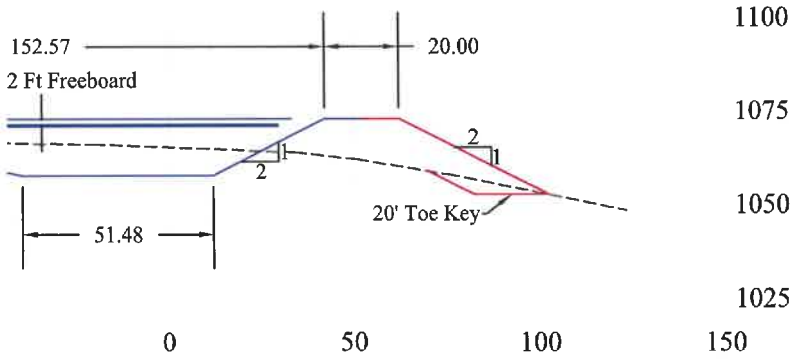
Caynor Site Fr

05/24/2024

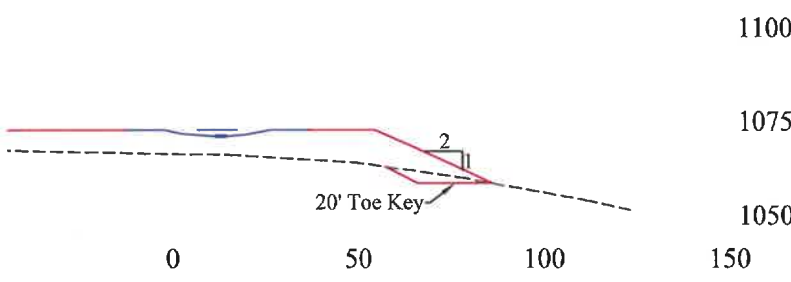
Project Site	Sheet 13 of 22	
Caynor Site		
District	County	State
Union	Harrison	W.V.



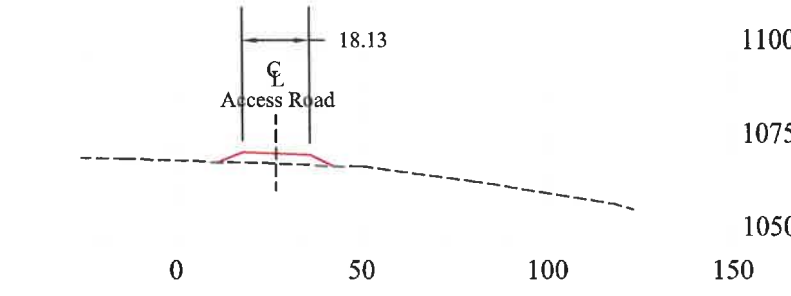
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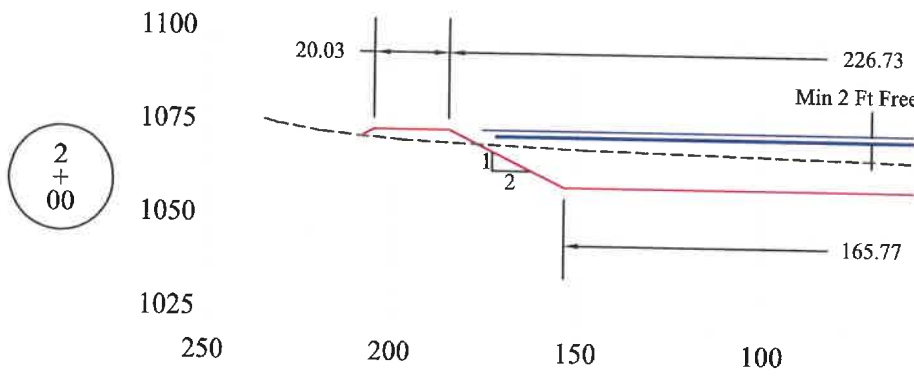
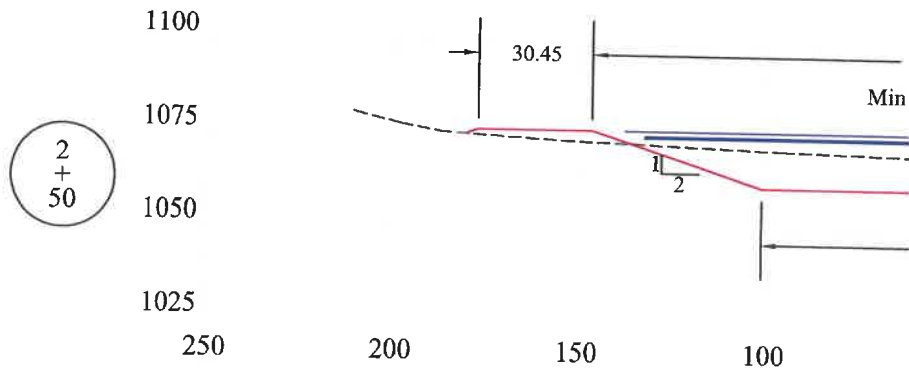
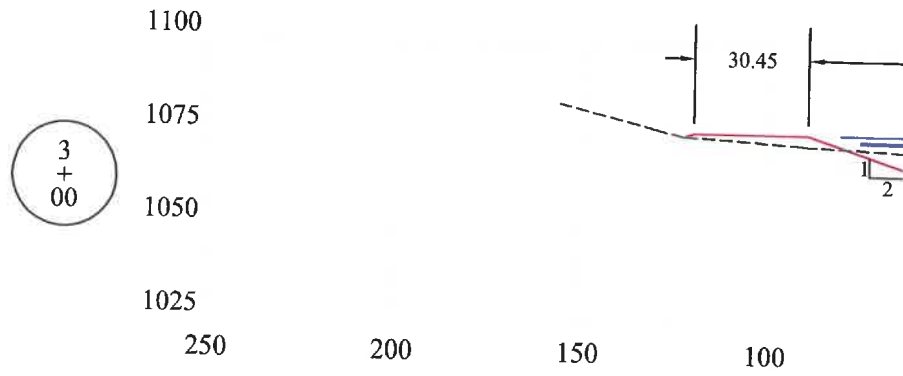
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Pit 0+00 - 1+50



05/24/2024



- - - - - Original Ground
 ——— Design
 ——— Water Level

A Geotechnical Engineering Study Was Not Performed For The Purpose of This Design

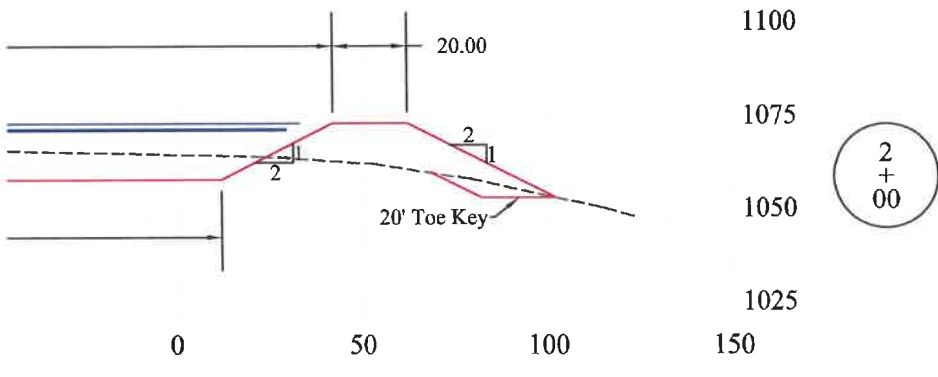
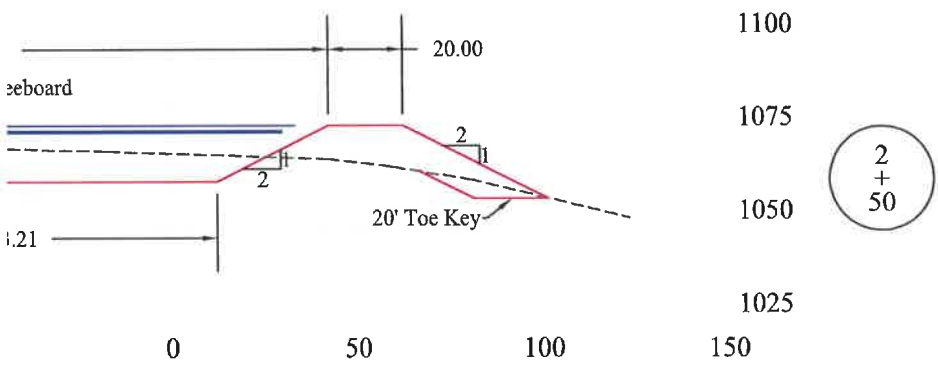
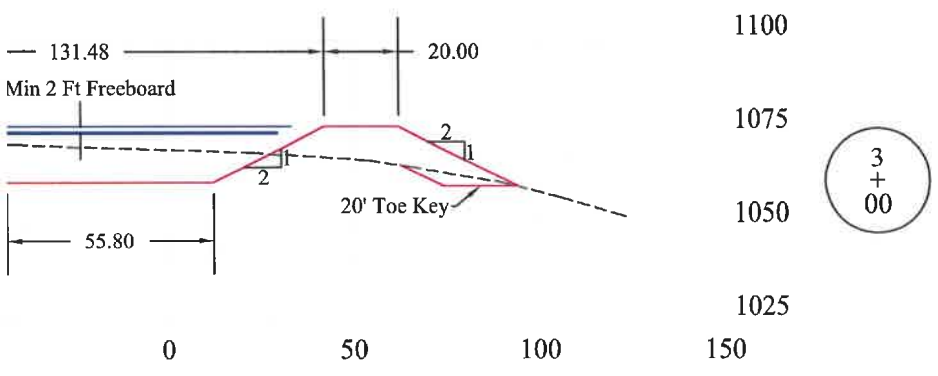
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 Dalley, WV 26259
 (304)338-6985

District: Union
 County: Harrison
 State: West Virginia

Caynor Site Fra

05/24/2024

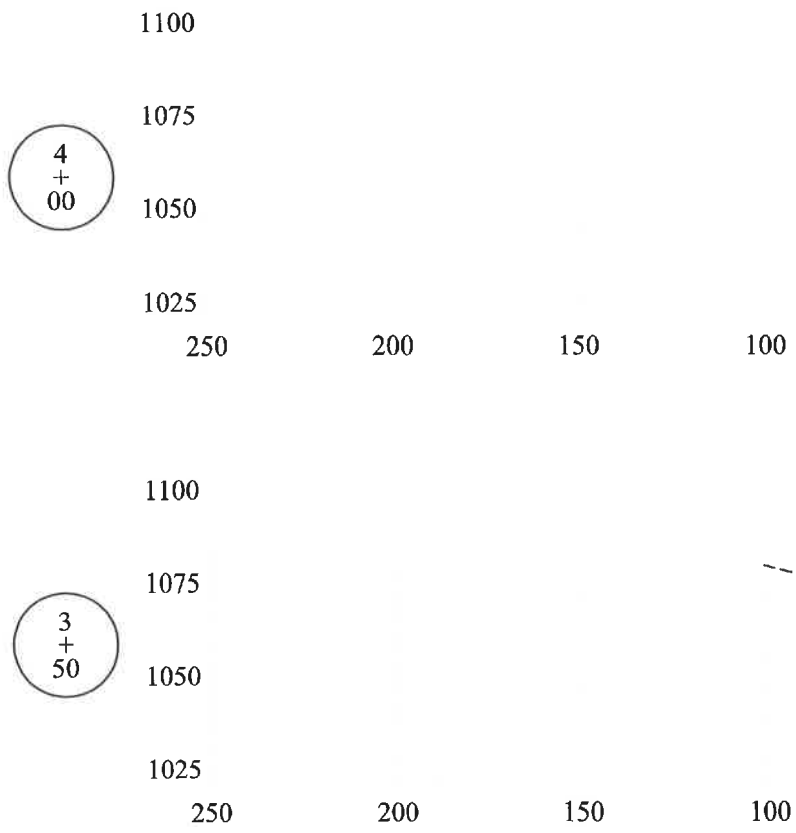
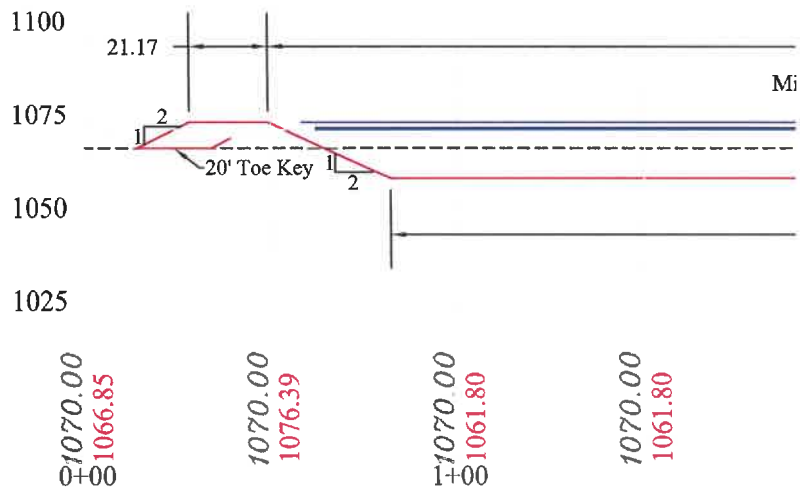
Project Site	Sheet 14 of 22	
Caynor Site		
District	County	State
Union	Harrison	W.V.



Pit 2+00 - 3+00



05/24/2024



- - - - - Original Ground
 — Design
 — Water Level

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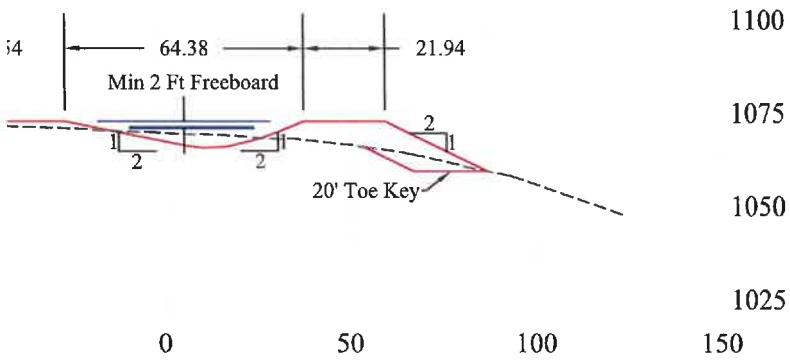
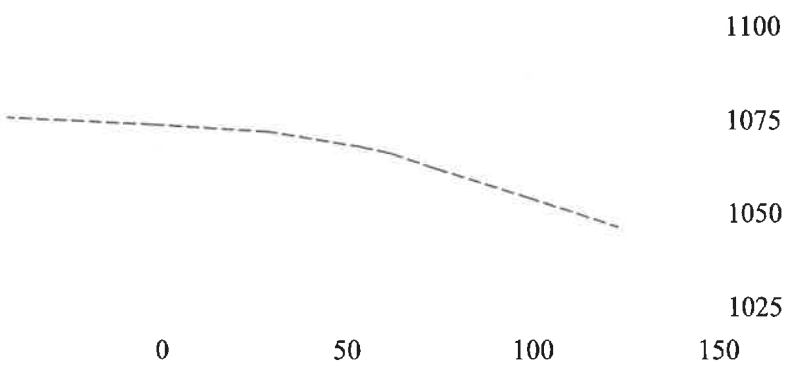
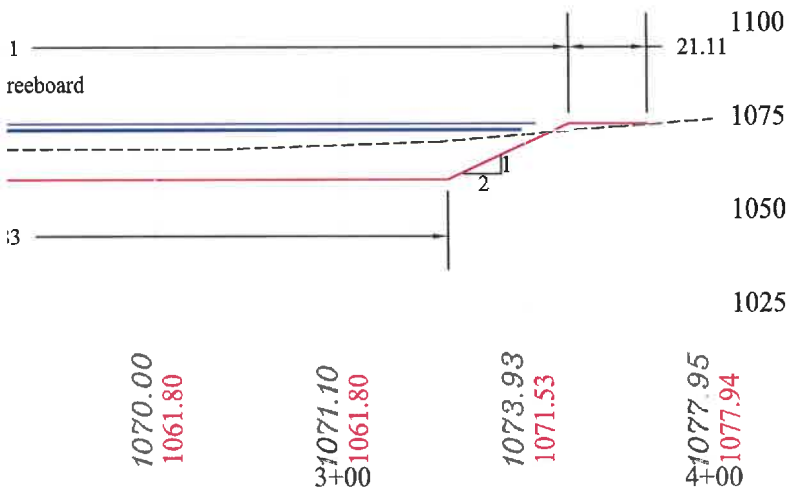
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 Dalley, WV 26259
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District: Union
 County: Harrison
 State: West Virginia

Caynor Site F1

05/24/2024

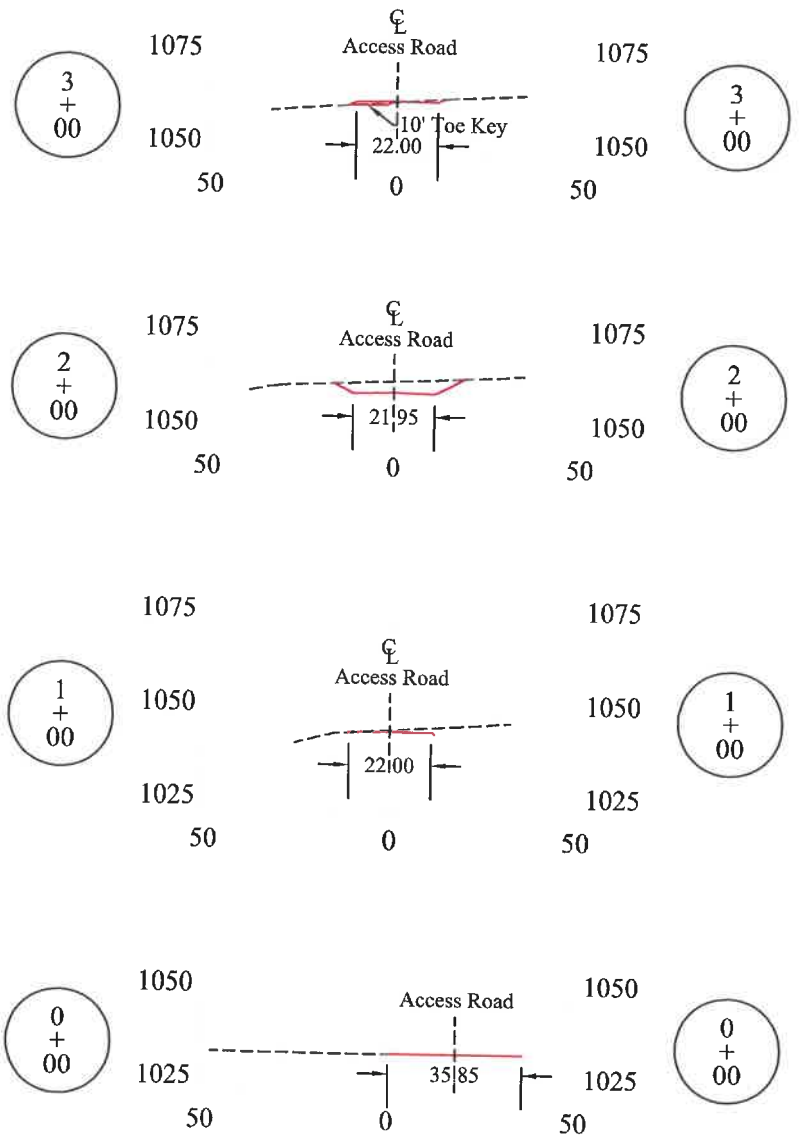
Project Site	Sheet 15 of 22	
Caynor Site		
District	County	State
Union	Harrison	W.V.



Pit 3+50 - 4+00



05/24/2024



----- Original Ground
 _____ Design

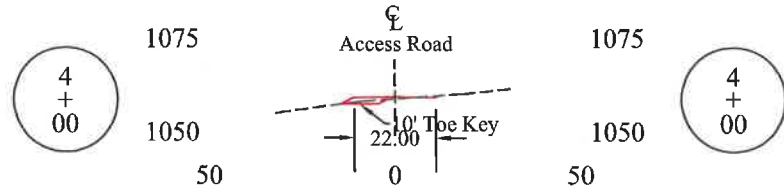
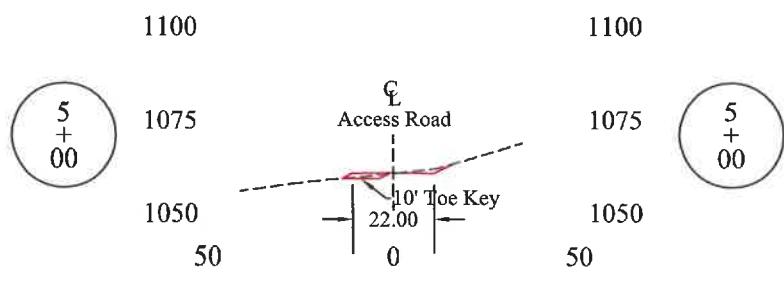
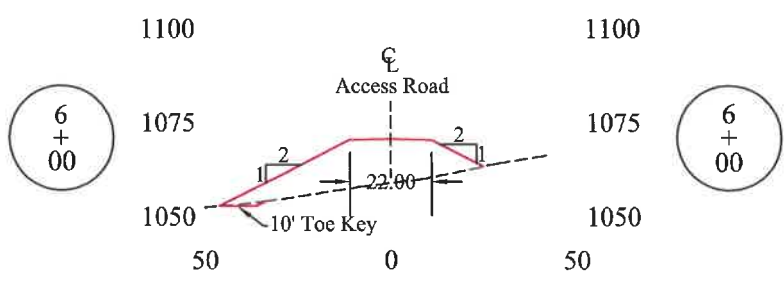
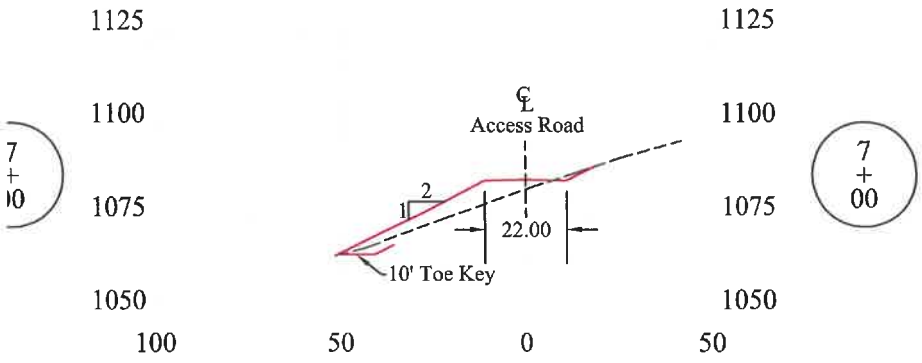
A Geotechnical Engineering Study Was Not Performed For The Purpose of This Design

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 P.O. Box 254
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 (304)338-6985

District: Union
 County: Harrison
 State: West Virginia

Caynor Site Pa

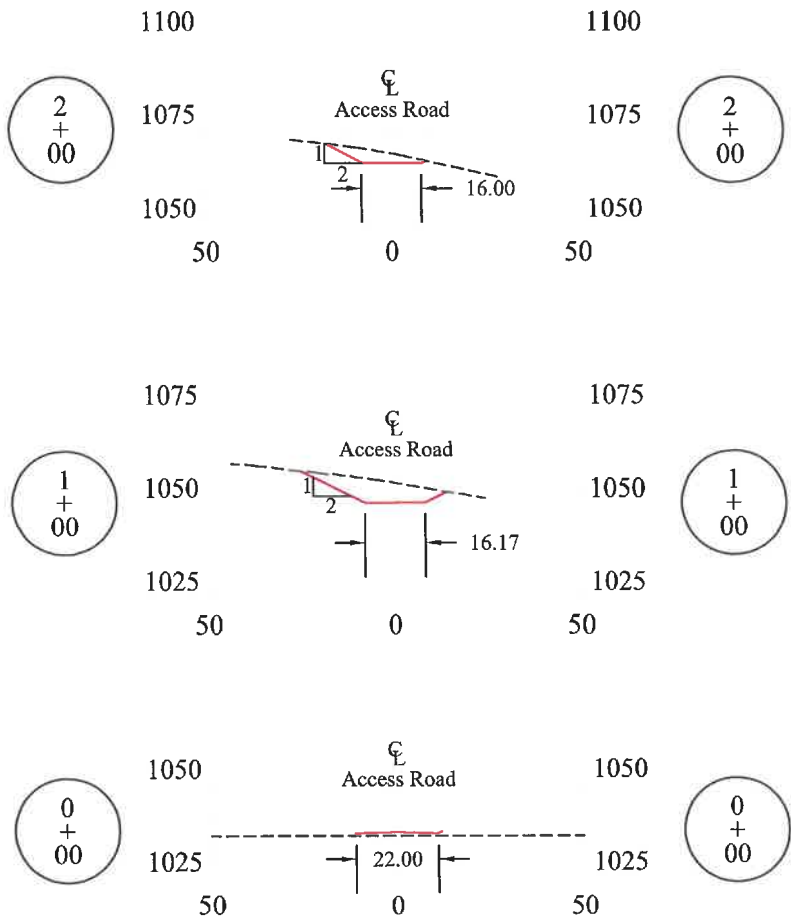
05/24/2024



Access Road 0+00 - 7+00



05/24/2024



----- Original Ground
 _____ Design

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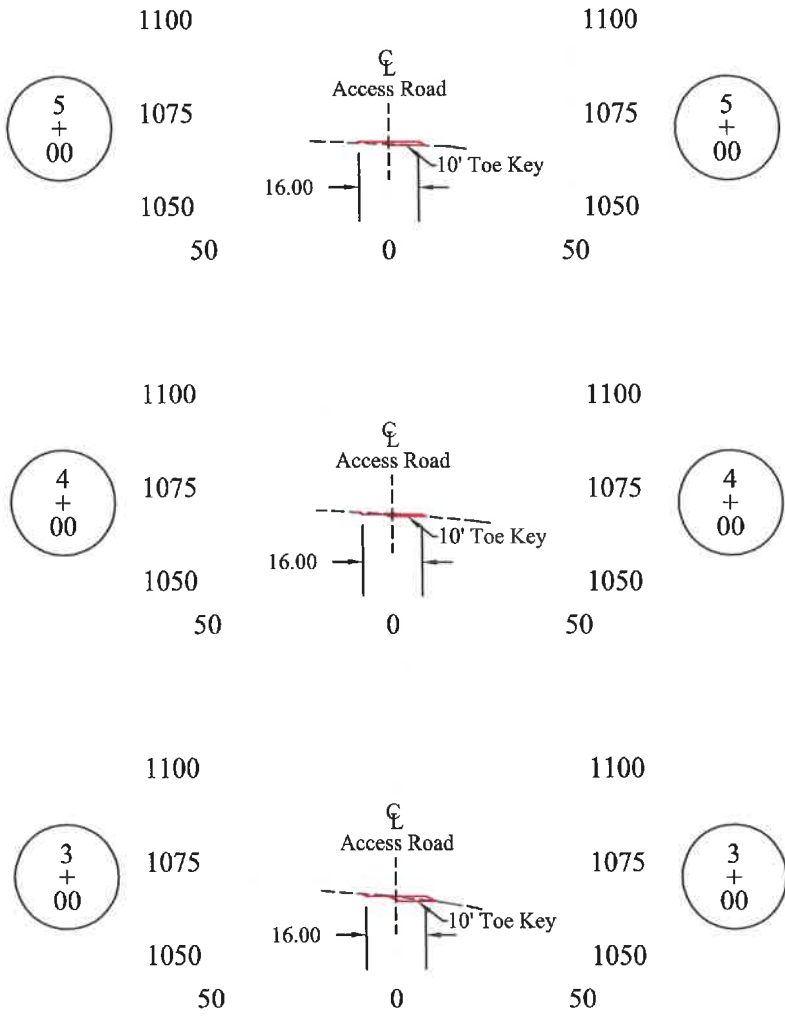
Kelly Surveying
 P.O. Box 254
 Daley, WV 26229
 (304)338-6985

District: Union
 County: Harrison
 State: West Virginia

Caynor Site

05/24/2024

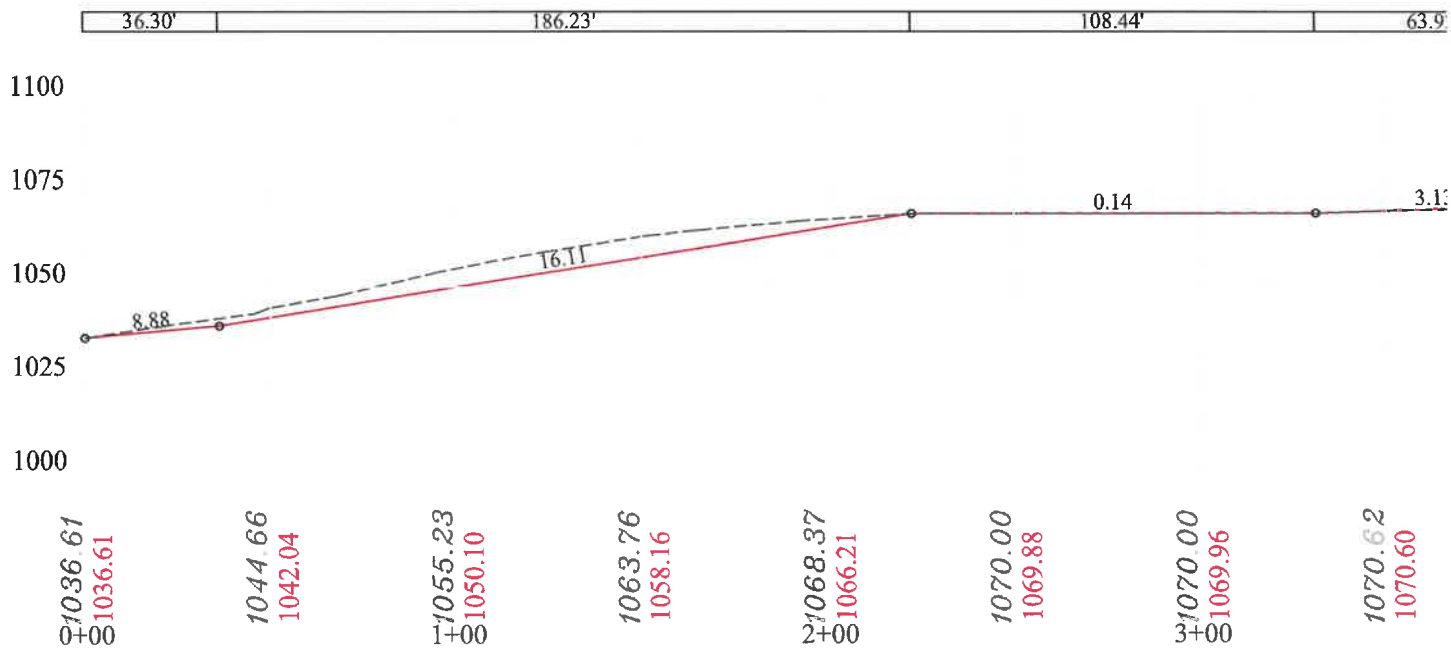
Project Site	Sheet 17 of 22	
Caynor Site		
District	County	State
Union	Harrison	W.V.



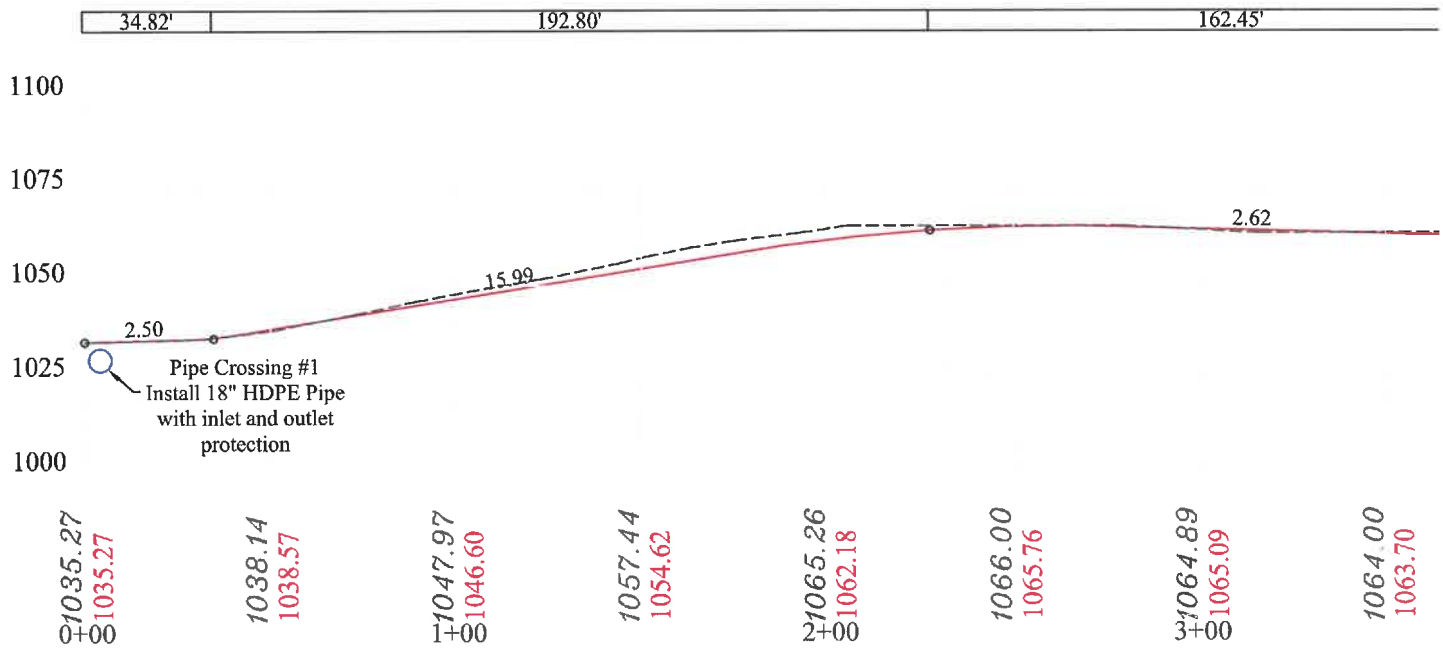
Access Pit Access Road 0+00 - 5+00



05/24/2024



Caynor Site



Caynor Site

--- Original Ground
 — Design

A Geotechnical Engineering Study Was Not Performed For The Purpose of This Design

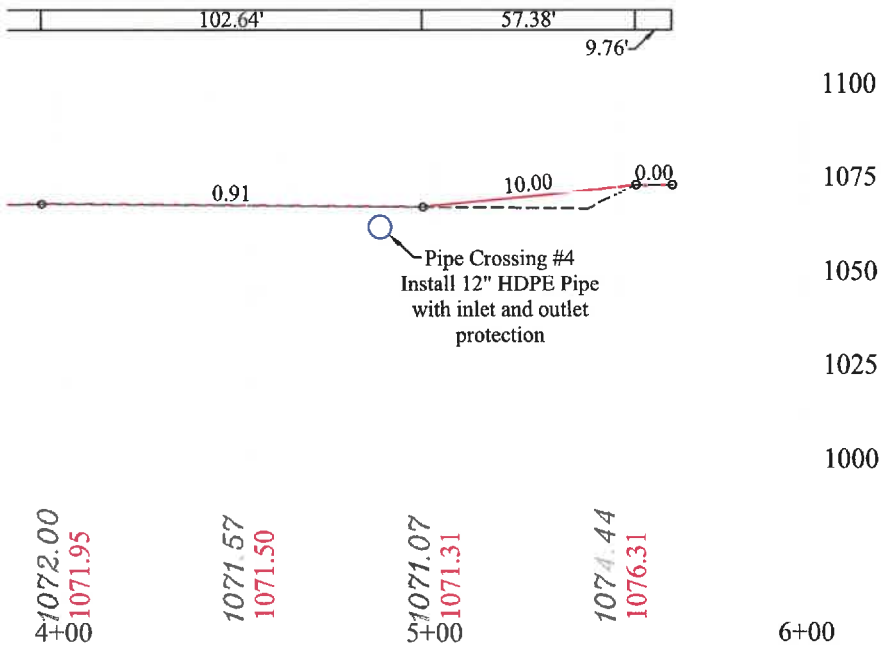
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District: Union
 County: Harrison
 State: West Virginia

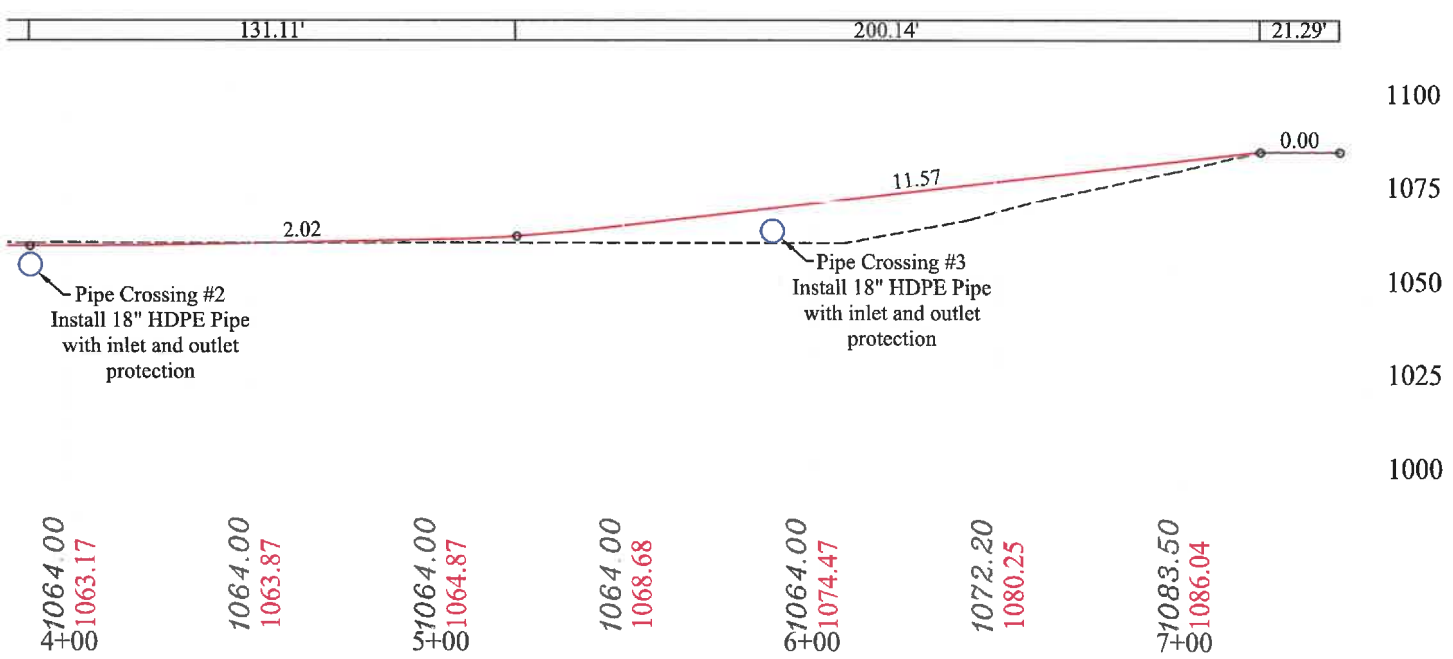
Caynor Site

05/24/2024

Project Site	Sheet 18 of 22	
Caynor Site		
District	County	State
Union	Harrison	W.V.



Frac Pit Access Road Profile



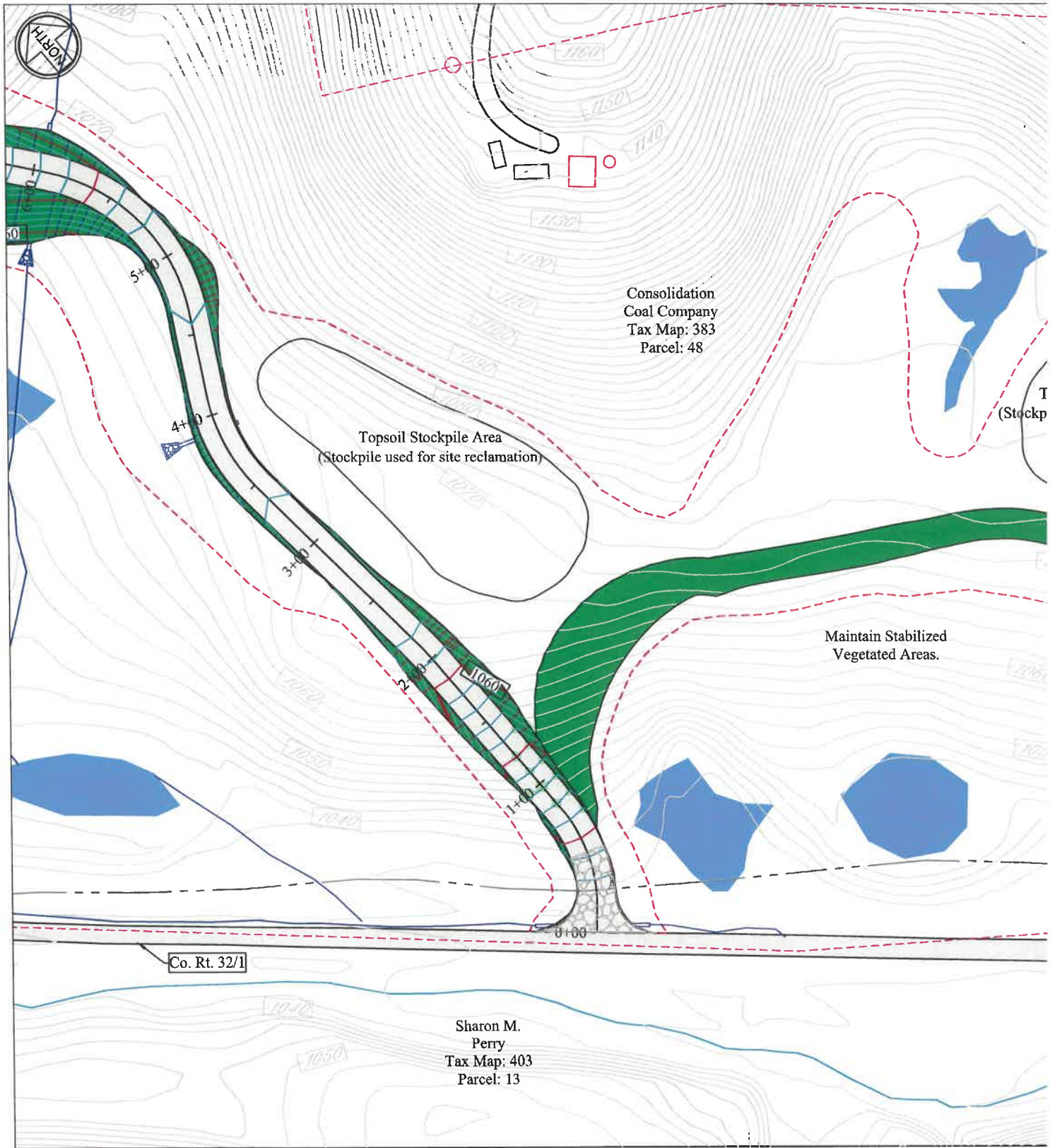
Pad Access Road Profile



Access Road Profiles



05/24/2024



- - - - - Clearing Limits
- - - - - Area of Interest
- Property Line
- Diversion Ditch
- Wetland
- Stream



Kelly Surveying
 P.O. Box 254
 Dailey, WV 26259
 (304) 338-6985

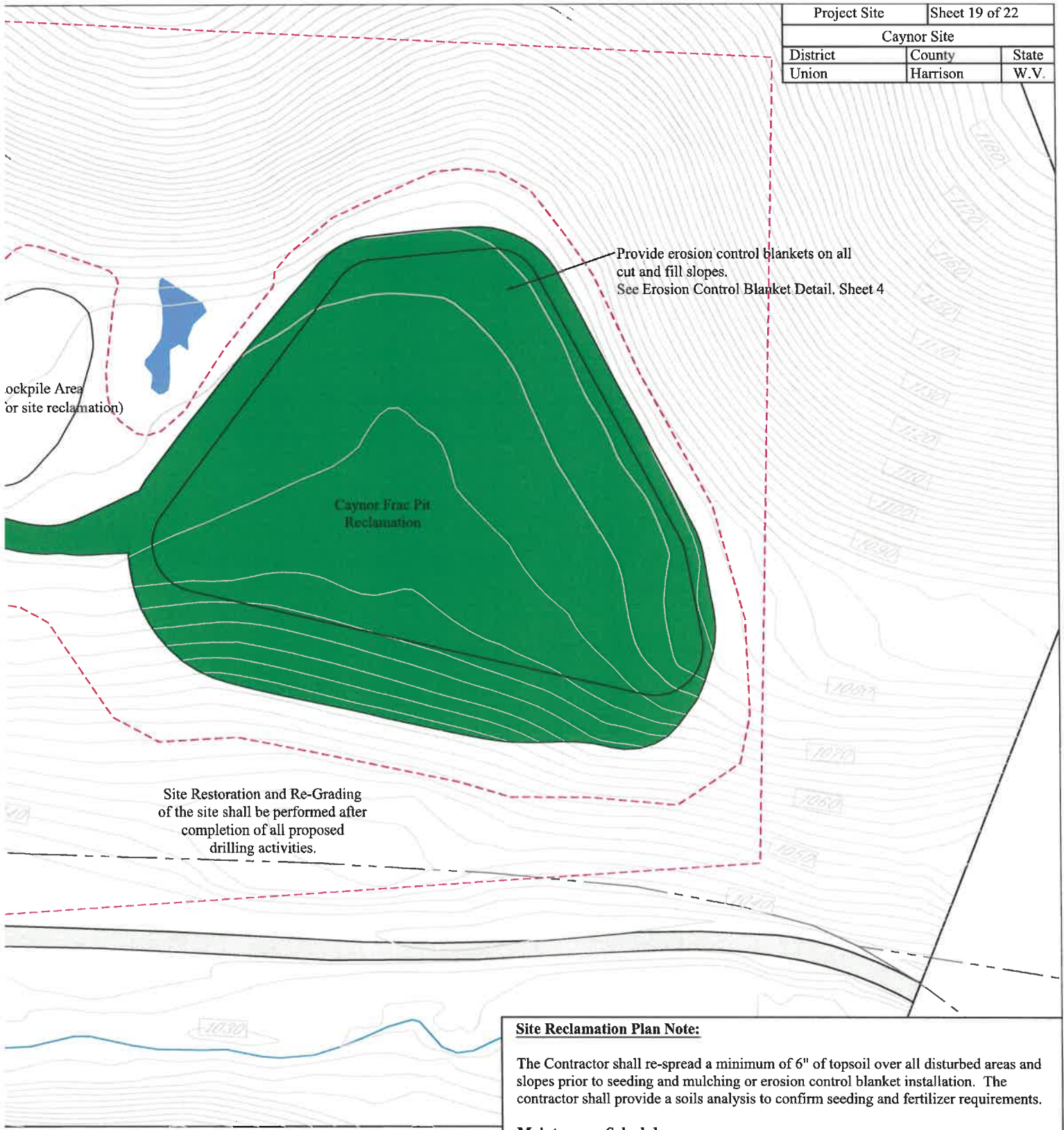
District: Union
 County: Harrison
 State: West Virginia

Caynor Site Fra

05/24/2024

Caynor Site

District	County	State
Union	Harrison	W.V.



Site Reclamation Plan Note:

The Contractor shall re-spread a minimum of 6" of topsoil over all disturbed areas and slopes prior to seeding and mulching or erosion control blanket installation. The contractor shall provide a soils analysis to confirm seeding and fertilizer requirements.

Maintenance Schedule:

All BMPs shall be inspected after every major storm event. All Debris and sediment affecting the proper function of the BMPs shall be removed so not to have an impact in the future. All vegetated areas of the BMPs and surrounding drainage area shall be reseeded and stabilized when weather is conducive if erosion or disturbance impacts the area.

Site Reclamation



05/24/2024

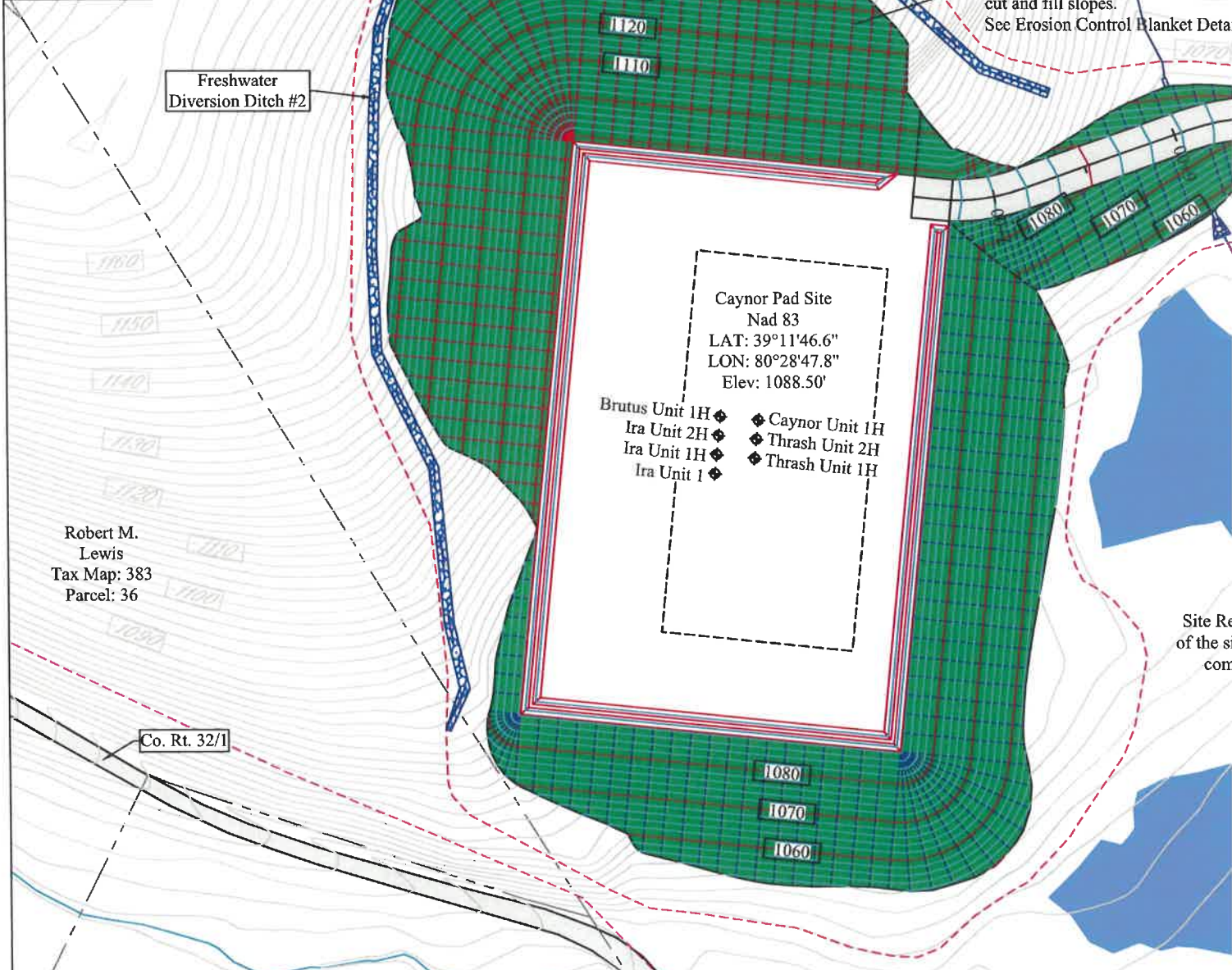
Well Pad Corner
Coordinates
(Nad 83)

Pad NE Corner
LAT: 39°11'47.9"
LON: 80°28'46.3"

Pad SE Corner
LAT: 39°11'46.0"
LON: 80°28'45.6"

Pad SW Corner
LAT: 39°11'45.2"
LON: 80°28'49.3"

Pad NW Corner
LAT: 39°11'47.2"
LON: 80°28'50.0"



Caynor Pad Site
Nad 83
LAT: 39°11'46.6"
LON: 80°28'47.8"
Elev: 1088.50'

Brutus Unit 1H ◆
Ira Unit 2H ◆
Ira Unit 1H ◆
Ira Unit 1 ◆

◆ Caynor Unit 1H
◆ Thrash Unit 2H
◆ Thrash Unit 1H

- - - - - Clearing Limits
- - - - - Area of Interest
- - - - - Property Line
- - - - - Diversion Ditch
- - - - - Wetland
- - - - - Stream



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Delley, WV 26259
(304)338-6985

District: Union
County: Harrison
State: West Virginia

Caynor Site

05/24/2024

District	County	State
Union	Harrison	W.V.

Consolidation
Coal Company
Tax Map: 383
Parcel: 48

Topsoil Stockpile Area
(Stockpile used for site reclamation)

Maintain Stabilized
Vegetated Areas.

Co. Rt. 32/1

Sharon M.
Perry
Tax Map: 403
Parcel: 13

Site Reclamation Plan Note:

The Contractor shall re-spread a minimum of 6" of topsoil over all disturbed areas and slopes prior to seeding and mulching or erosion control blanket installation. The contractor shall provide a soils analysis to confirm seeding and fertilizer requirements.

Maintenance Schedule:

All BMPs shall be inspected after every major storm event. All Debris and sediment affecting the proper function of the BMPs shall be removed so not to have an impact in the future. All vegetated areas of the BMPs and surrounding drainage area shall be reseeded and stabilized when weather is conducive if erosion or disturbance impacts the area.

Well Pad Reclamation



05/24/2024



UNT 5

Robert M.
Lewis
Tax Map: 383
Parcel: 36

Disturbed Area Clearing: 0.04 Ac.
Total Disturbed Area: 0.04 Ac.

Well Pad

UNT 3

UNT 2

UNT 1

Access Road

WL2

James W. & Doris E.
Wickenhofer
Tax Map: 383
Parcel: 47

WL3

UNT 2

Pond 1

UNT 2

UNT 4



Kelly Surveying
P.O. Box 254
Dalley, WV 26259
(304)338-6985

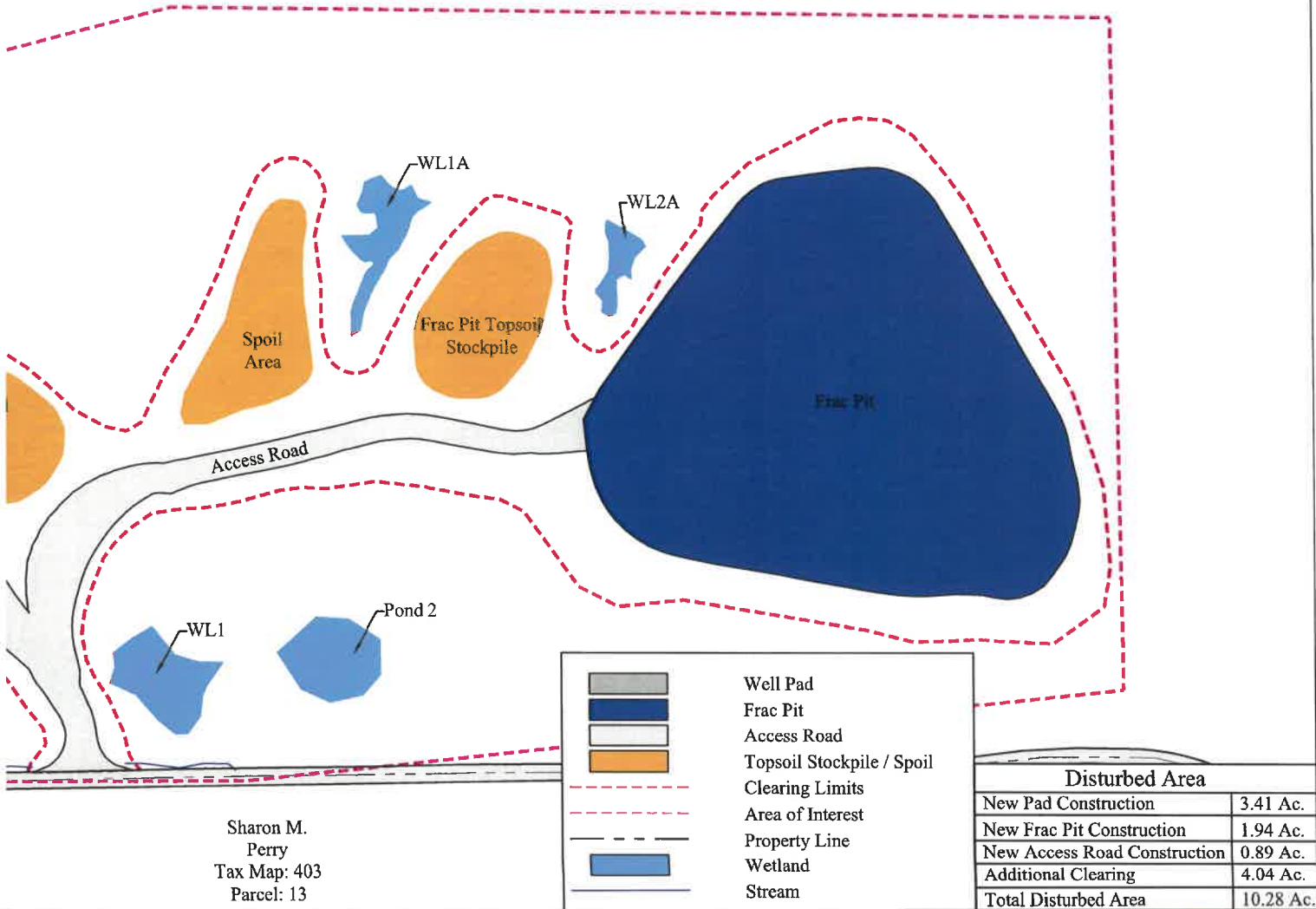
District: Union
County: Harrison
State: West Virginia

Caynor Site

05/24/2024

Consolidation
Coal Company
Tax Map: 383
Parcel: 48

Disturbed Area Well Pad: 3.41 Ac.
Disturbed Area Frac Pit: 1.94 Ac.
Disturbed Area Topsoil / Spoil: 0.78 Ac.
Disturbed Area Access Road: 0.89 Ac.
Disturbed Area Clearing: 3.22 Ac.
Total Disturbed Area: 10.24 Ac.



Sharon M.
Perry
Tax Map: 403
Parcel: 13

Disturbed Areas



05/24/2024

Pad Access Road Report

Processing 0+00.00 to 7+42.61
 Total Cut : 15150.17 C.F., 561.12 C.Y.
 Total Fill: 62740.52 C.F., 2323.72 C.Y.

Pad Topsoil Stockpile Report

Cut slope percent grade: 50.00, slope ratio: 2.00
 Fill slope percent grade: 50.00, slope ratio: 2.00

Pad Earthwork Volumes
 Total cut : 0.0 C.F., 0.00 C.Y.
 Total fill: 121,602.3 C.F., 4,503.79 C.Y.

18" Compost Filter Sock	(671')	24" (
FS18 #1	15'	FS24
FS18 #2	17'	FS24
FS18 #3	19'	FS24
FS18 #4	13'	FS24
FS18 #5	23'	FS24
FS18 #6	53'	FS24
FS18 #7	54'	FS24
FS18 #8	143'	FS24
FS18 #9	137'	FS24
FS18 #10	42'	FS24
FS18 #11	155'	FS24

Frac Pit Access Road Report

Processing 0+00.00 to 5+64.67
 Total cut : 22,153.2 C.F., 820.49 C.Y.
 Total fill: 4,142.6 C.F., 153.43 C.Y.

Frac Pit Topsoil Report

Cut slope percent grade: 50.00, slope ratio: 2.00
 Fill slope percent grade: 50.00, slope ratio: 2.00

Frac Pit Earthwork Volumes
 Total cut : 0.0 C.F., 0.00 C.Y.
 Total fill: 67,572.7 C.F., 2,502.69 C.Y.

Pad Report

Top of pad elevation: 1088.5012
 Cut slope percent grade: 50.00, slope ratio: 2.00
 Fill slope percent grade: 50.00, slope ratio: 2.00

Pad Earthwork Volumes
 Total cut : 1,248,977.6 C.F., 46,258.43 C.Y.
 Total fill: 1,100,356.8 C.F., 40,753.96 C.Y.

Slope Erosion Control Areas:	
Structure	Slope Area (Ac.)
Well Pad	2.255
Frac Pit	0.396
Access Roads	0.396
Total	3.047

Frac Pit Report

Top of dam elevation: 1076.8000
 Bottom of Frac Pit elevation: 1061.8000
 Top of dam width: 20.0000
 Cut slope percent grade: 50.00, slope ratio: 2.00
 Fill slope percent grade: 50.00, slope ratio: 2.00
 Interior slope percent grade: 50.00, slope ratio: 2.00

Frac Pit Earthwork Volumes
 Total cut : 285,677.94 C.F., 10,580.66 C.Y.
 Total fill: 210,944.61 C.F., 7,812.76 C.Y.

Collection Ditch		
Diversion Ditch	Length (ft)	Min. Slope (%)
Diversion Ditch 1	313	2
Diversion Ditch 2	545	2

Pipe Crossings					
Crossing	Station	Length (ft)	Diameter (ft)	Type	Min. Slope (%)
Pipe Crossing #1	0+04	70	1.5'	HDPE	2
Pipe Crossing #2	3+90	39	1.5'	HDPE	2
Pipe Crossing #3	5+95	78	1.5'	HDPE	2
Pipe Crossing #4	4+86	24	1.0'	HDPE	2

Frac Pit Storage Volumes

Water Elev	Storage(AcreFt)	(C.Y.)	(C.F.)	(Gallons)	(Barrels)
1061.80	0.00000	0.0	0.0	0.0	0.00
1063.80	1.26246	2036.8	54992.8	411374.9	9794.64
1065.80	2.65868	4289.3	115812.2	866335.1	20627.03
1067.80	4.18979	6759.5	182507.2	1365248.3	32505.91
1069.80	5.86170	9456.9	255335.8	1910044.4	45477.25
1071.80	7.68053	12391.3	334563.9	2502711.5	59588.37
1073.80	9.65010	15568.8	420358.3	3144498.3	74869.01
1075.80	11.77547	18997.8	512939.3	3837052.6	91358.40
1076.80	12.89995	20811.9	561921.9	4203467.6	100082.56

Water Elev	Storage(AcreFt)	(C.Y.)	(C.F.)	(Gallons)	(Barrels)	
1061.80	0.00000	0.0	0.0	0.0	0.00	Bottom of Frac Pit
1074.80	10.71165	17281.5	466599.6	3490165.0	83099.17	2' Freeboard
1076.80	12.89995	20811.9	561921.9	4203467.6	100082.56	Top of Frac Pit



District: Union
 County: Harrison
 State: West Virginia

Vol

05/24/2024

18" Filter Sock (1,000')	32" Compost Filter Sock (1,119')
34'	FS32 #1 111'
32'	FS32 #2 258'
102'	FS32 #3 30'
164'	FS32 #4 99'
136'	FS32 #5 149'
56'	FS32 #6 81'
22'	FS32 #7 58'
205'	FS32 #8 262'
97'	FS32 #9 20'
131'	FS32 #10 25'
21'	FS32 #11 26'

Project Site		Sheet 22 of 22
Caynor Site		
District	County	State
Union	Harrison	W.V.

MATERIALS		SITE EARTHWORK TOTALS	
18" Filter Sock	671'	Structure:	Cut (C.Y.)
24" Filter Sock	1,000'	Well Pad:	46,258.43
32" Filter Sock	1,119'	Frac Pit:	10,580.66
Diversion Ditches	858'	Pad Access Road:	561.12
Geo-Textile Material	3,104 sq. yd.	Frac Pit Access Road:	820.49
Pipe Crossings	4	Pad Topsoil Stockpile:	0.00
Orange Const. Fence	880'	Frac Pit Topsoil Stockpile:	0.00
Chainlink Fence	947'	Totals:	58,220.70
Toe Key	3,030		
Slope Erosion Control	3.047 Ac.		
		Site Balance: 176.83 C.Y. Export	
			Fill (C.Y.)
			40,753.96
			7,812.76
			2,323.72
			153.43
			4,500.00
			2,500.00

Volume Report



05/24/2024