



**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

January 31, 2013

**WELL WORK PERMIT  
Horizontal 6A Well**

This permit, API Well Number: 47-8510017, 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: ALLSTATE UNIT 2H  
Farm Name: WILLIAMSON, ANDREW ET AL  
**API Well Number: 47-8510017**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 01/31/2013

**Promoting a healthy environment.**

05/31/2024

# 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

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1. The Office of Oil and Gas has approved your permit application, which includes your addendum. Please be advised that the addendum is part of the terms of the well work permit, and will be enforced as such. The Office of Oil and Gas must receive a copy of all data collected, and submitted in a timely fashion, but no later than the WR35 submittal.
2. Prior to conducting hydraulic fracturing operations, you have already conducted, identify those wells within the area of review which have multiple completions, and evaluate the risk of vertical fracture propagation into shallower formations.
3. 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.
4. 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% (unless soil test results show a greater range of moisture content is appropriate and 95% compaction can still be achieved) of the optimum moisture content as determined by the standard proctor density test, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. 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.
5. 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.
6. 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 fifteen 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.
7. 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.

05/31/2024



### Addendum for Antero pads in Ritchie County, WV

Ireland Unit 1H	Permit #47-085-10005	Ness Pad
Ireland Unit 2H	Permit #47-085-10006	Ness Pad
Anna Unit 3H	Permit #47-085-10015	Eddy Pad
Nicholson Unit 3H	Permit #47-085-09967	Yolanda Pad
Allstate Unit 1H	Permit #47-085-10018	Yolanda Pad
Allstate Unit 2H	Permit #47-085-10017	Yolanda Pad
McCabe Unit 3H	Permit #47-085-10019	Yolanda Pad
Constable Unit 2H	Permit #47-085-10030	Lockhart Heirs Pad
McCabe Unit 1H	Permit #47-085-10021	Lockhart Heirs Pad
McCabe Unit 2H	Permit #47-085-10022	Yolanda Pad
Constable Unit 1H	Permit #47-085-10023	Lockhart Heirs Pad

The following outlines the process to be undertaken by Antero Resources prior to and during completion process of wells.

- Investigate all wells within 1320' of new wells when within the defined Alexander to Marcellus <1500' window and all Marcellus vertical wells
  - contact operator of all wells
  - confirm well status, producing horizon, well completion/stimulation information
  - discuss plans to stimulate the horizontal Marcellus wells and the plans for monitoring
  - Potential impact on shallow wells
  - make sure all vertical Marcellus to Alexander wells have adequate wellhead equipment,
    - Including pressure gauges
    - provide shallow well operator with frac dates and monitor during stimulation
    - if well waters out during frac, shut it in until after stimulations, and install adequate well
    - Control equipment prior to swabbing in the impacted shallow well
- Control fracturing parameters during job to limit fracture height growth
  - limit rate and limit pressures for each segment of fracturing stages
- Tracers demonstrate that we rarely reach offset wells at 660' offset
  - will use tracers at each lateral

05/31/2024

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

085      0-1      562

1) Well Operator: Antero Resources Appalachian Corporation      494488557      085 - Ritchie      Union      Pullman 7.5'  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Allstate Unit 2H      Well Pad Name: Yolanda Pad

3 Elevation, current ground: 1142'      Elevation, proposed post-construction: 1142'

4) Well Type: (a) Gas       Oil   
Other \_\_\_\_\_  
(b) If Gas: Shallow       Deep   
Horizontal       \_\_\_\_\_

5) Existing Pad? Yes or No: Yes

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):  
Marcellus, 6900' TVD, Anticipated Thickness- 50', Associated Pressure -3,000#

7) Proposed Total Vertical Depth: 6900' TVD

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 12,800' MD

10) Approximate Fresh Water Strata Depths: 61', 85', 197'

11) Method to Determine Fresh Water Depth: Nicholson Unit 2H and Offset well records

12) Approximate Saltwater Depths: 1342'

13) Approximate Coal Seam Depths: 1177'

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

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): 15.35 existing acres

19) Area to be disturbed for well pad only, less access road (acres): 1.37 existing acres

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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>
Conductor	20"	New	H-40	94#	40'	40'	CTS
Fresh Water	13-3/8"	New	J-55	54.5#	300'	300' *see above	417 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2455'	2455'	1000 Cu Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	12800'	12800'	3326 Cu Ft.
Tubing	2-3/8"	New	N-80	4.7#		7200'	
Liners							

CTS  
CTS

<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>
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	3560	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1318
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:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

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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, Class A 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 fresh 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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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 Little White Oak Creek Quadrangle Pullman 7.5'

Elevation 1142' County Ritchie 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 (existing)  . If so, what mil.? 60 mil (existing)

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 *Cole Kilstrom*

Company Official (Typed Name) Cole Kilstrom

Company Official Title Environmental Specialist

Subscribed and sworn before me this 16<sup>th</sup> day of November, 20 12

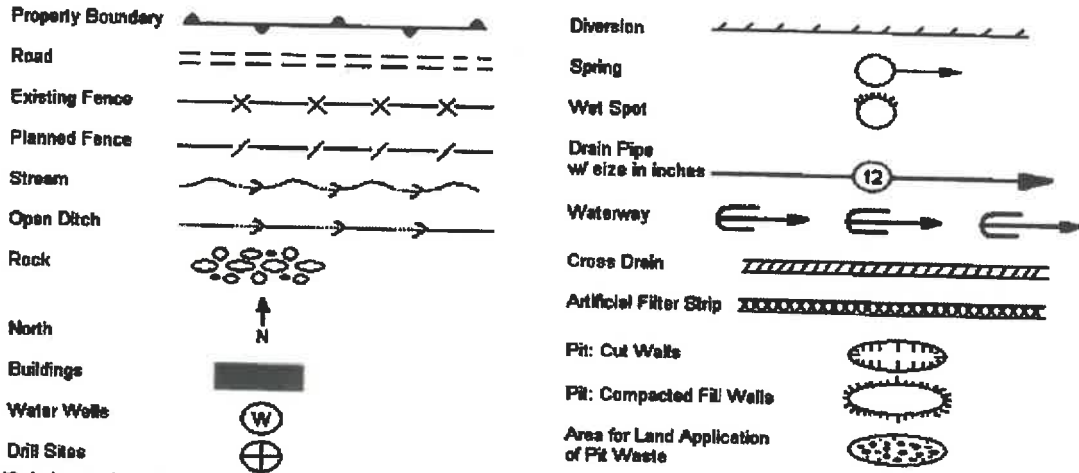
*Shauna Redican* Notary Public

My commission expires 5/18/15

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SHAUNA REDICAN  
Notary Public  
State of Colorado

05/31/2024



(Existing Pad 1.37 + Existing Access Road 1.72 + Existing Frac Pit 0.90 + Existing Clearing 11.36 = 15.35 Acres)

Proposed Revegetation Treatment: Acres Disturbed 15.35 Prevegetation pH 6.0  
 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	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: David W. Chen

Comments: OK all EIS on site & ENTRANCE

Title: oil/gas inspector Date: 12-5-12

Field Reviewed?  Yes  No

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Environmental Protection

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85-10017



# Well Site Safety Plan Antero Resources

*David [unclear]*  
12-5-12

**Well Name:** Allstate Unit 1H, Allstate Unit 2H, Nicholson Unit 1H, Nicholson Unit 2H, Nicholson Unit 3, O'Neil Unit 1H and O'Neil Unit 2H

**Pad Location:** YOLANDA PAD  
Ritchie County/Union District

**GPS Coordinates:** Lat 39°11'43.9"/Long 80°53'03.5"

**Driving Directions:** From the intersection of I-50 and Co Route 74 (just South East of the town Pennsboro) head South on W Virginia S for 7.4 miles. Take a left onto Co Rd 9/Main St., continue to follow Co Rd 9 for 4.3 miles. Take a sharp right onto Possum Run Rd for 0.5 miles, lease road will be on the right.

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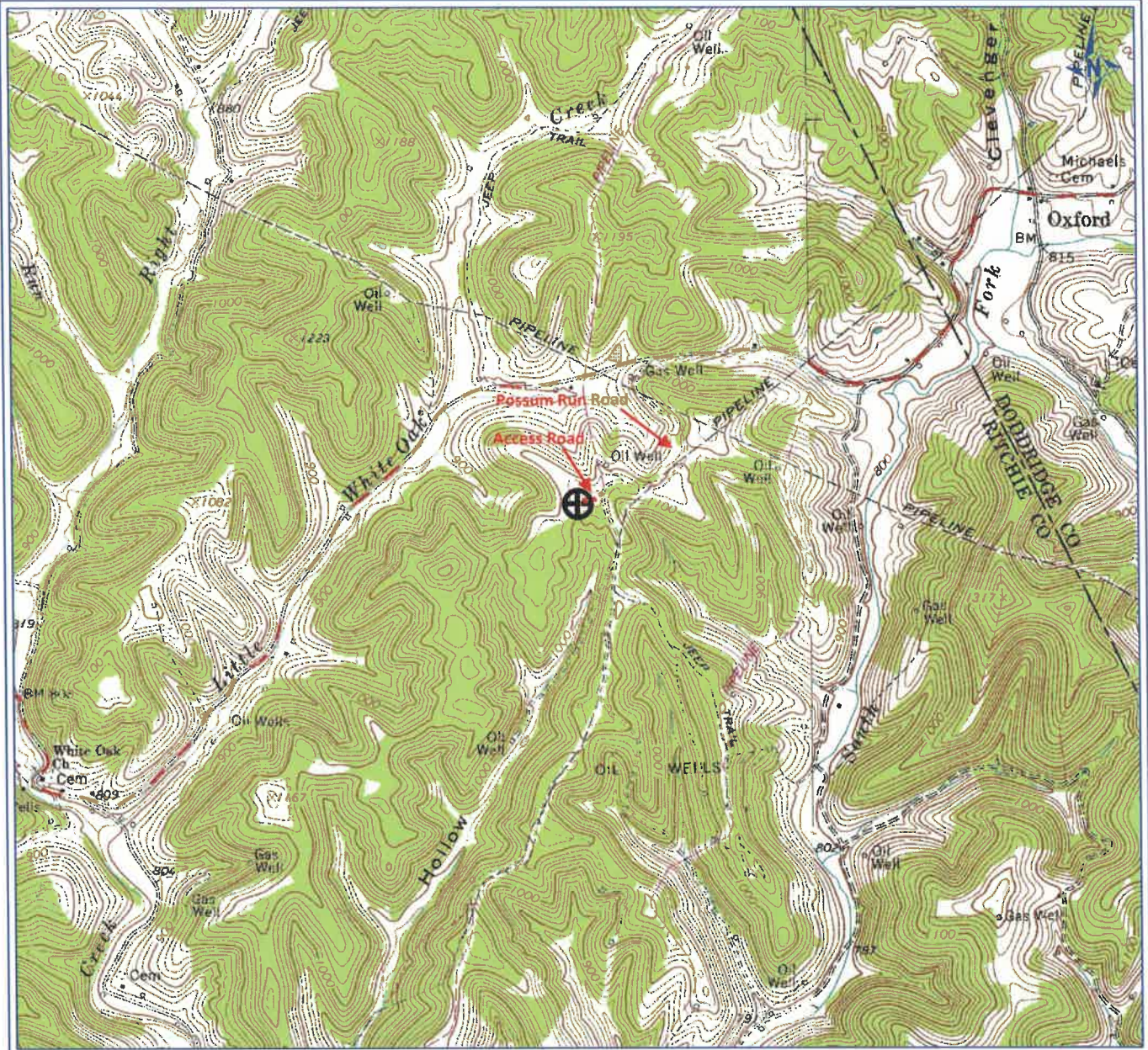
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SSP Page 1

05/31/2024



85-10017



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Antero Resources Corporation

APPALACHIAN BASIN

Allstate Unit 2H

RITCHIE COUNTY

REMARKS  
 QUADRANGLE: PULLMAN  
 WATERSHED: LITTLE WHITE OAK  
 DISTRICT: UNION



February 24, 2012

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LATITUDE 39°12'30"

2,645'

4,455' TO BOTTOM HOLE  
LATITUDE 39°15'00"

LONGITUDE 80°52'30"

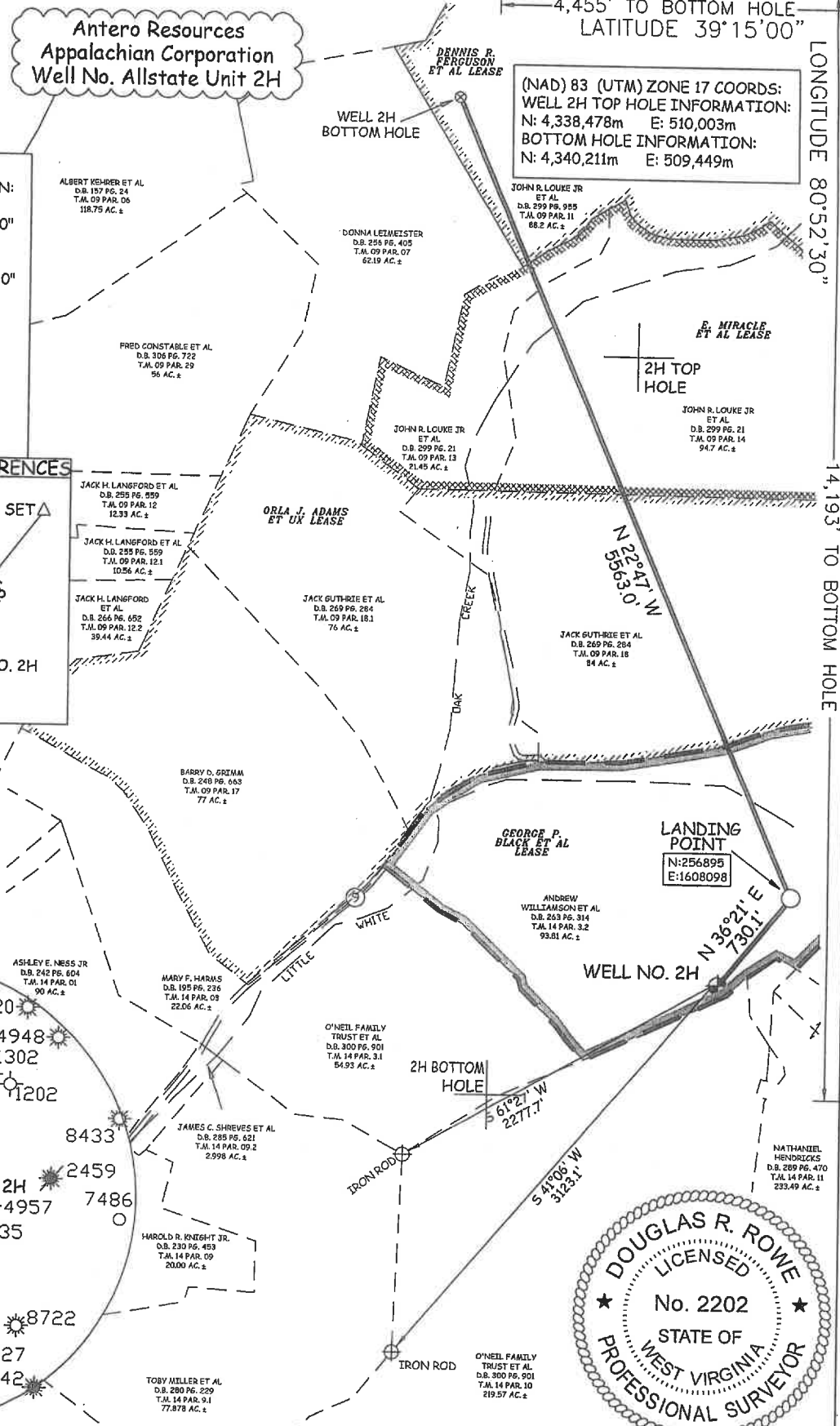
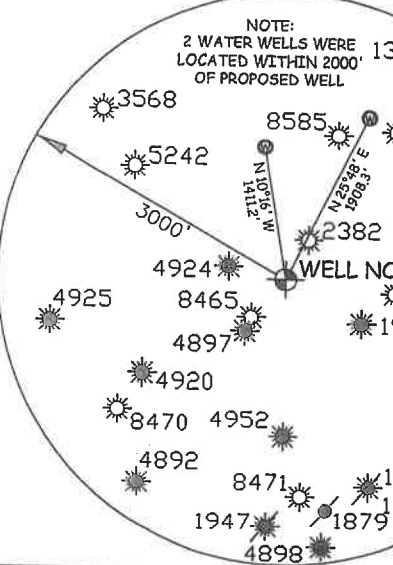
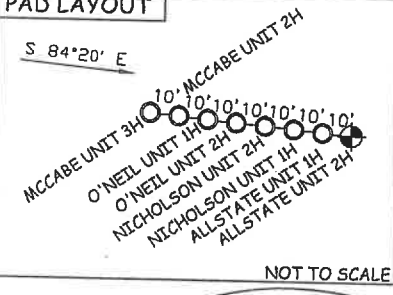
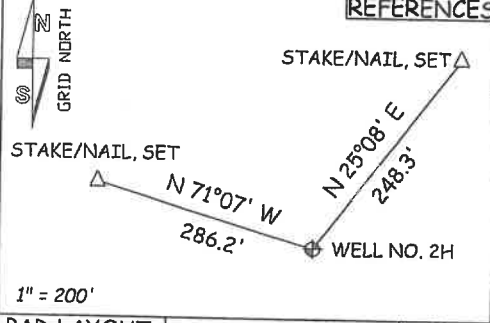
LONGITUDE 80°52'30"

14,193' TO BOTTOM HOLE

### Antero Resources Appalachian Corporation Well No. Allstate Unit 2H

**NOTES:**  
 WELL 2H TOP HOLE INFORMATION:  
 N: 256,307ft E: 1,607,665ft  
 LAT: 39°11'43.49" LON: 80°53'03.60"  
 BOTTOM HOLE INFORMATION:  
 N: 262,023ft E: 1,605,943ft  
 LAT: 39°12'39.72" LON: 80°53'26.60"  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
 WELL 2H TOP HOLE INFORMATION:  
 N: 4,338,478m E: 510,003m  
 BOTTOM HOLE INFORMATION:  
 N: 4,340,211m E: 509,449m



JOB # 12-110WA  
 DRAWING # ALLSTATE2HR1  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
 WILLOW LAND SURVEYING PLLC  
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

**LEGEND**  
 - - - Surface Owner Boundary Lines +/-  
 - - - Interior Surface Tracts +/-  
 X Existing Fence  
 ⊕ Found monument, as noted

DOUGLAS R. ROWE P.S. 2202  
 DATE 11/09/12  
 OPERATOR'S WELL# ALLSTATE UNIT #2H  
 API WELL # 47 - 085 - 10017 HGA  
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS  
 WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL   
 (IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW   
 LOCATION: ELEVATION 1,142' WATERSHED LITTLE WHITE OAK CREEK  
 QUADRANGLE PULLMAN 7.5' DISTRICT UNION COUNTY RITCHIE  
 SURFACE OWNER ANDREW WILLIAMSON ET AL ACREAGE 93.81 ACRES +/-  
 OIL & GAS ROYALTY OWNER GEORGE P. BLACK ET AL; ORLA J. ADAMS ET UX; LEASE ACREAGE 93 ACRES +/-  
 E. MIRACLE ET AL; DENNIS R. FERGUSON ET AL 116 ACRES +/-; 88 ACRES +/-  
 PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL   
 (SPECIFY)  PLUG & ABANDON CLEAN OUT & REPLUG  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,900' TVD 12,800' MD  
 WELL OPERATOR ANTERO RESOURCES APPALACHIAN CORP. DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1625 17TH STREET CT CORPORATION SYSTEM  
 DENVER, CO 80202 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME PERMIT

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6, Section 8(d)  
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
<b><u>George P. Black Heirs et al Lease</u></b>			
George P. Black	Dale Wolfe	1/8	LB 0133/0185
The George P. Black Heirs	Dale Wolfe	1/8	LB 0133/0205
The George P. Black Heirs	Dale Wolfe	1/8	LB 0138/0475
DC Petroleum, Inc. & Chase Petroleum, Inc. acquired rights under the original lease by mesne and sundry conveyances, mergers, and/or assignments from the original lessee, Dale Wolfe			
<b>DC Petroleum, Inc. &amp; Chase Petroleum, Inc.</b>	<b>Antero Resources Appalachian Corp</b>	<b>Assignment</b>	<b>LB 0254/0133</b>
<b>Cara Clifford</b>	<b>Antero Resources Appalachian Corp</b>	<b>1/8</b>	<b>LB 0254/0194</b>
<b>David T. Black</b>	<b>Antero Resources Appalachian Corp</b>	<b>1/8</b>	<b>LB 0254/0208</b>
<b><u>Orla J. Adams et ux Lease</u></b>			
Orla J. Adams	L.W. Prunty	1/8	LB 0090/0493
Orla J. Adams	L.W. Prunty	1/8	LB 0088/0161
Key Oil Company acquired rights under the original lease by mesne and sundry conveyances, mergers, and/or assignments from the original lessee, L.W. Prunty			
<b>Key Oil Company</b>	<b>Antero Resources Appalachian Corp.</b>	<b>*Partial Assignment</b>	<b>LB 0258/0505</b>
<b>of Oil and Gas Leases</b>			
<b><u>E. Miracle et al Lease</u></b>			
Steven J. Stanley, et al	Alton Skinner	1/8	LB 0132/0717
Jean Stanley Stout, a widow	Alton Skinner	1/8	LB 0133/0054
Jean Stanley Robey, et vir	Alton Skinner	1/8	LB 0133/0056
Adele Stanley McDougal, et vir	Alton Skinner	1/8	LB 0133/0058
DC Petroleum, Inc. & Chase Petroleum, Inc. acquired rights under the original lease by mesne and sundry conveyances, mergers, and/or assignments from the original lessee, Alton Skinner			
<b>DC Petroleum, Inc. &amp; Chase Petroleum, Inc.</b>	<b>Antero Resources Appalachian Corp</b>	<b>Assignment</b>	<b>LB 0254/0133</b>

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 ENVIRONMENTAL PROTECTION

(CONTINUED ON NEXT PAGE)

**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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Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<b>Dennis R. Ferguson et al Lease</b>			
Dennis R. Ferguson, et al Oiltex, Inc. acquired rights under the original lease by mesne and sundry conveyances, mergers, and/or assignments from the original lessee, Owen T. Wise	Owen T. Wise	1/8	LB 0169/0428
Oiltex, Inc.	<b>Antero Resources Appalachian Corporation</b>	<b>Assignment</b>	<b>LB 0257/0188</b>

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

**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: Kevin Kilstrom  
 Its: Vice President of Production

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85-10017



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

November 16, 2012

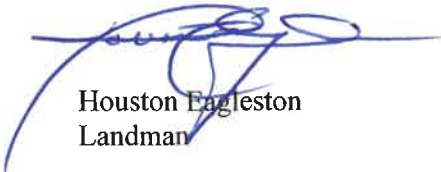
West Virginia Department of Environmental Protection  
Chief, Office of Oil and Gas  
Attn: Mr. James Martin  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

RE: Allstate Unit 2H  
Quadrangle: Pullman 7.5<sup>7</sup>  
Ritchie 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 Allstate Unit 2H 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 Allstate Unit 2H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,



Houston Eagleston  
Landman

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

Date of Notice Certification: 11/16/2012

API No. 47- 085 - 10017  
Operator's Well No. Allstate Unit 2H  
Well Pad Name: Yolanda 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>510003</u>
County:	<u>Ritchie</u>		Northing:	<u>4338478</u>
District:	<u>Union</u>	Public Road Access:	<u>County Route 9 and Possum Run Road</u>	
Quadrangle:	<u>Pullman 7.5'</u>	Generally used farm name:	<u>Williamson, Yolanda &amp; Andrew</u>	
Watershed:	<u>Little White Oak Creek</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.

<p>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:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <small>**Not applicable, Entry for Plat Survey was done prior to implementation of WV Code 22-6A</small></p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input checked="" type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
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**Required Attachments:**

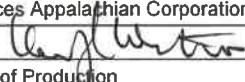
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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.

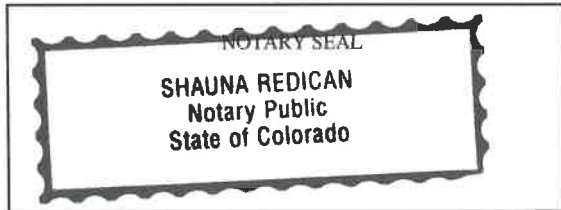
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**Certification of Notice is hereby given:**

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 16<sup>th</sup> day of Nov, 2012.  
Shauna Redican Notary Public  
 My Commission Expires 5/18/15

**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](mailto:depprivacyofficer@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:** 11/19/2012 **Date Permit Application Filed:** 11/19/2012

**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: PLEASE SEE ATTACHMENT  
 Address: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
 Name: Yolanda & Andrew Williamson  
 Address: 731 Four Mile Creek  
Branchland, WV 25506

COAL OPERATOR  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Road and/or Other Disturbance)  
 Name: Nathaniel Hendricks (second address)  
 Address: P.O. Box 100 P.O. Box 738, 103 Main Street  
Cragsmoor, NY 12420 Putney, VT 05346  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

WATER PURVEYOR(s)/OWNER(s) OF WATER WELL, SPRING OR OTHER WATER SUPPLY SOURCE  
 Name: PLEASE SEE ATTACHMENT  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments/Pits)  
 Name: Nathaniel Hendricks (second address)  
 Address: P.O. Box 100 P.O. Box 738, 103 Main Street  
Cragsmoor, NY 12420 Putney, VT 05346

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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://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 57<sup>th</sup> 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.

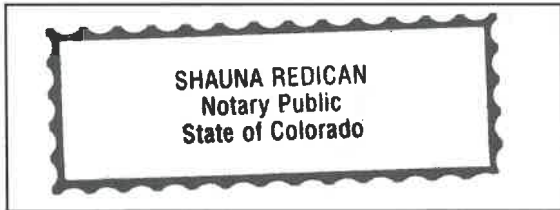
**Notice is hereby given by:**

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](mailto:deprivacyofficer@wv.gov).



Subscribed and sworn before me this 16<sup>th</sup> day of Nov, 2012

Shauna Redican Notary Public

My Commission Expires 5/18/15

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**WW-6A Notice of Application Attachment:****Surface Owners:**

**Owner:** Yolanda & Andrew Williamson  
**Address:** 731 Four Mile Creek  
 Branchland, WV 25506

**Owner:** Sean T. O'Neill  
**Address:** 30640 Rapids Hollow Rd.  
 Gravois Mills, MO 65037

**Owner:** Nancy Louise Antill  
**Address:** 114 Melinda Dr.  
 Wintersville, OH 43953

**Owner:** Timothy R. O'Neill  
**Address:** P. O. Box 5063  
 Fort Myers Beach, FL 33932

**Owner:** Mary Frances Harms  
**Address:** 4368 Steuben Woods Dr.  
 Steubenville, OH 43953

**Owner:** Romarlo, LLC  
**Address:** 757 SE 17<sup>th</sup> Street  
 Fort Lauderdale, FL 33316

**Owner:** Kathleen R. Hooven  
**Address:** 4 Amador  
 Newport Beach, CA 92657

**Owner:** Sharon S. O'Neill  
**Address:** 696 San Ramon Valley Blvd, #510  
 Danville, CA 94526

**Owner:** Karah Leigh Loftin  
**Address:** 226 Surrey Ct.  
 O Fallon, MO 63366

**Owner:** Betty O'Neill Newsom  
**Address:** 30640 Rapids Hollow Rd.  
 Gravois Mills, MO 65037

**Owner:** Kelcie Janeen Loftin  
**Address:** 226 Surrey Ct.  
 O Fallon, MO 63366

**Owner:** Nathaniel Hendricks  
**Address:** P. O. Box 100  
 Cragsmoor, NY 12420

**Owner:** Daniel J. O'Neill  
**Address:** 30640 Rapids Hollow Rd.  
 Gravois Mills, MO 65037

**Owner:** Nathaniel Hendricks  
**Address:** P.O. Box 738  
 103 Main Street  
 Putney, VT 05346

**Water Well Owner(s):****Water Well**

**Owner:** Yolanda & Andrew Williamson  
**Address:** 731 Four Mile Creek  
 Branchland, WV 25506

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

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**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:** 1/24/2012 and 2/21/2012      **Date Permit Application Filed:** 11/19/2012

**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: PLEASE SEE ATTACHMENT      Name: \_\_\_\_\_  
Address: \_\_\_\_\_      Address: \_\_\_\_\_

**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:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>510003</u>
County:	<u>Ritchie</u>		Northing:	<u>4338478</u>
District:	<u>Union</u>	Public Road Access:	<u>County Route 9 and Possum Run Road</u>	
Quadrangle:	<u>Pullman 7.5'</u>	Generally used farm name:	<u>Williamson, Yolanda and Andrew</u>	
Watershed:	<u>Little White Oak Creek</u>			

**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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator:	<u>Antero Resources Appalachian Corporation</u>	Authorized Representative:	<u>Ashlie Mihalcin</u>
Address:	<u>1625 17th Street</u>	Address:	<u>1625 17th Street</u>
	<u>Denver, CO 80202</u>		<u>Denver, CO 80202</u>
Telephone:	<u>303-357-7310</u>	Telephone:	<u>303-357-7310</u>
Email:	<u>amihalcin@anteroresources.com</u>	Email:	<u>amihalcin@anteroresources.com</u>
Facsimile:	<u>303-357-7315</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](mailto:depprivacyofficer@wv.gov).



**05/31/2024**

**WW-6A4 Notice of Intent to Drill Attachment:****Surface Owners:**

**Owner:** Yolanda & Andrew Williamson  
**Address:** 731 Four Mile Creek  
 Branchland, WV 25506

**Owner:** Nancy Louise Antill  
**Address:** 114 Melinda Dr.  
 Wintersville, OH 43953

**Owner:** Mary Frances Harms  
**Address:** 4368 Steuben Woods Dr.  
 Steubenville, OH 43953

**Owner:** Kathleen R. Hooven  
**Address:** 4 Amador  
 Newport Beach, CA 92657

**Owner:** Karah Leigh Loftin  
**Address:** 226 Surrey Ct.  
 O Fallon, MO 63366

**Owner:** Kelcie Janeen Loftin  
**Address:** 226 Surrey Ct.  
 O Fallon, MO 63366

**Owner:** Daniel J. O'Neill  
**Address:** 30640 Rapids Hollow Rd.  
 Gravois Mills, MO 65037

**Owner:** Sean T. O'Neill  
**Address:** 30640 Rapids Hollow Rd.  
 Gravois Mills, MO 65037

**Owner:** Timothy R. O'Neill  
**Address:** P. O. Box 5063  
 Fort Myers Beach, FL 33932

**Owner:** Romarlo, LLC  
**Address:** 757 SE 17<sup>th</sup> Street  
 Fort Lauderdale, FL 33316

**Owner:** Sharon S. O'Neill  
**Address:** 696 San Ramon Valley Blvd, #510  
 Danville, CA 94526

**Owner:** Betty O'Neill Newsom  
**Address:** 30640 Rapids Hollow Rd.  
 Gravois Mills, MO 65037

**Owner:** Sharon S. O'Neill  
**Address:** 1013 McCauley Rd  
 Danville, CA 94526

**Owner:** O'Neill Family Trust, Betty Jane O'Neill.  
 Trustee; Daniel J. O'Neill, Trustee  
**Address:** 696 San Ramon Valley Blvd.  
 Danville, CA 94526

**Owner:** Nathaniel Hendricks  
**Address:** PO Box 100  
 Cragsmoor, NY 12420

**NOTE:** Please see attached a WW-6A4 Waiver for Nathaniel Hendricks

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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:** 11/19/2012      **Date Permit Application Filed:** 11/19/2012

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

- |  |                               |
|--|-------------------------------|
| <input checked="" type="checkbox"/> CERTIFIED MAIL | <input type="checkbox"/> 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>PLEASE SEE ATTACHMENT</u>	Name: _____
Address: _____	Address: _____

**Notice is hereby given:**

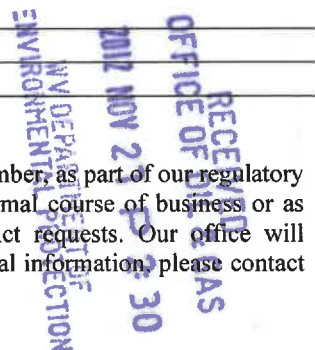
Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>510003</u>
County: <u>Ritchie</u>		Northing: <u>4338478</u>
District: <u>Union</u>	Public Road Access: <u>County Route 9 and Possum Run Road</u>	
Quadrangle: <u>Pullman 7.5'</u>	Generally used farm name: <u>Williamson, Yolanda &amp; Andrew</u>	
Watershed: <u>Little White Oak Creek</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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://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](mailto:depprivacyofficer@wv.gov).

05/31/2024

**WW-6A5 Notice of Planned Operation Attachment:****Surface Owners:**

**Owner:** Yolanda & Andrew Williamson  
**Address:** 731 Four Mile Creek  
 Branchland, WV 25506

**Owner:** Nancy Louise Antill  
**Address:** 114 Melinda Dr.  
 Wintersville, OH 43953

**Owner:** Mary Frances Harms  
**Address:** 4368 Steuben Woods Dr.  
 Steubenville, OH 43953

**Owner:** Kathleen R. Hooven  
**Address:** 4 Amador  
 Newport Beach, CA 92657

**Owner:** Karah Leigh Loftin  
**Address:** 226 Surrey Ct.  
 O Fallon, MO 63366

**Owner:** Kelcie Janeen Loftin  
**Address:** 226 Surrey Ct.  
 O Fallon, MO 63366

**Owner:** Daniel J. O'Neill  
**Address:** 30640 Rapids Hollow Rd.  
 Gravois Mills, MO 65037

**Owner:** Sean T. O'Neill  
**Address:** 30640 Rapids Hollow Rd.  
 Gravois Mills, MO 65037

**Owner:** Timothy R. O'Neill  
**Address:** P. O. Box 5063  
 Fort Myers Beach, FL 33932

**Owner:** Romarlo, LLC  
**Address:** 757 SE 17<sup>th</sup> Street  
 Fort Lauderdale, FL 33316

**Owner:** Sharon S. O'Neill  
**Address:** 696 San Ramon Valley Blvd, #510  
 Danville, CA 94526

**Owner:** Nathaniel Hendricks  
**Address:** P. O. Box 100  
 Cragmoor, NY 12420

**Owner:** Nathaniel Hendricks  
**Address:** P.O. Box 738  
 103 Main Street  
 Putney, VT 05346

**Owner:** Betty O'Neill Newsom  
**Address:** 30640 Rapids Hollow Rd.  
 Gravois Mills, MO 65037

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**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 Appalachia 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

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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.

05/31/2024

**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.

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DEPARTMENT OF  
ENVIRONMENTAL PROTECTION  
MAY 27 2 33 PM '24  
OFFICE OF THE  
SECRETARY



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 Borja  
Witness

By: Marilyn A. Murphy  
State Highway Engineer

AMERICAN RESOURCES APPALACHIAN CORPORATION

Rachel Bouchard  
Witness

By: A. Schupp  
Title: VP ACCOUNTING AND ADMINISTRATION

(To be executed in duplicate)

APPROVED AS TO FORM THIS  
8<sup>th</sup> DAY OF Mar., 2012

[Signature]  
ATTORNEY LEGAL DIVISION  
WEST VIRGINIA DEPARTMENT  
OF HIGHWAYS

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***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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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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**List of Anticipated Additives Used for Fracturing or  
Stimulating Well**

<b>Additives</b>	<b>Chemical Abstract Service Number (CAS #)</b>
Fresh Water	7732-18-5
2 Phosphobutane 1,2,4 tricarboxylic acid	37971-36-1
Ammonium Persulfate	7727-54-0
Anionic copolymer	proprietary
Anionic polymer	proprietary
BTEX Free Hydrotreated Heavy Naphtha	64742-48-9
Cellulase enzyme	(Proprietary)
Demulsifier Base	(Proprietary)
Ethoxylated alcohol blend	Mixture
Ethoxylated Nonylphenol	68412-54-4
Ethoxylated oleylamine	26635-93-8
Ethylene Glycol	107-21-1
Glycol Ethers	111-76-2
guar gum	9000-30-0
Hydrogen Chloride	7647-01-0
Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8
Isopropyl alcohol	67-63-0
liquid, 2,2-dibromo-3-nitrilopropionamide	10222-01-2
Microparticle	proprietary
Petroleum Distillates (BTEX Below Detect)	64742-47-8
Polyacrylamide	57-55-6
Propargyl Alcohol	107-19-7
Propylene Glycol	57-55-6
Quartz	14808-60-7
Silica, crystalline quartz	7631-86-9
Sodium Chloride	7647-14-5
Sodium Hydroxide	1310-73-2
Sugar	57-50-1
Surfactant	68439-51-0
Suspending agent (solid)	14808-60-7
Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7

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 ENVIRONMENTAL PROTECTION

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Project Site	Yolanda Pad Site As-Built	County	Ritchie	State	W.V.
District	Union	County	Ritchie	State	W.V.

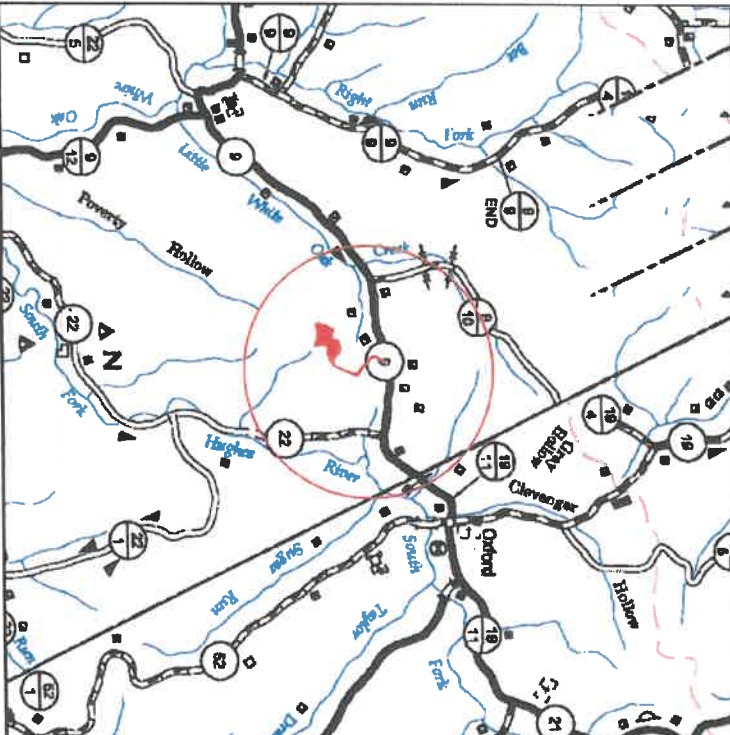
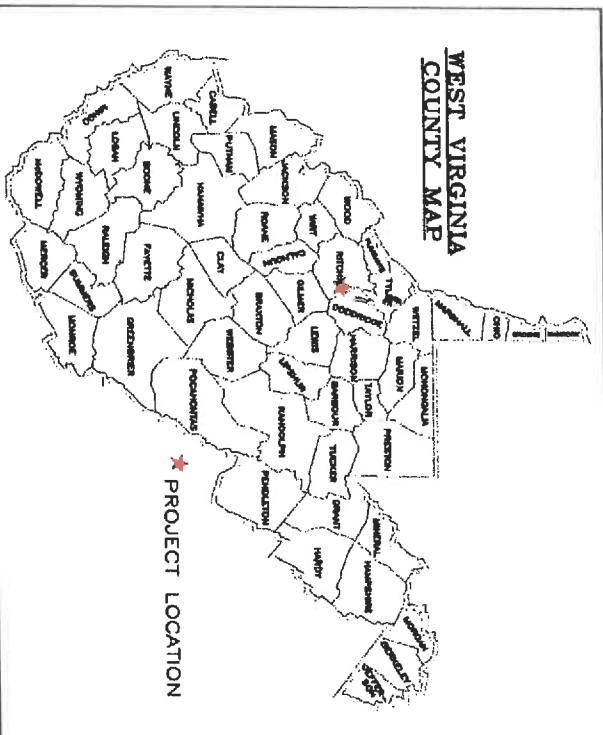
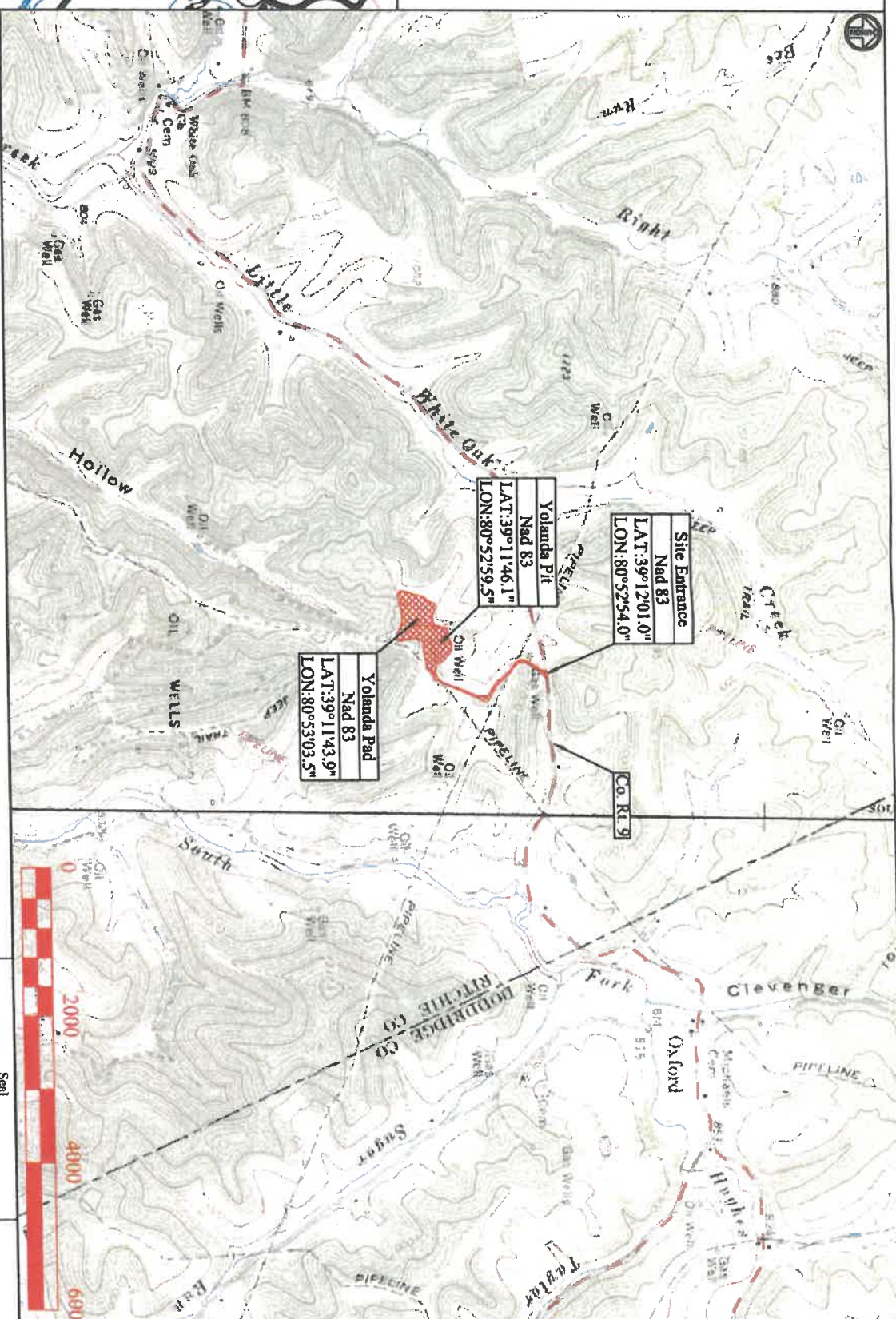
WV State Historic Preservation Office Approval Date: 10/27/11  
 This Pad is not in a flood zone as scaled from  
 FIRM Insurance Rate Map  
 Community Panel No.: 5408SC 0225C

Gas Wells	
O'Neil Unit 1H	◆
O'Neil Unit 2H	◆
Nicholson Unit 2H	◆
Nicholson Unit 1H	◆

05/31/2024

Sheet	Description
2-3	Cover Specifications
4-5	Erosion and Sediment Control
6-7	Plan View
8-9	E & S Plan View
10-11	Pad Cross Sections & Profile
12-14	Pit Cross Sections & Profile
15-16	Access Road Cross Sections
17-18	Access Road Profile
19-20	Disturbed Area
21	Volume Report

Date:	Note:
Mar. 7, 2012	Design
Aug. 10, 2012	As-Built



Location Map  
 Scale: 1" = 1 Mile  
 USGS 7.5' Quadrangle: Pullman  
 Watershed: South Fork Hughes River

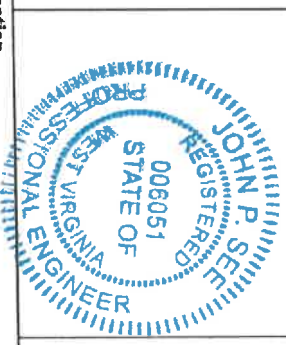
**MISS UTILITY OF WEST VIRGINIA**  
 1-800-245-4848  
 West Virginia State Law  
 (Section XIV: Chapter 24-C requires that you call two business days before you dig in the state of West Virginia.)  
**IT'S THE LAW**

**Kelly S. Surveying**  
 P.O. Box 244  
 Sully, WV 26225  
 (304) 338-0885

District: Union  
 County: Ritchie  
 State: West Virginia

# Yolanda Pad Site As-Built Construction Plan and Erosion and Sediment Control Plan

Ritchie County  
 Union District  
 Latitude 39°11'43.9"  
 Longitude 80°53'03.5"



**As-Built Certification**

This as-built certification certifies that the 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: 05/31/24

**Antero Resources Contact Information**

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

Dusty Woods  
 Mobile: (817) 771-1436

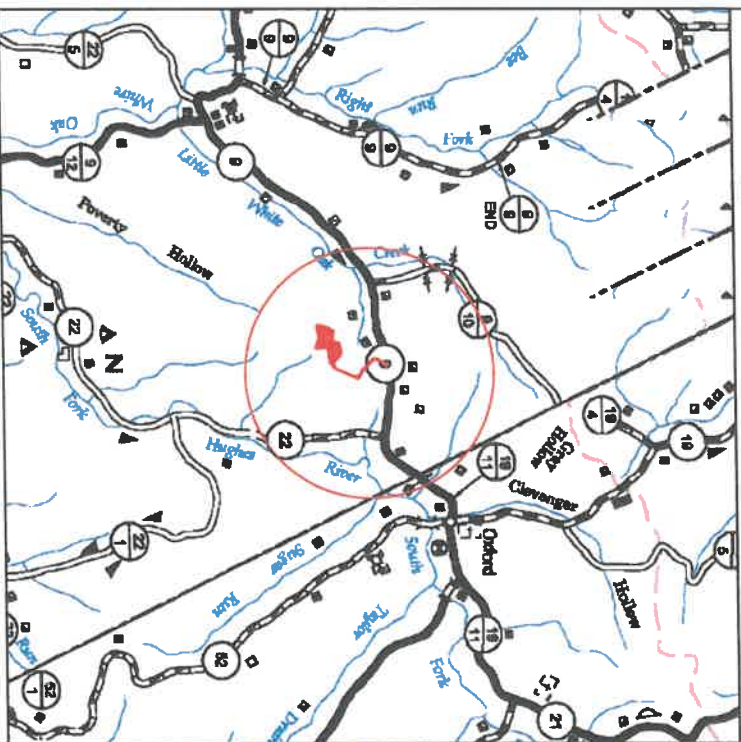
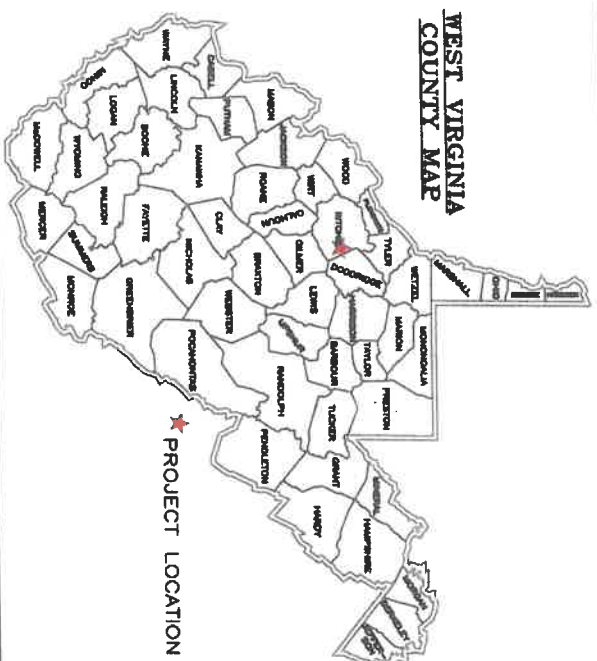
Eli Wagoner  
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Tom Winice  
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 Email: twinice@anteroresources.com



*David W. Green 12-5-12*





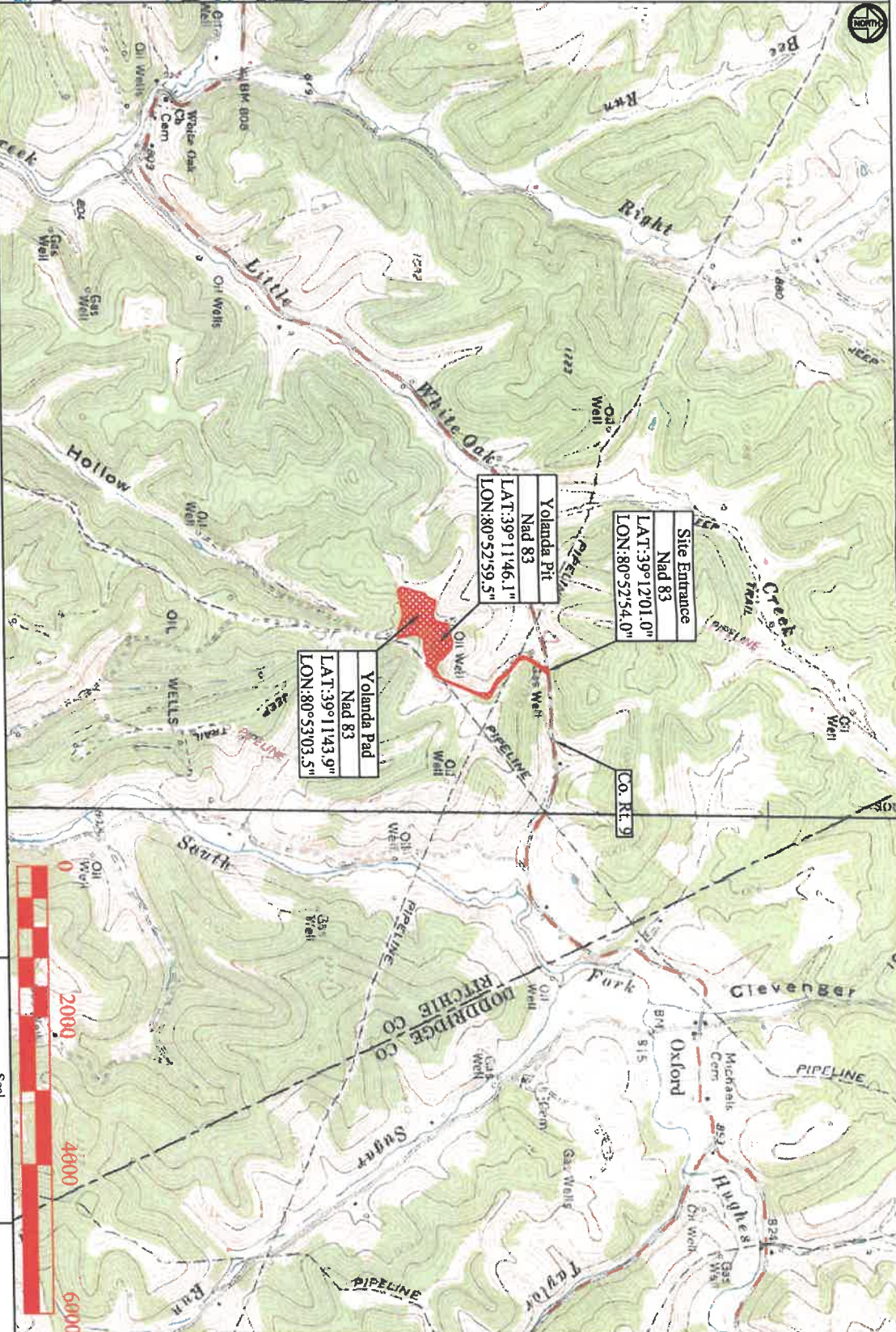
Location Map  
 Scale: 1" = 1 Mile  
 USGS 7.5' Quadrangle: Pullman  
 Watershed: South Fork Hughes River



**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**



District: Union  
 County: Ritchie  
 State: West Virginia



# Yolanda Pad Site As-Built Construction Plan and Erosion and Sediment Control Plan

Ritchie County  
 Union District

Latitude 39°11'43.9"  
 Longitude 80°53'03.5"

Project Site	Sheet 1 of 20
Yolanda Pad Site As-Built	State
County	Ritchie
District	Union
State	W.V.

WV Lands Inquiry Approval Date: 10/13/11  
 WV State Historic Preservation Office Approval Date: 10/27/11  
 This Pad is not in a flood zone as scaled from  
 FIRM Insurance Rate Map  
 Community Panel No.: 54085C 0225C

Gas Wells	Description
McCabe Unit 3H	◆
McCabe Unit 2H	◆
O'Neil Unit 1H	◆
O'Neil Unit 2H	◆
Nicholson Unit 2H	◆
Nicholson Unit 1H	◆
Allstate Unit 1H	◆
Allstate Unit 2H	◆

05/31/2024

Sheet	Description
1	Cover
2-3	Specifications
4-5	Erosion and Sediment Control
6-7	Plan View
8-9	E & S Plan View
10-11	Pad Cross Sections & Profile
12-14	Pit Cross Sections & Profile
15-16	Access Road Cross Sections
17-18	Access Road Profile
19-20	Disturbed Area

Date:	Note:
Aug. 10, 2012	As-Built
Oct. 24, 2012	As-Built (Well Update)

**Antero Resources Contact Information**

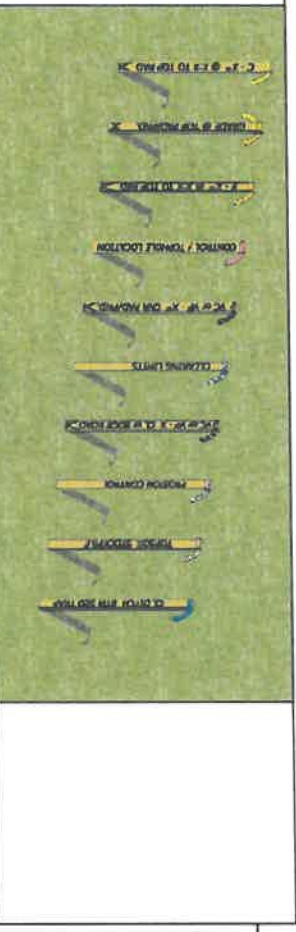
John Kawcak      Dusty Woods      Eli Wagoner      Tom Wince  
 Mobile: (817) 368-1553      Mobile: (817) 771-1436      Work: (304) 622-3842      Work: (304) 869-3405  
 Email: jkawcak@anteroresources.com      Email: ewagoner@anteroresources.com      Mobile: (304) 476-9770      Mobile: (304) 483-0933  
 Email: ekawcak@anteroresources.com      Email: twince@anteroresources.com



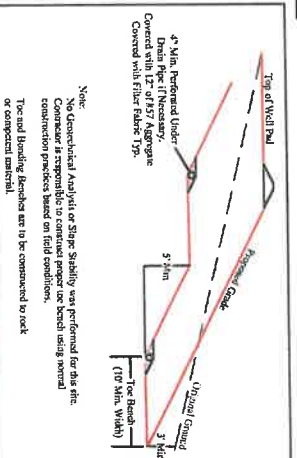
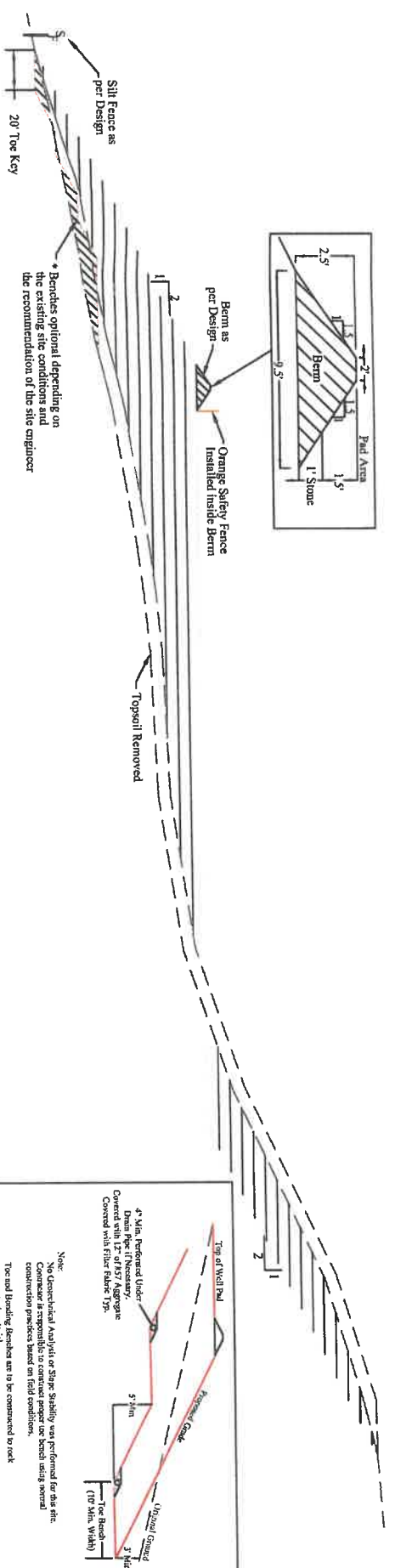


- The Construction Drawings present the proposed lines, grades, and appearances to accomplish the intent of the Scope of Work.
- The Construction Drawings show the construction lines, grades, depths and dimensions on which estimated quantities are based. The construction lines, grades, depths and dimensions 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.
- 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.
- 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 drilling pad construction and who shall receive information from the Engineer.
- Clearing shall be completed in accordance with Section 201 of the WVDOT 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.
- Grubbing shall be completed in accordance with Section 201 of the WVDOT 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.
- 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 fill 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.
- DO NOT deposit or bury on the site debris resulting from the clearing and grubbing without written permission from the Engineer or project manager.
- All earthwork shall be in accordance with WVDOT Standard Specifications, Section 207, unless otherwise specified or altered by the additional specifications herein.
- 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.
- Stable soil materials are as those complying with WVDOT Standard Specifications, Section 207.
- 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.
- 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 lumps 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:
  - 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.
- 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 used as necessary.

- Stockpile excavated materials classified as satisfactory soil material where directed, shape the stockpiles for proper drainage.
- 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.
- 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 fill material placed shall be compacted to 95% of the maximum proctor density of the fill material's optimum moisture content. Contractor will guarantee 95% compaction.
- 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 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 deficit, 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:
  - After the subgrade has been completed the subgrade shall then be proof rolled. The coverage areas and methods will be identified by the Engineer.
  - the equipment shall be operated at a speed that the Engineer can comfortably and slowly walk along side the equipment
  - 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.
- Photographic Documentation is required during all phases of construction. Photo documentation shall include:
  - The site after clearing and grubbing operations are completed
  - Daily photos of fill and cut operations
- 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.
- 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.



	Yellow Ribbon: Used to indicate boundary of Cut (C) Cut to be determined at time of subgrade. Slope determined by site design.		Blue & White Stripe Ribbon: Used to indicate clearing line/contour/transition lines.
	Orange Ribbon: Used to indicate slope of embankment. Slope determined by site design.		Orange & Black Stripe Ribbon: Used to indicate Vertical Curve (VC) at centerline or edge of access road.
	Pink Ribbon: Used to indicate Top High Location.		Pink & White Stripe Ribbon: Used to indicate Existing and Proposed Canal Structures.
	Black Ribbon: Used to indicate Vertical Curve (VC) at edge of access road.		Orange & White Stripe Ribbon: Used to indicate Topsoil Stockpile Location.
	Blue Ribbon: Used to indicate Vertical Curve (VC) at edge of access road.		Dark Blue Ribbon: Used to indicate Centerline (CL) Ditch.

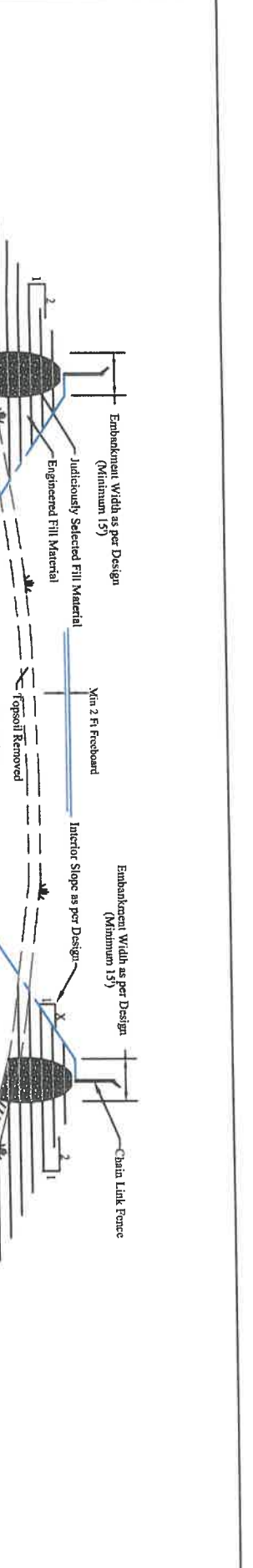


# Specifications



1. The Construction Drawings present the proposed lines, grades, and appearances 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 WVDOT 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 WVDOT 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, stabs, 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 fill 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 intermingling 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 WVDOT 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 WVDOT 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 Survey Control (C) Cut or to be determined at time of subgrade. Slope determined by site design.		Blue & White Stripes Ribbon: Blue & White Stripes Ribbon used to indicate clearing line/contour/median lines.
	Yellow and Orange Ribbon: Yellow and Orange Ribbon used to indicate Crown at Top of Pavement/Gravel.		Orange & Black Stripes Ribbon: Orange & Black Stripes Ribbon used to indicate edge of access road.
	Orange Ribbon: Orange Ribbon used to indicate uses of Fills (F) Fill to be determined at time of subgrade. Slope determined by site design.		Pink & White Stripes Ribbon: Pink & White Stripes Ribbon used to indicate Existing and Selected Canal Structures. Still traces (6") minimum. Filter Stock (6").
	Pink Ribbon: Pink Ribbon used to indicate Top Hook Location.		Orange & White Stripes Ribbon: Orange & White Stripes Ribbon used to indicate Topsoil Stockpile Locations.
	Pink & Black Stripes Ribbon used to indicate Vertical Cut (VC) in Pavement/Gravel center or edge. Vertical Cut Vertical Fill to be determined at time of subgrade.		Blue Ribbon: Blue Ribbon used to indicate Centerline (CL) Ditch. Blue Ribbon used to indicate Bottom (BT) Settlement Traps.



17. Stockpile excavated materials classified as satisfactory soil material where directed, shape the stockpiles for proper drainage.
18. 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.
19. 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. Contractor will guarantee 95% compaction.
20. 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 performed as specified, observation of the engineer as described herein. Immediately following the completion of excavation to proposed subgrades in cuts, 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 top 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.
21. 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
22. 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.
23. 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.
24. This design to be used in conjunction with the acknowledgement of all regulatory agencies and obtained pertinent permits per current regulations. Those plans do not indicate that all pertinent permits have been obtained.

# Specifications



District: Union  
County: Ritchie  
State: West Virginia



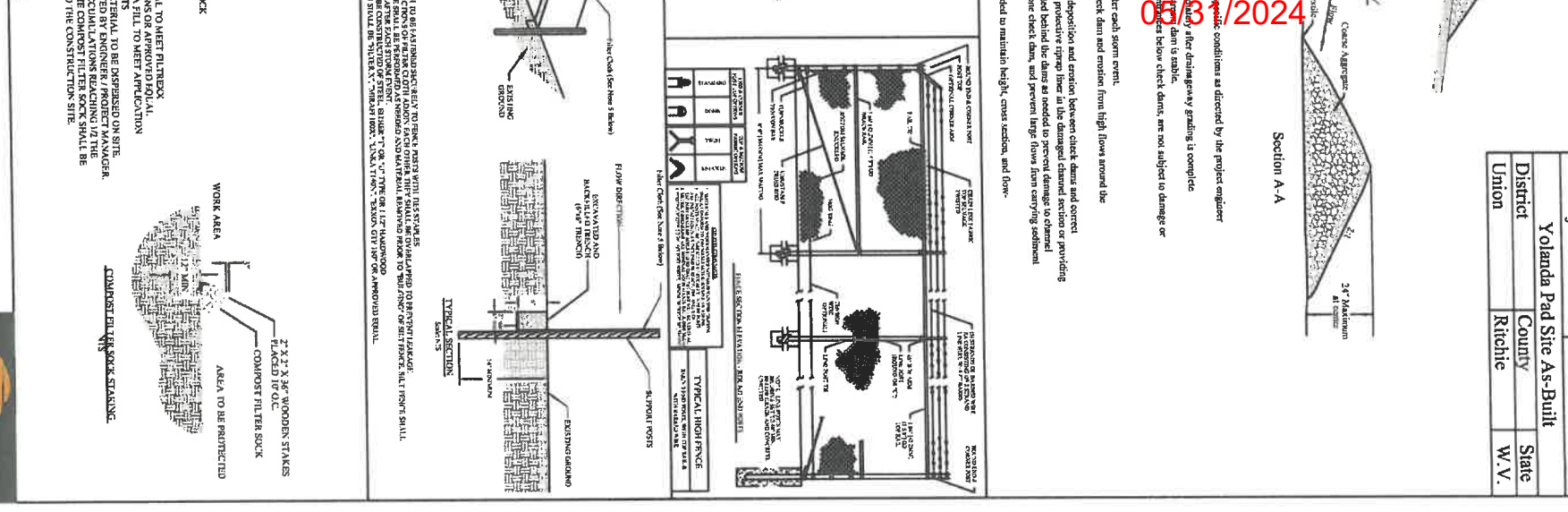
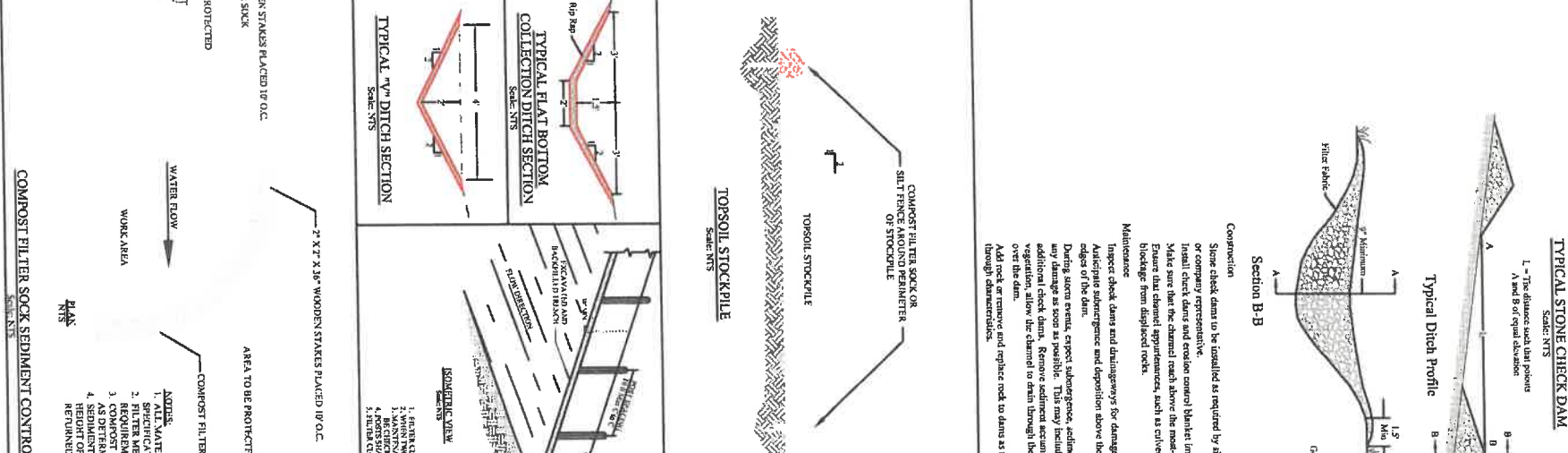
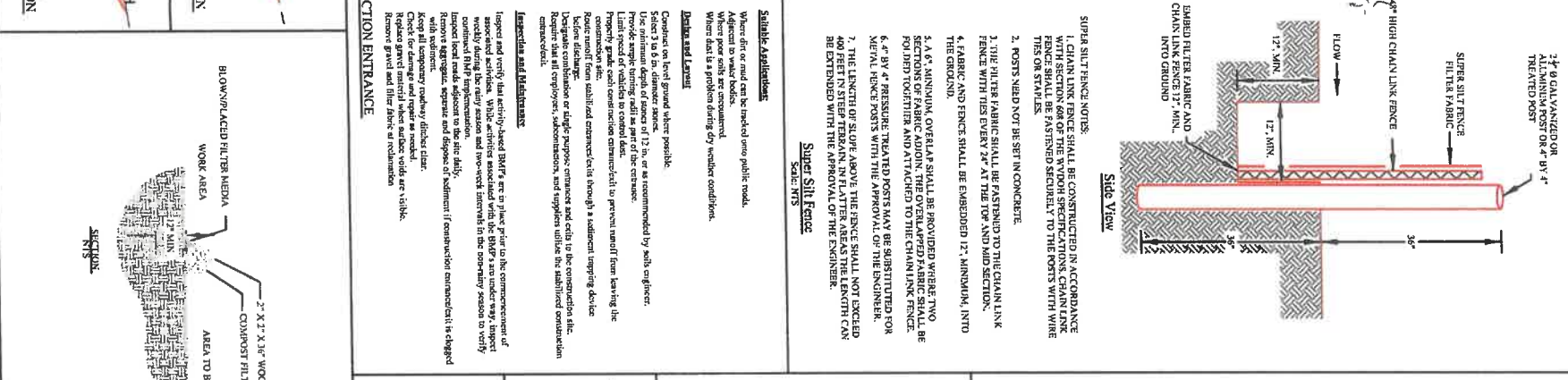
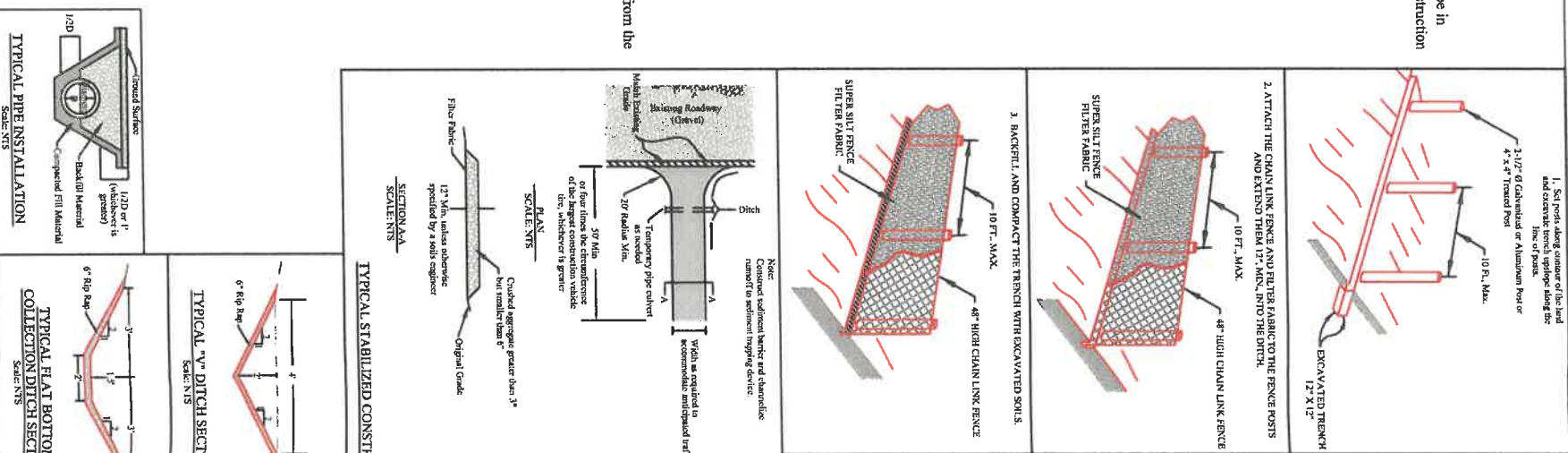


**STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES:**

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 stabilization shall be performed immediately upon discovery of deficiency.
4. Erosion and sediment BMPs must be constructed, stabilized, and functional before site disturbance begins within the tributary areas of those BMPs.
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 final 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				
Plant Name	Temporary Seed Chart		Permanent Seed Chart	
	Application Rate (lbs/acre)	Limiting Rate (T/acre)	Mulching Rate (T/acre)	Mulch Type
Annual Ryegrass	40	2	2.5	Straw Mulch
Plant Name				
Fox Tail / Grassy	40			
Perennial Rye	30	3	2.5	Straw Mulch
Crown Vetch	20			

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



Project Site	Sheet 4 of 20
Yolanda Pad Site A-B-Unit	
District	Union
County	Ritchie
State	W. V.

03/20/2024

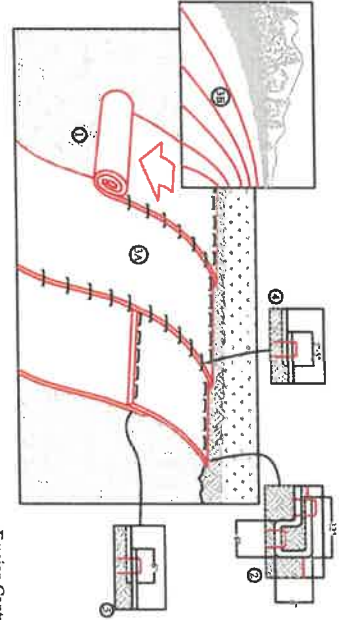


District: Union  
County: Ritchie  
State: West Virginia

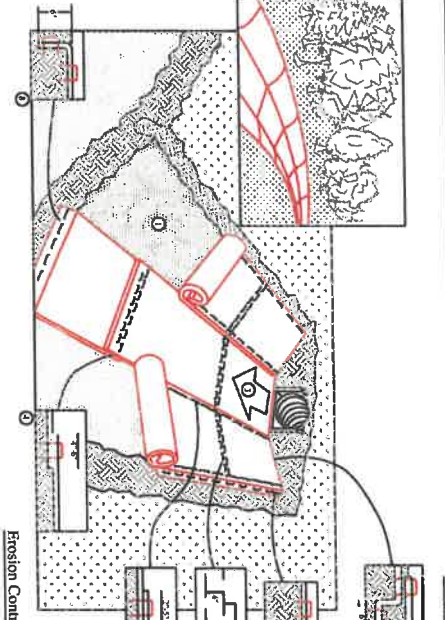
**Erosion and Sediment Control**



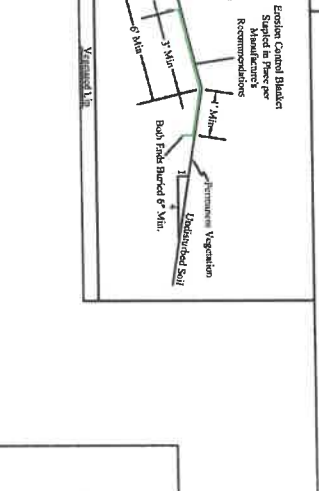
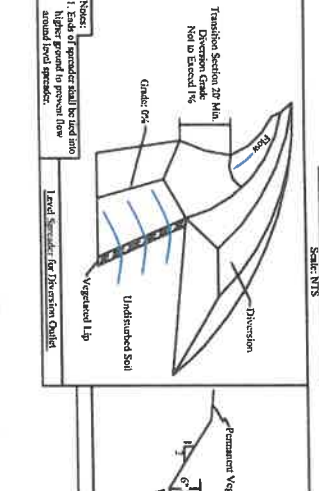
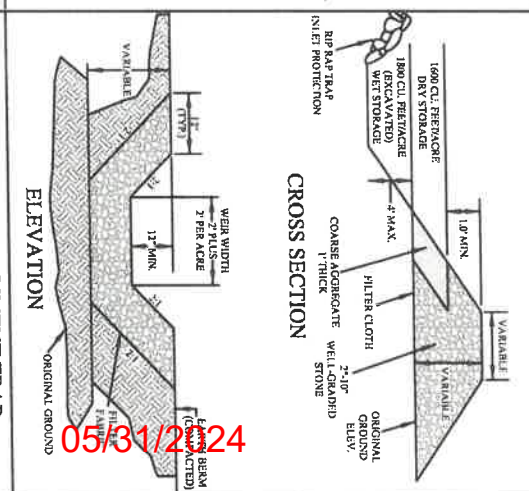
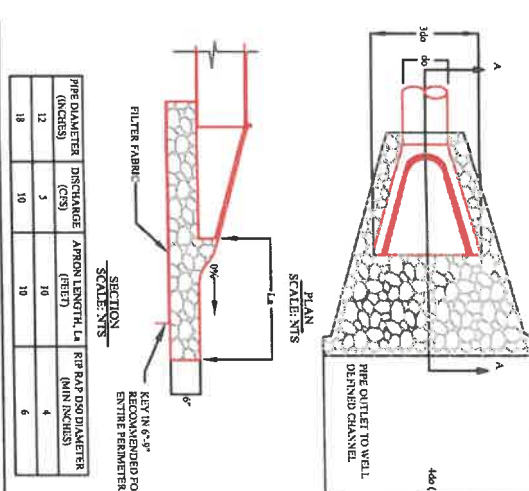
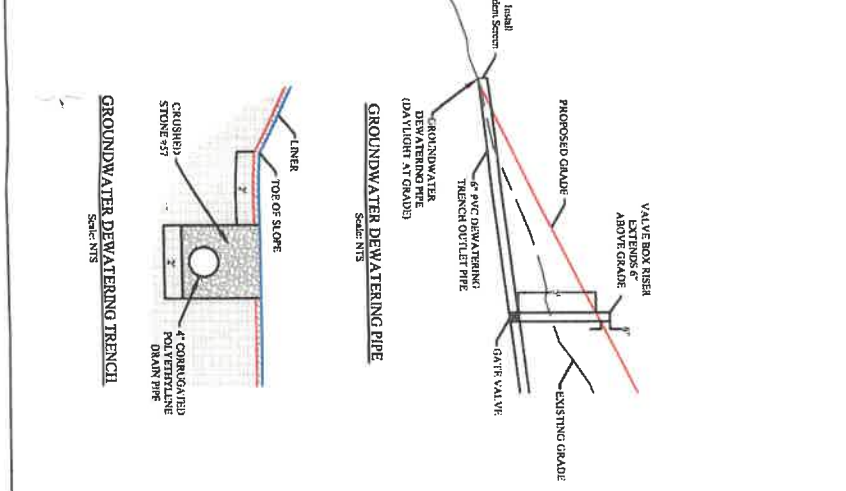
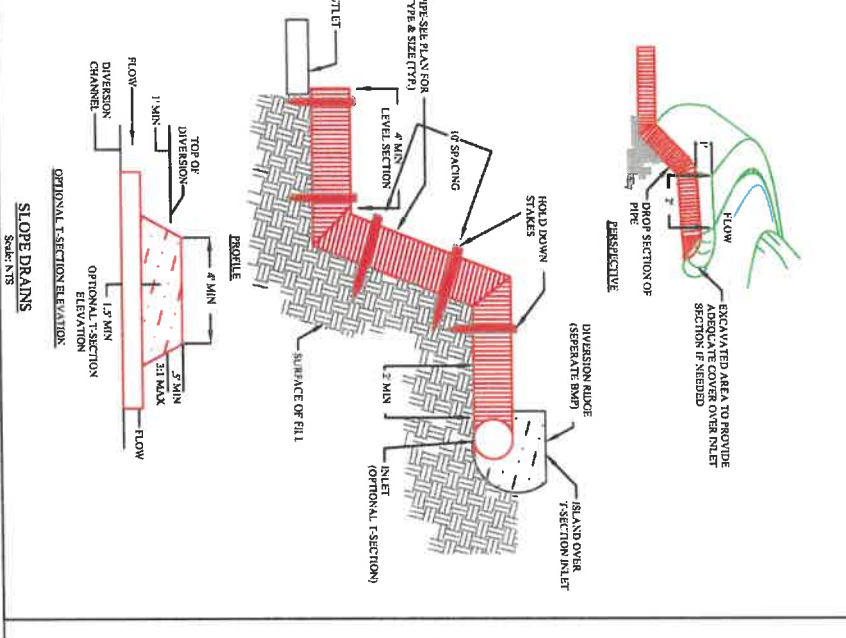
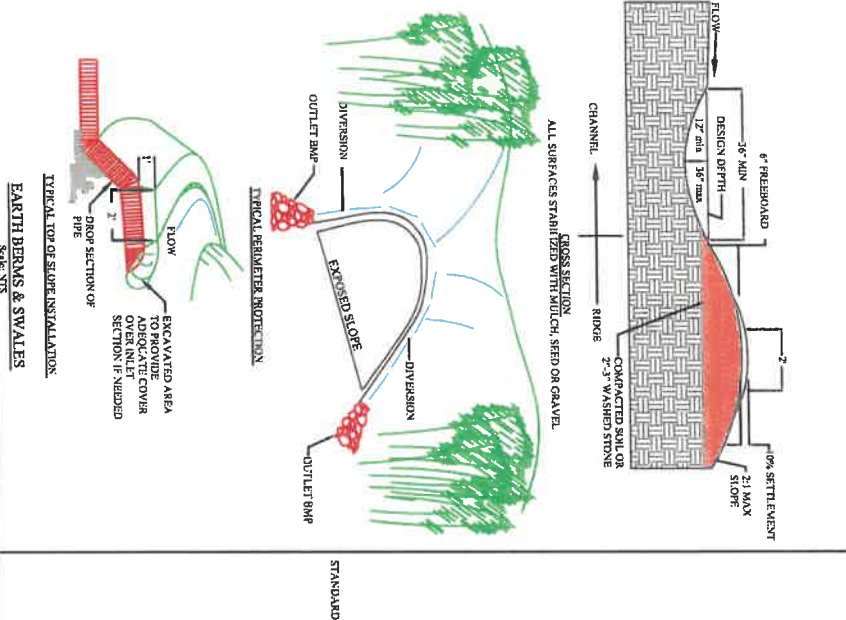




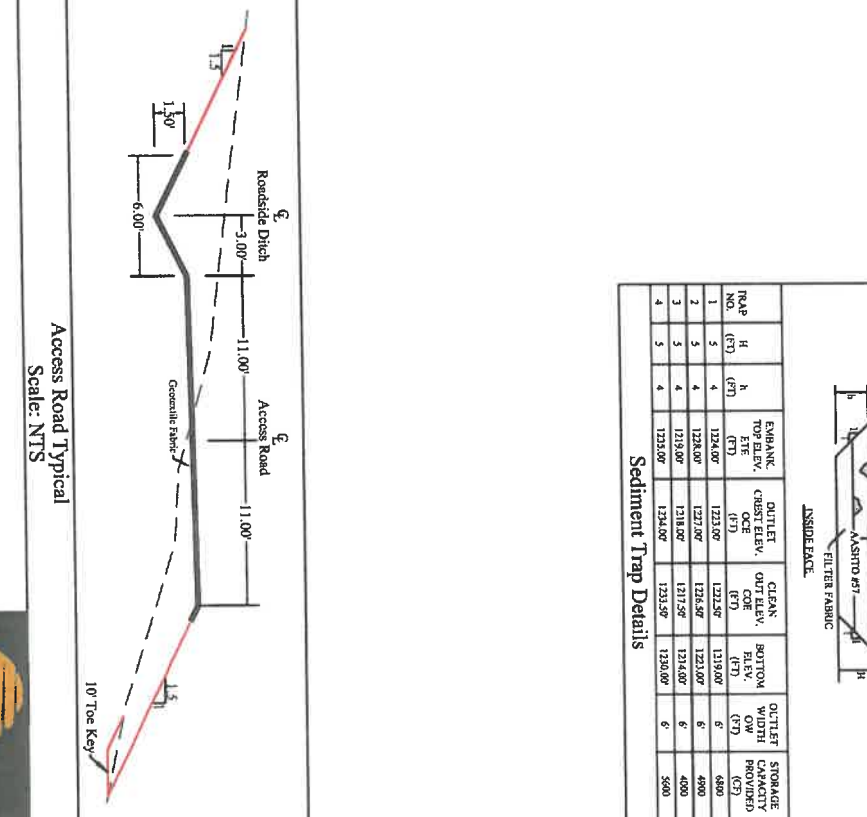
- NOTES:**
1. Prepare soil before installing erodent control product (RECTPA) including any necessary application of lime, fertilizer, and/or seed. DO NOT seed prepared area. Cell-O-Seal must be installed with upper side down.
  2. Begin at the top of the slope by anchoring the RECTPA in a 6" Deep X 6" Wide Trench. Anchor the RECTPA with a row of rebar/cables approximately 12" apart in the bottom of the trench. Backfill and compact the trench after staking. Secure RECTPA compacted soil with a row of staples/cables spaced approximately 12" apart across the width of the blanket.
  3. Roll the RECTPA (A) down or (B) horizontally across the slope. RECTPA will stretch and approximate side equal the soil surface. All RECTPA must be securely anchored. When using the DIRT system, staples/cables should be placed through each of the colored dots corresponding to the appropriate staple pattern.
  4. The edge of pre-roll RECTPA must be applied with approximately 7'-5" overlap depending on RECTPA type.
  5. Connections RECTPA applied down the slope must be placed end over end (single roll) with an approximate 6" overlap. Staple through overlapped area, approximately 12" apart across entire RECTPA width.
- NOTE:**  
 \*In loose soil conditions, the size of staple or stake length greater than 6" may be necessary to properly secure the RECTPA.



- CRITICAL POINTS:**
- A. OVERLAPS AND SEAMS
  - B. CHANNEL BOTTOMSIDE
  - C. CHANNEL TOPSIDE
  - D. SLOPE VERTICES
1. Prepare soil before installing erodent control product (RECTPA) including any necessary application of lime, fertilizer, and/or seed. DO NOT seed prepared area. Cell-O-Seal must be installed with lower side down.
  2. Begin at the top of the channel by anchoring the blanket in a 6" Deep x 6" Wide trench with approximately 12" of blanket extended beyond the up-slope portion of the trench. Anchor the blanket with two rows of rebar/cables approximately 12" apart in the bottom of the trench. Backfill and compact the trench after staking. Apply seed to compacted soil and add remaining 12" portion of blanket back over seed and compact soil. Secure blanket over compacted soil with a row of staples/cables spaced approximately 12" apart across the width of the blanket.
  3. Roll blanket in direction of water flow in bottom of channel. Blanket will stretch and approximate side equal the soil surface. All blankets must be securely anchored to soil surface by placing staples through each of the colored dots corresponding to the appropriate staple pattern.
  4. Place consecutive blankets end over end (single roll) with a 6"-8" 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 slope must be anchored with one of rebar/cables approximately 12" apart in a 6" Deep x 6" Wide trench. Backfill and compact the trench after staking.
  6. Adjacent blankets must be overlapped approximately 7'-5" (depending on blanket type) and stapled to ensure proper water alignment. Place the edge of the overlapping blanket (blanket being installed on top) over the bottom row which is on the blanket being overlapped.
  7. In high flow areas, apply a single row of staples in a 6"-8" trench. Use a double row of staples staggered 4" apart and 4" on center over entire width of the channel.
  8. The upstream end of the blankets must be anchored with one of rebar/cables approximately 12" apart in a 6" Deep x 6" Wide trench. Backfill and compact the trench after staking.
- NOTE:** Horizontal staple spacing should be allowed if necessary to allow staples to secure the critical points along the channel surface.
- NOTE:** In loose soil conditions, the use of staple or stake length greater than 6" may be necessary to properly anchor the blanket.



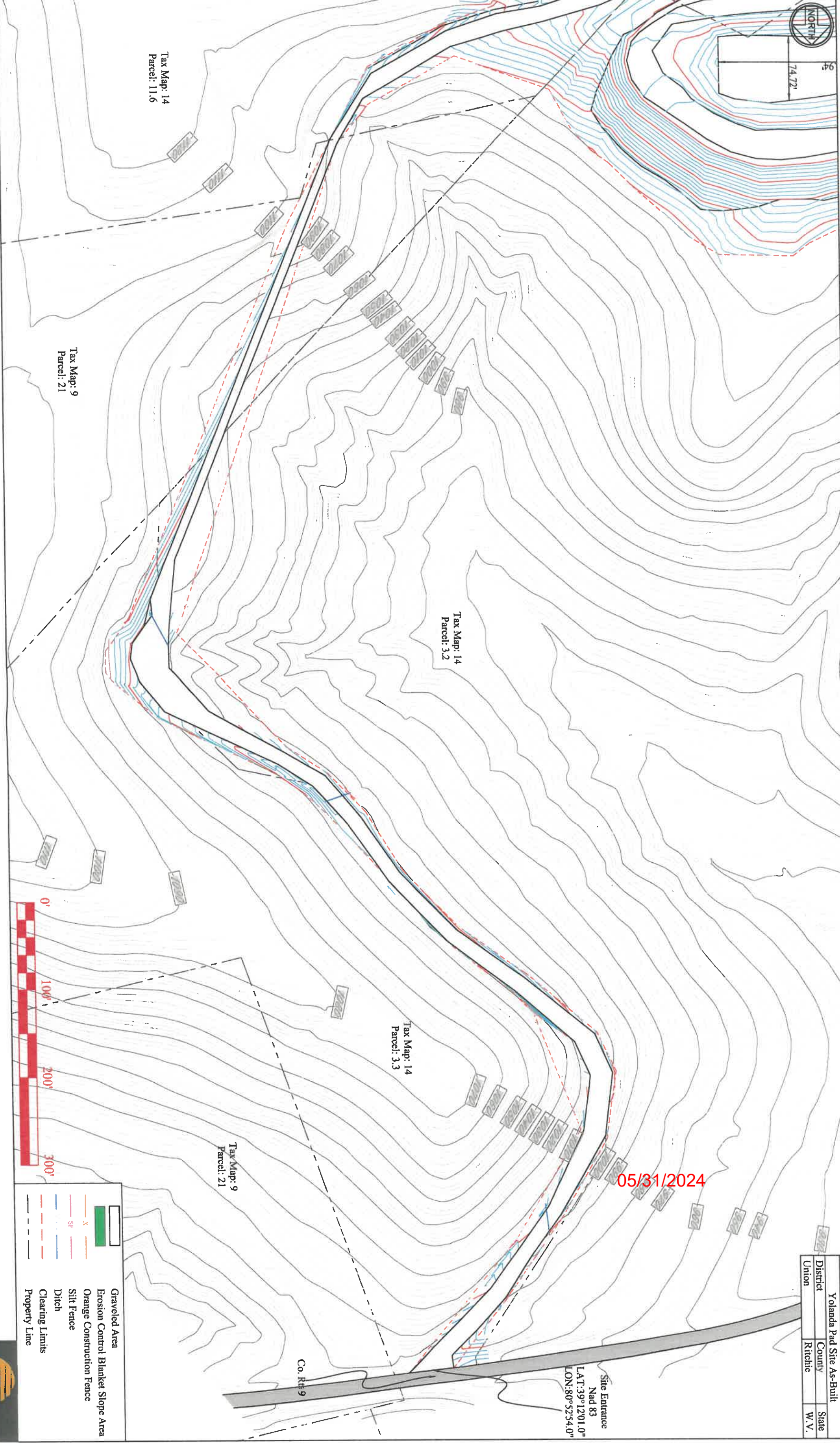
TRAP NO.	H (FT)	h (FT)	EMBANK TOP ELEV. (FT)	OUTLET CHEST ELEV. (FT)	OUT ELEV. (FT)	SOFTEN ELEV. (FT)	OUTLET WIDTH (FT)	STORAGE CAPACITY (CU YD)
1	3	4	1234.00	1233.00	1232.50	1233.00	6	4000
2	3	4	1234.00	1233.00	1232.50	1233.00	6	4000
3	3	4	1234.00	1233.00	1232.50	1233.00	6	4000
4	3	4	1234.00	1233.00	1232.50	1233.00	6	4000
5	3	4	1234.00	1233.00	1232.50	1233.00	6	4000







94°  
74.72'



Project Site	Sheet 6 of 20	
Yolanda Pad Site As-Built		
District	County	State
Union	Ritchie	W. V.

05/31/2024

Site Entrance  
Nad 83  
LAT: 39°12'01.0\"  
LON: 80°52'54.0\"

Co. Rd 9

Tax Map: 14  
Parcel: 11.6

Tax Map: 9  
Parcel: 21

Tax Map: 14  
Parcel: 3.2

Tax Map: 14  
Parcel: 3.3

Tax Map: 9  
Parcel: 21



- Graveled Area
- Erosion Control Blanket Slope Area
- Orange Construction Fence
- Silt Fence
- Ditch
- Clearing Limits
- Property Line



District: Union  
County: Ritchie  
State: West Virginia

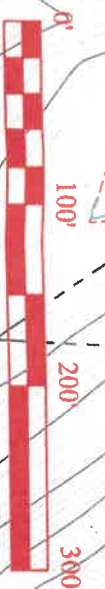
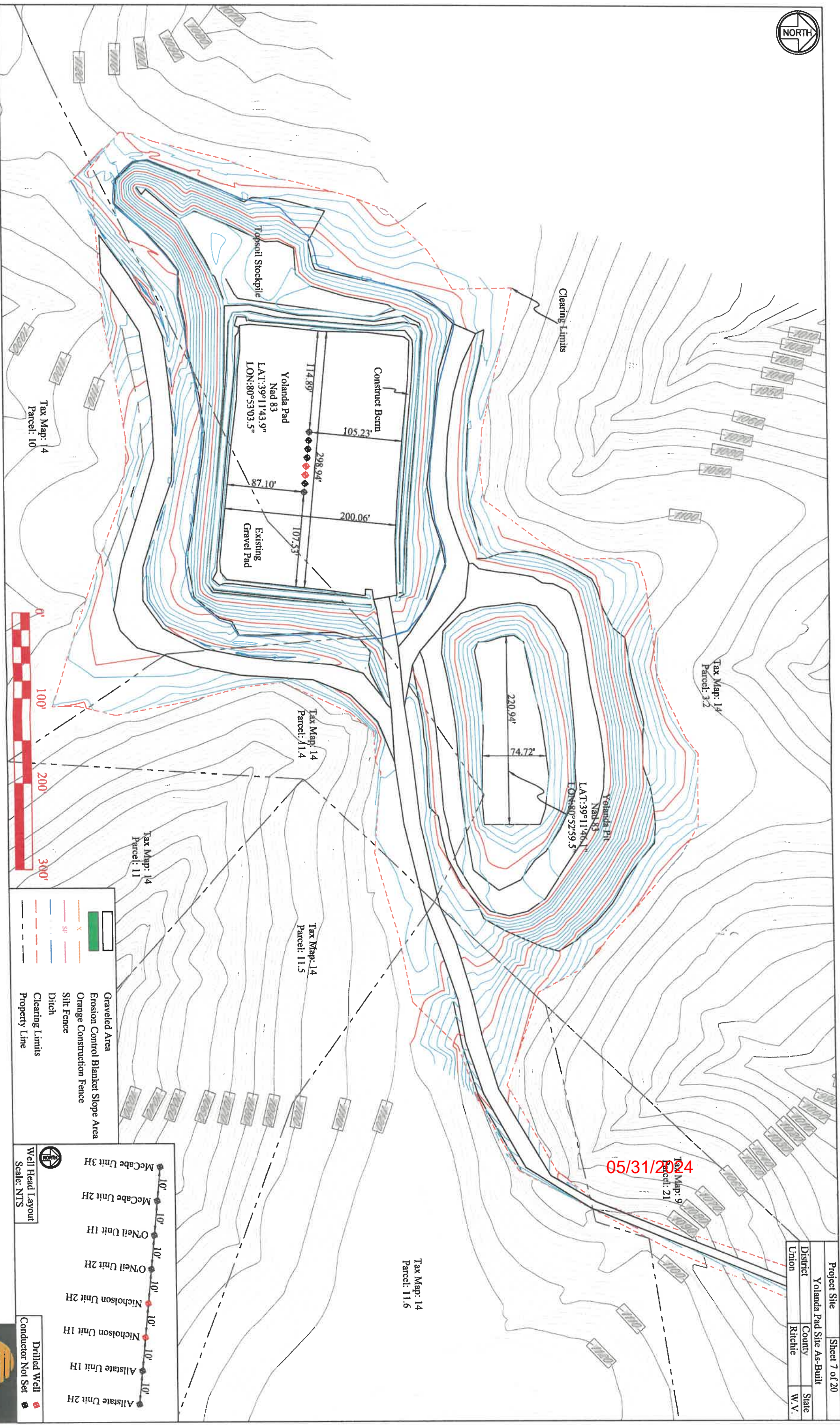
# Yolanda Pad Site As-Built Plan View



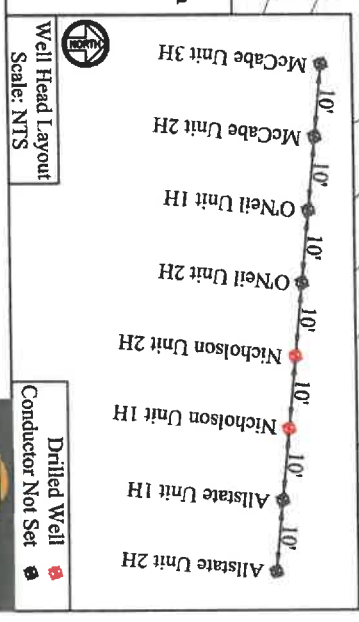




Project Site	Sheet 7 of 20
Yolanda Pad Site As-Built	
District	County
Union	Ritchie
	State
	W.V.



- Graveled Area
- Erosion Control Blanket Slope Area
- Orange Construction Fence
- Silt Fence
- Ditch
- Clearing Limits
- Property Line



**Kelly S Surveying**  
 P.O. Box 254  
 1201 West Virginia  
 26033-0254

District: Union  
 County: Ritchie  
 State: West Virginia

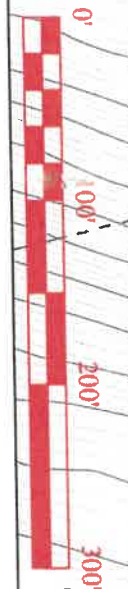
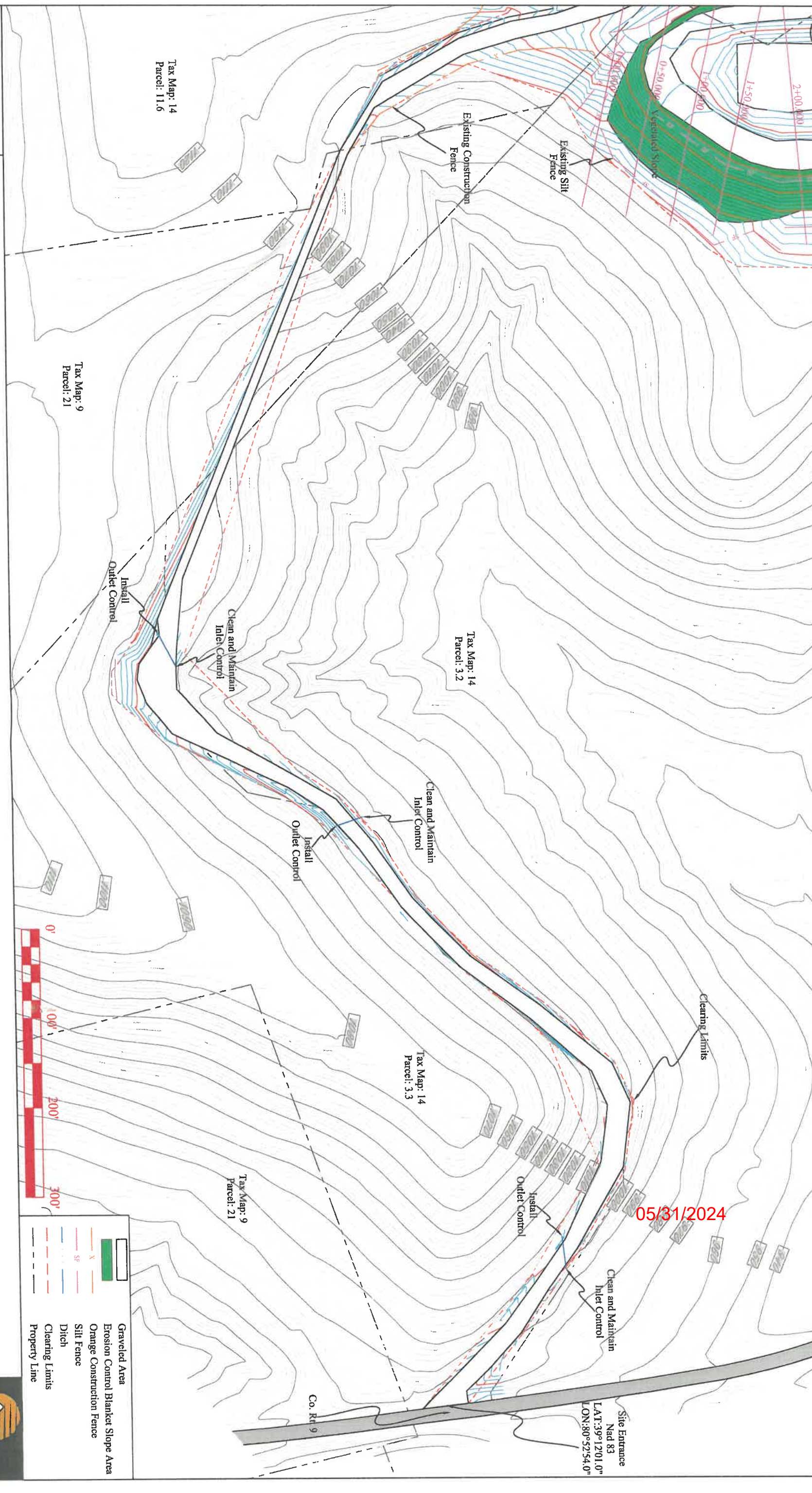
# Yolanda Pad Site As-Built Plan View







2+50.000  
2+00.000  
1+50.000  
0+50.000  
Vertical Slope



	Graveled Area
	Erosion Control Blanket Slope Area
	Orange Construction Fence
	Silt Fence
	Ditch
	Clearing Limits
	Property Line

Project Site	Sheet 8 of 20	
Yolanda Pad Site As-Built		
District	County	State
Union	Ritchie	W.V.

Site Entrance  
Nad 83  
LAT:39°12'01.0"  
LON:80°52'54.0"



District: Union  
County: Ritchie  
State: West Virginia

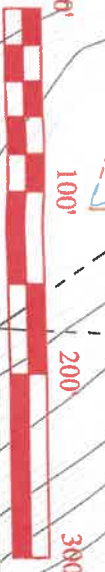
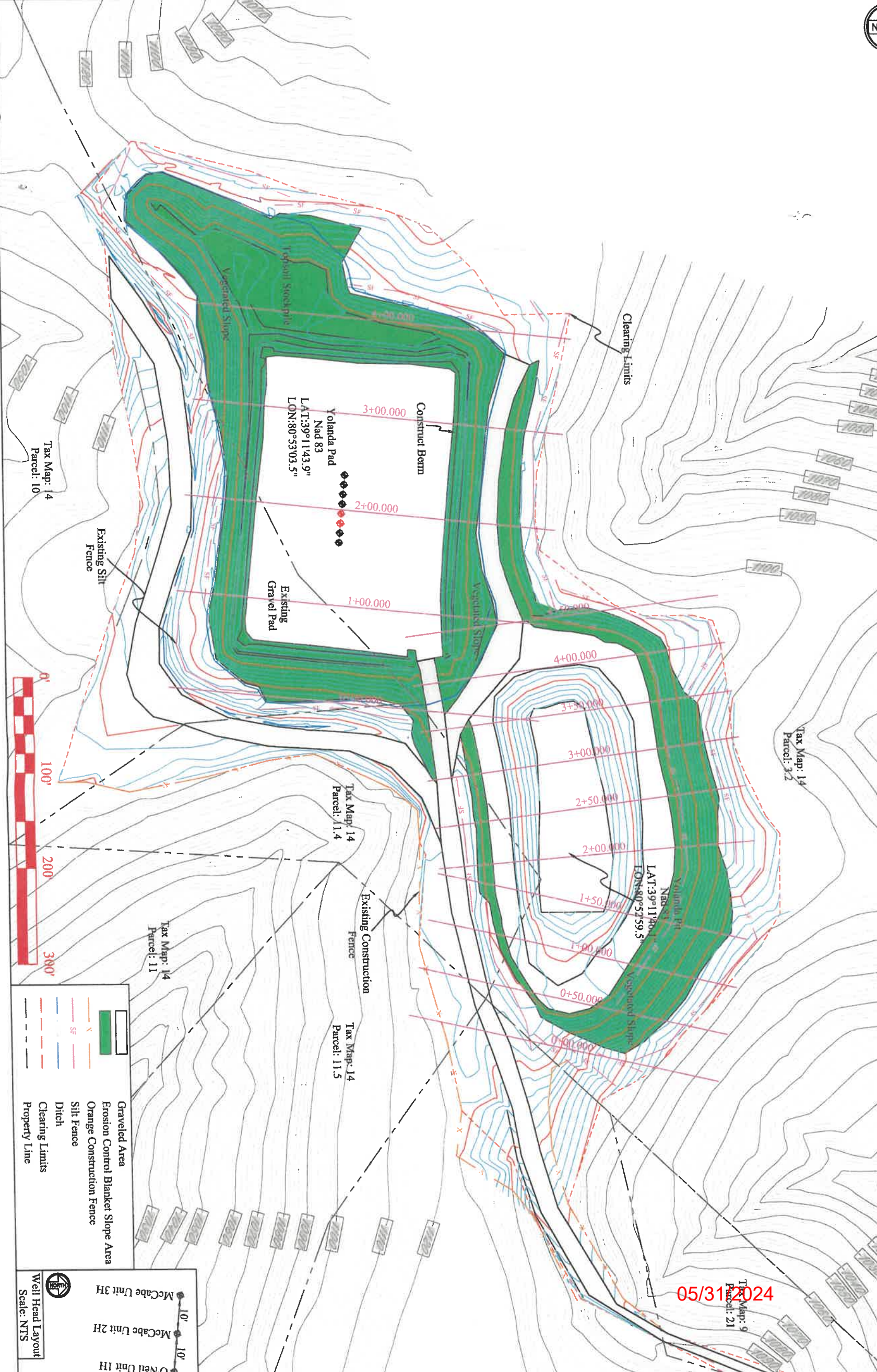
# Yolanda Pad Site As-Built Erosion and Sediment Control



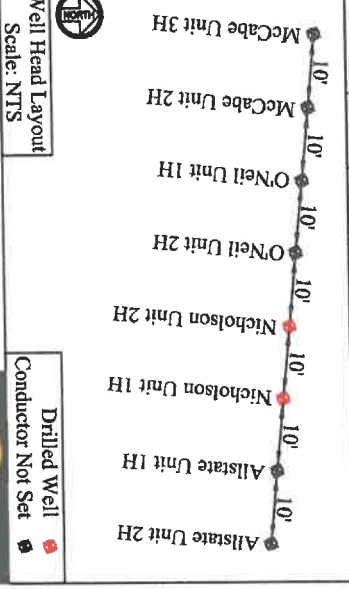




Project Site	Sheet 9 of 20
Yolanda Pad Site As-Built	
District	County
Union	Ritchie
	State
	W.V.



- Graveled Area
- Erosion Control Blanket Slope Area
- Orange Construction Fence
- Silt Fence
- Ditch
- Cleaning Limits
- Property Line



05/31/2024



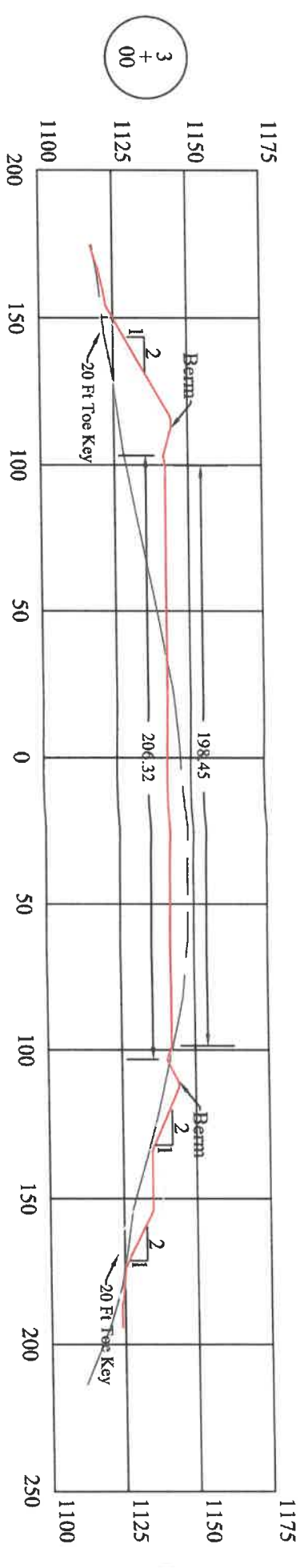
District: Union  
County: Ritchie  
State: West Virginia

# Yolanda Pad Site As-Built Erosion and Sediment Control

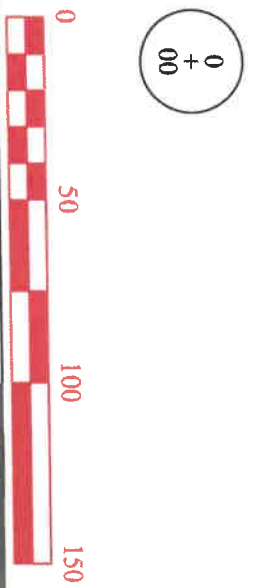
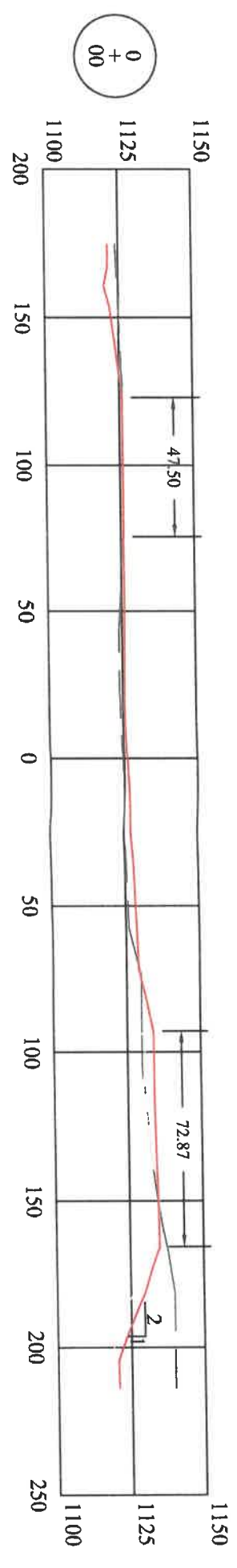
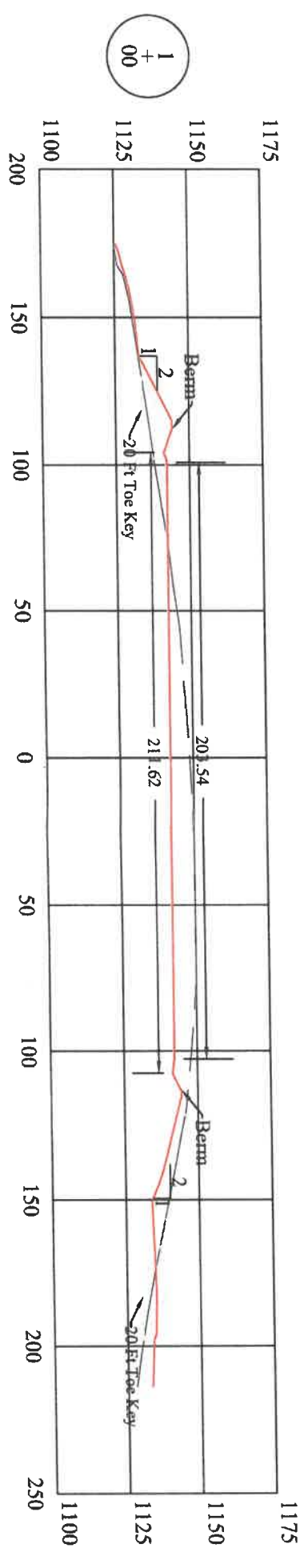
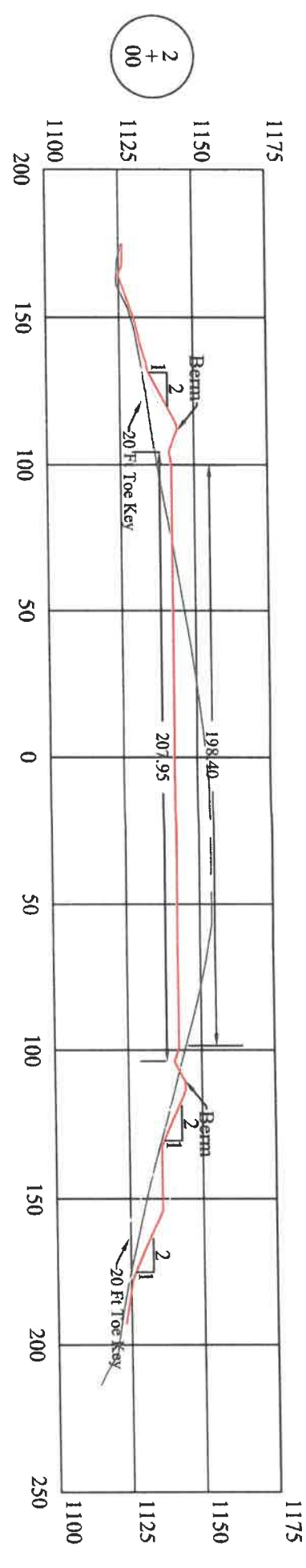




Project Site	Sheet 10 of 20		
	Yolanda Well Pad Site		
District	County	State	
Union	Ritchie	W.V.	



05/31/2024



As-Built  
Original Ground  
Design

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

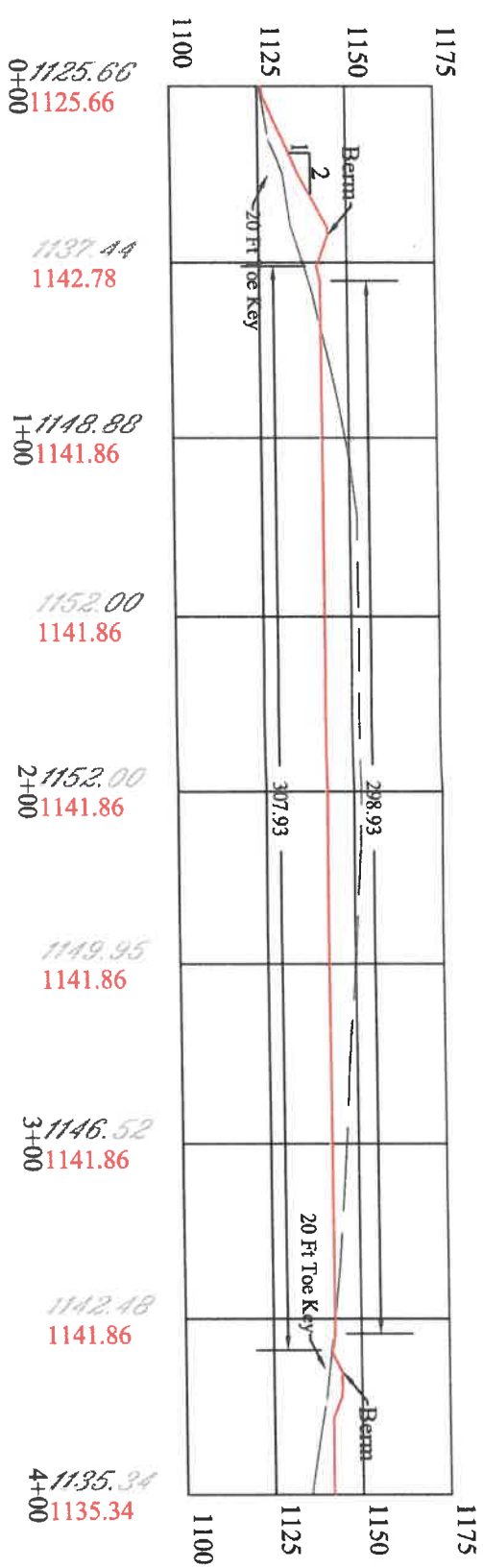


District: Union  
County: Ritchie  
State: West Virginia

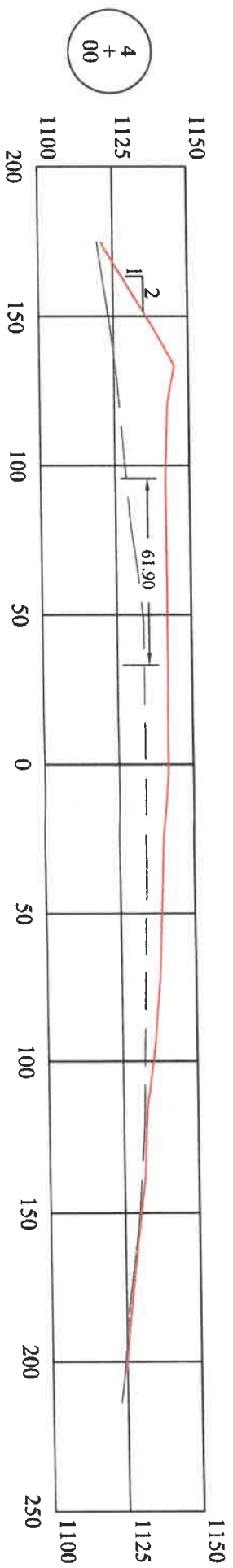
# Yolanda Well Pad Site Cross Sections 0+00 - 3+00



05/31/2024



Well Pad Profile



As-Built  
Original Ground  
Design



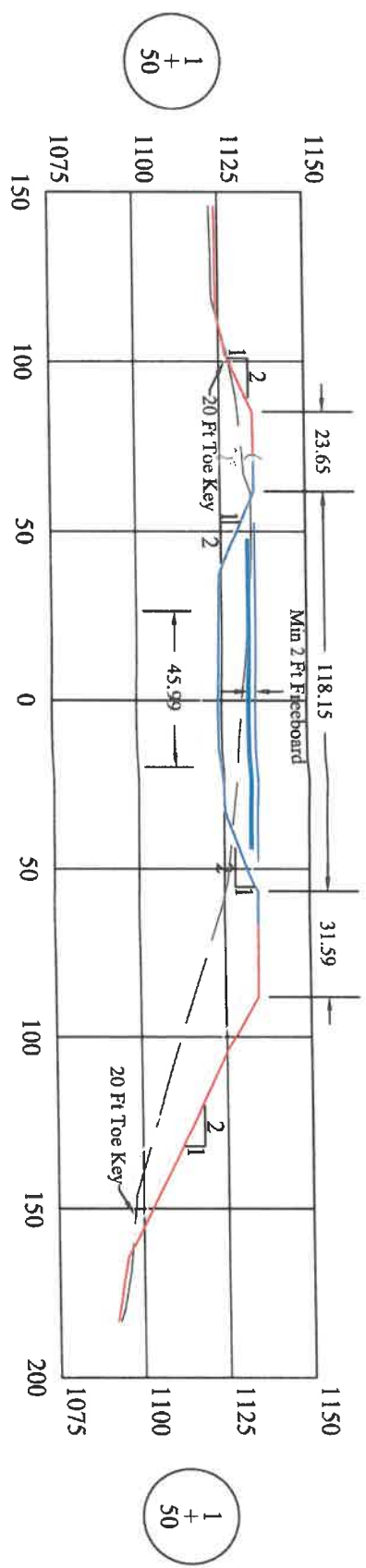
A Geotechnical Engineering Study Was Not Performed For The Purpose of This Design



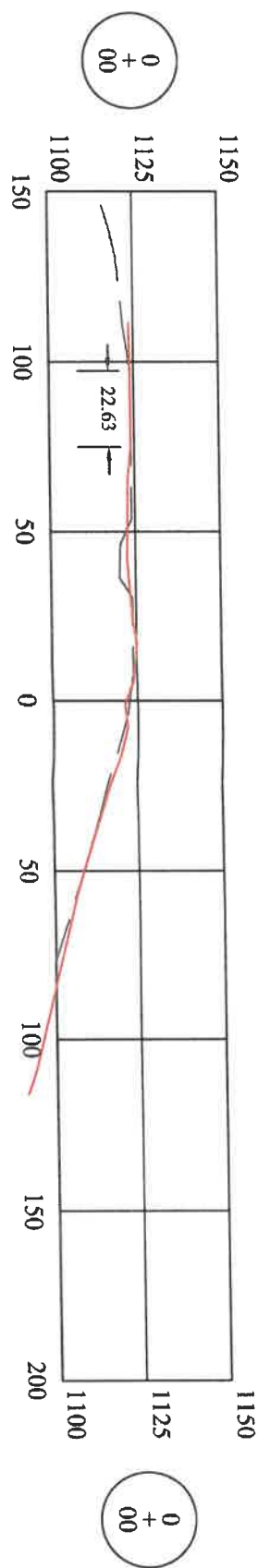
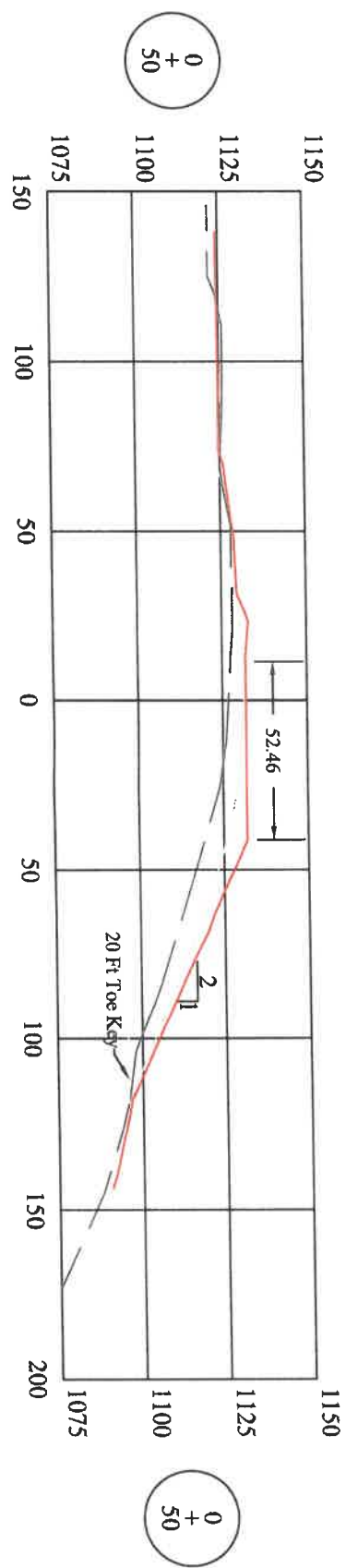
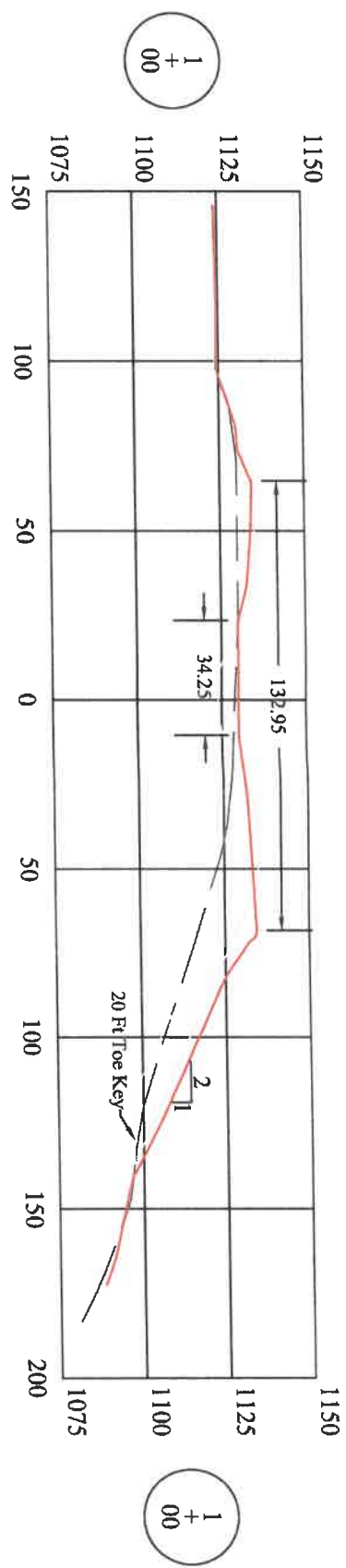
District: Union  
County: Ritchie  
State: West Virginia

# Yolanda Well Pad Site Cross Sections 4+00





05/31/2024



As-Built  
Original Ground  
Design  
Water Level

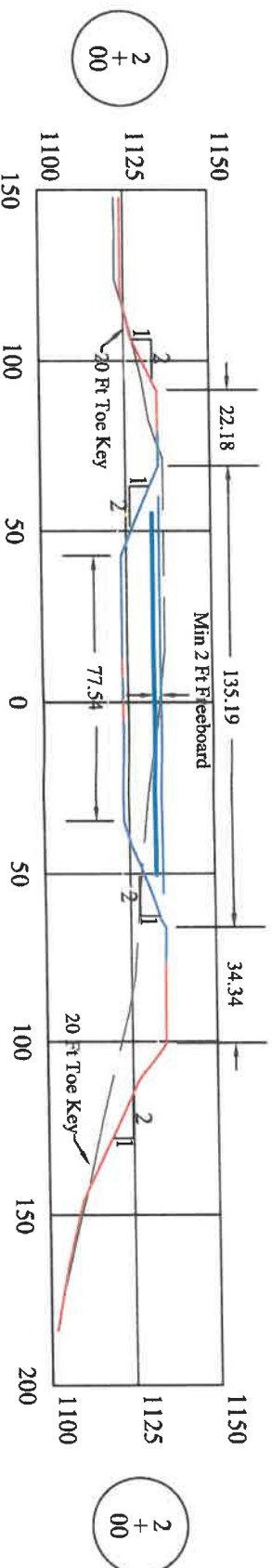
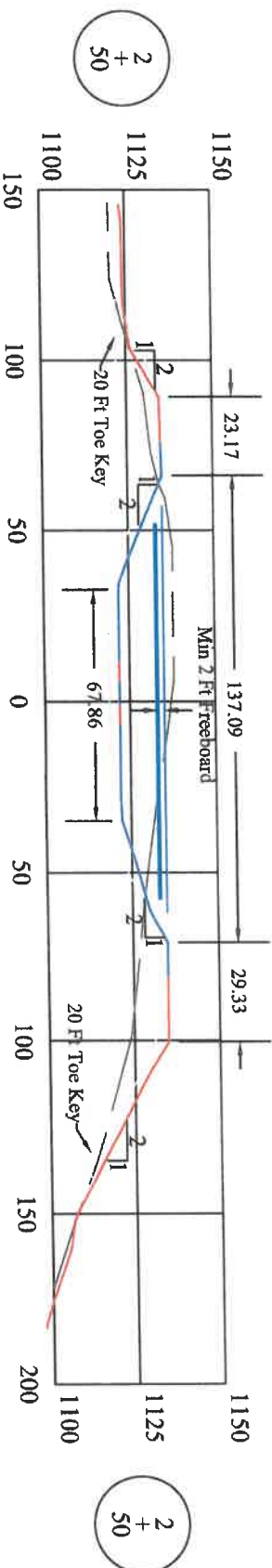
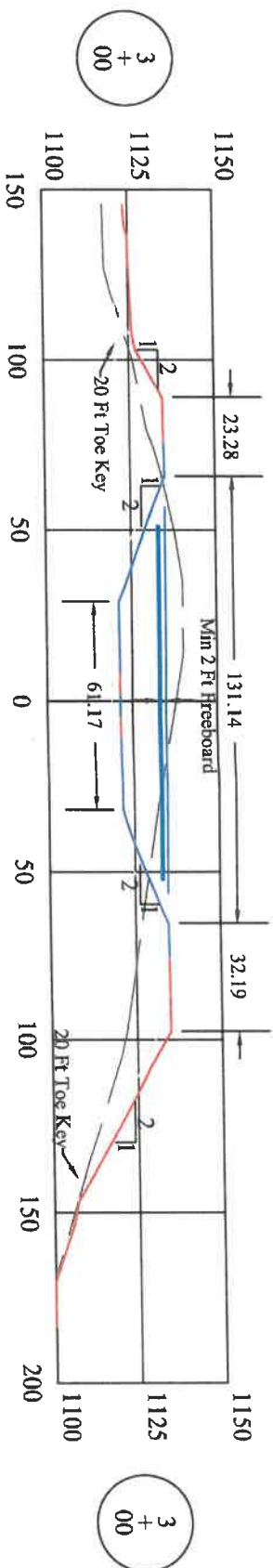
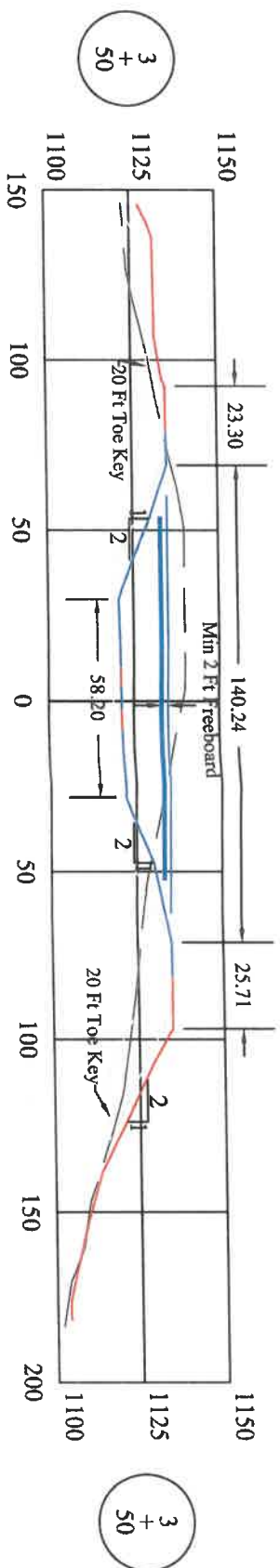
A Geotechnical Engineering Study Was Not Performed For The Purpose of This Design



District: Union  
County: Ritchie  
State: West Virginia

# Yolanda Well Pad Site Frac Pit Cross Sections 0+00 - 1+50





05/31/2024



As-Built  
Original Ground  
Design  
Water Level

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

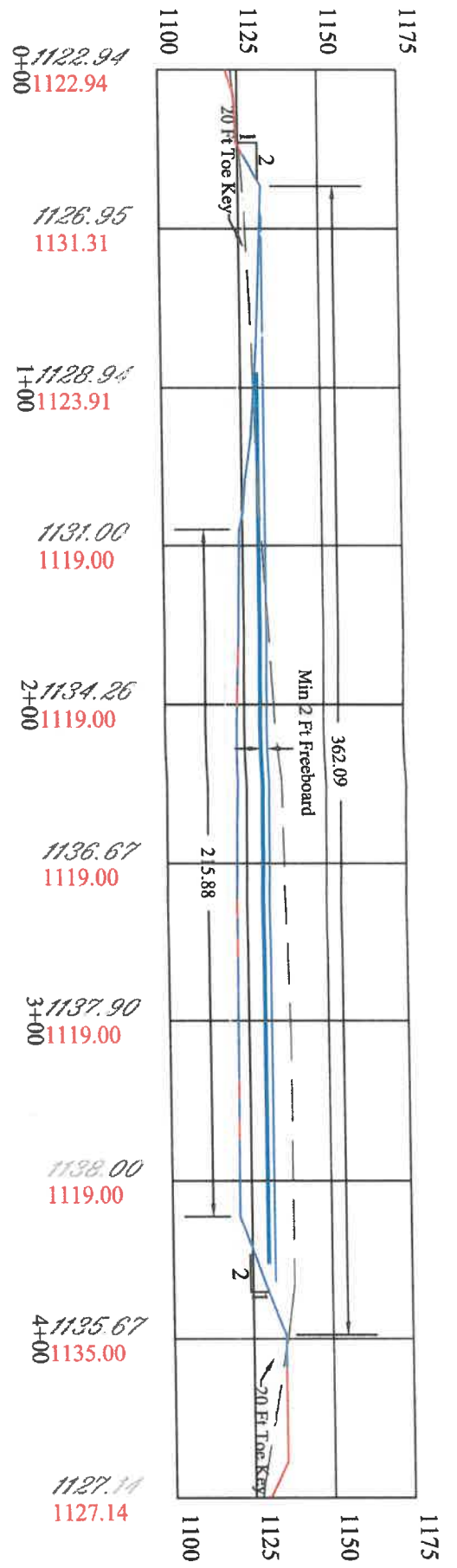


District: Union  
County: Ritchie  
State: West Virginia

# Yolanda Well Pad Site Frac Pit Cross Sections 2+00 - 3+50

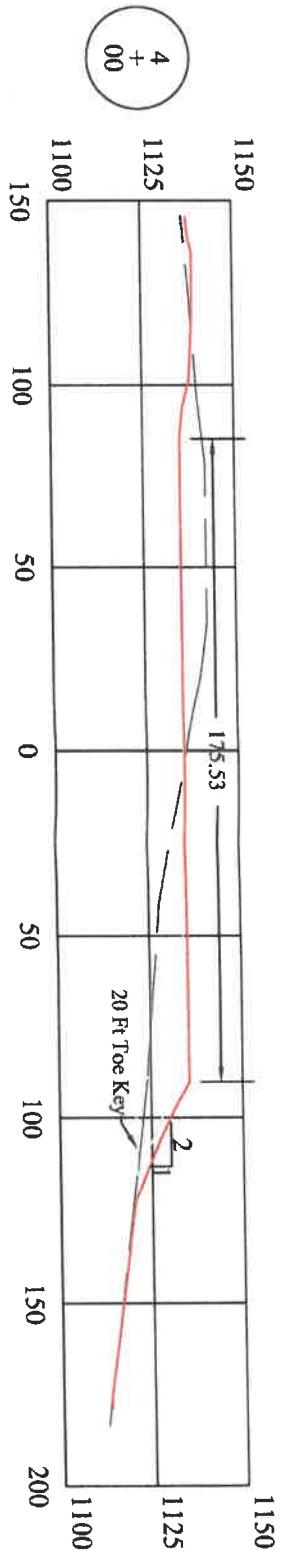
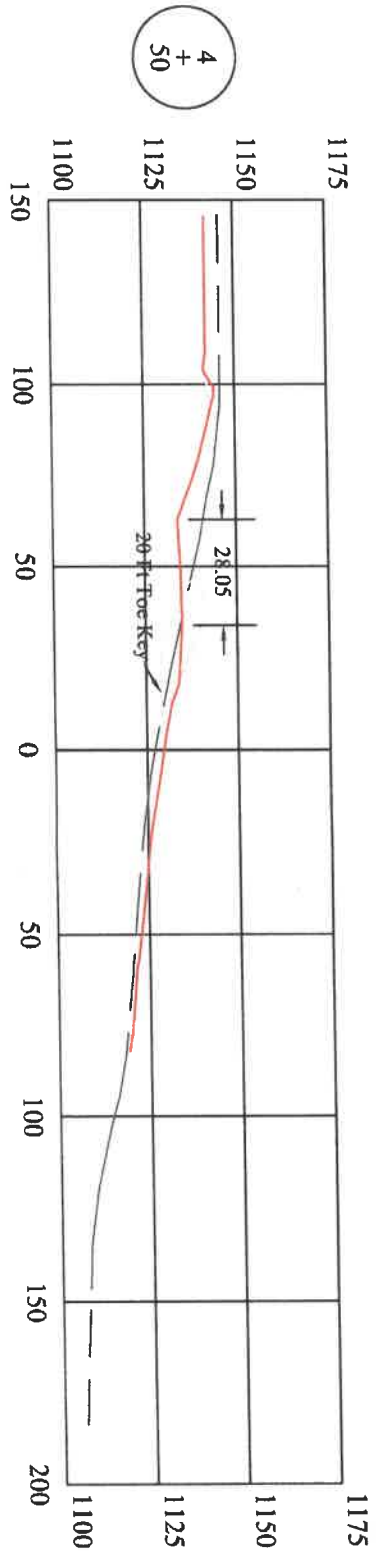






05/31/2024

Frac Pit Profile



As-Built  
Original Ground  
Design  
Water Level

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

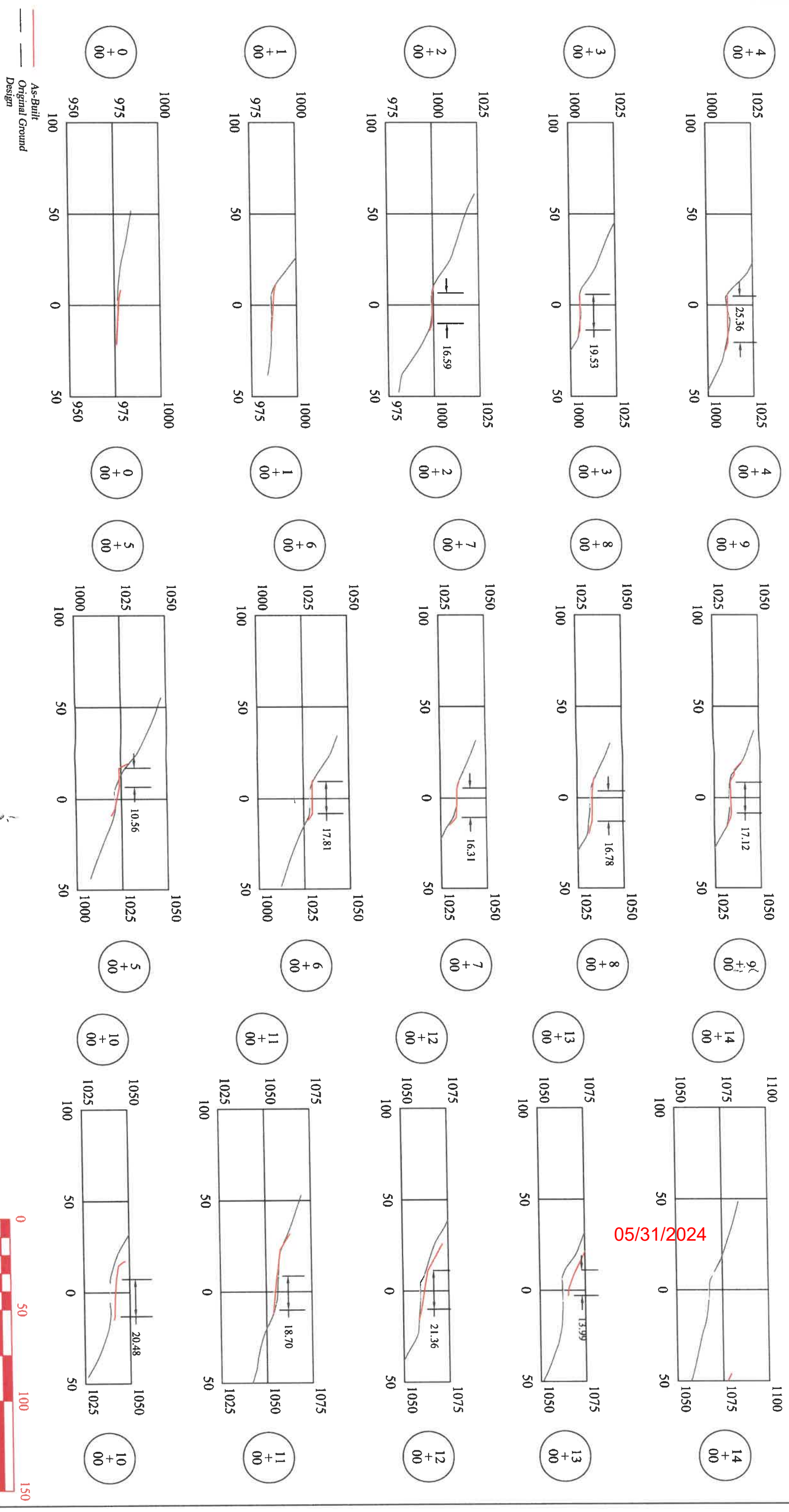


District: Union  
County: Ritchie  
State: West Virginia

# Yolanda Well Pad Site Frac Pit Cross Sections 4+00 - 4+50



05/31/2024



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



District: Union  
County: Ritchie  
State: West Virginia

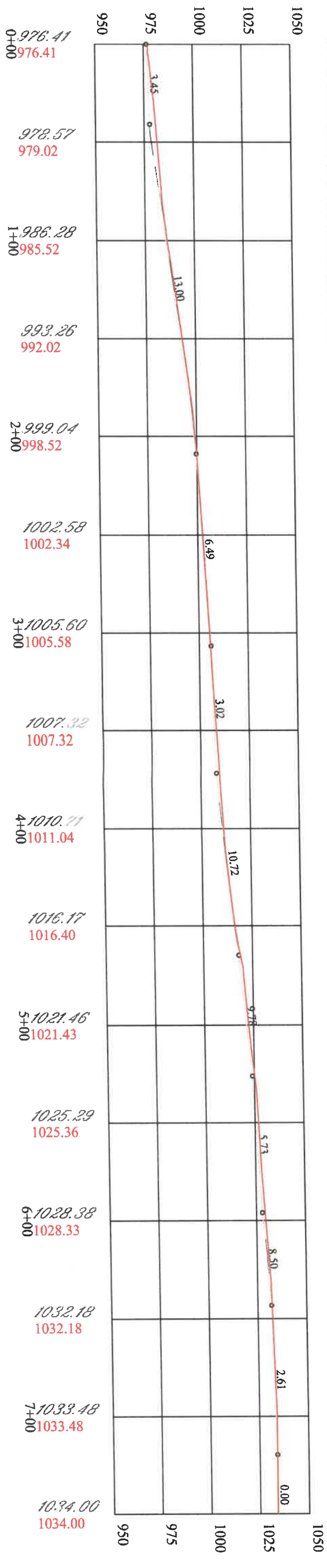
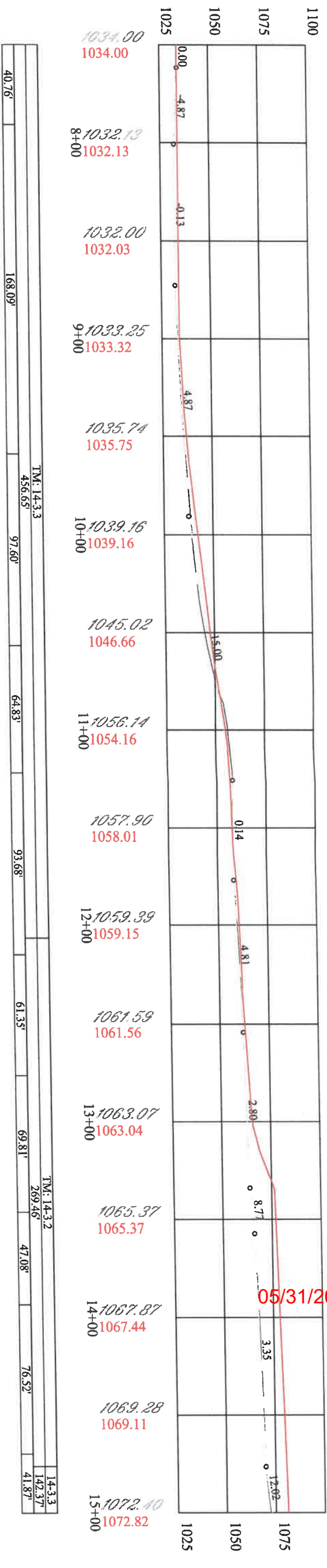
# Yolanda Well Pad Site Access Road Cross Sections 0+00 - 14+00







TM: 14-3-3	TM: 14-3-2	TM: 14-3-3	TM: 14-3-2	TM: 14-3-2	TM: 9-21
142.37'	182.24'	149.14'	145.01'	385.31'	119.39'
39.23'	72.13'	51.62'	80.16'	22.81'	116.43'
41.87'	117.43'	135.03'	93.68'	77.15'	



As-Built  
Original Ground  
Design

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



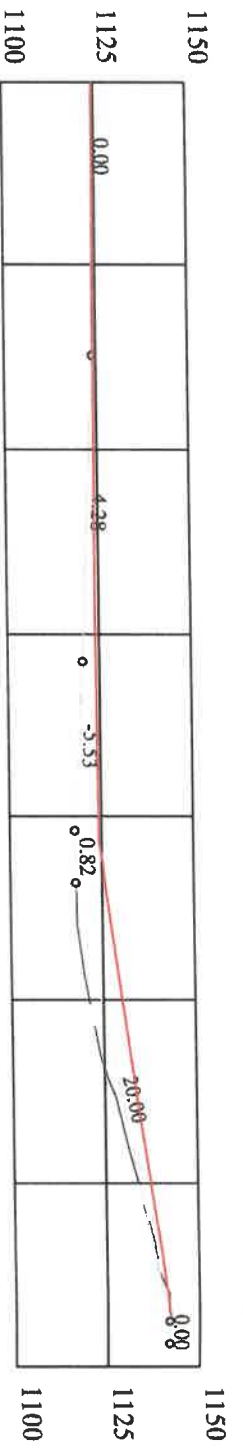
District: Union  
County: Ritchie  
State: West Virginia

# Yolanda Well Pad Site Access Road Profile



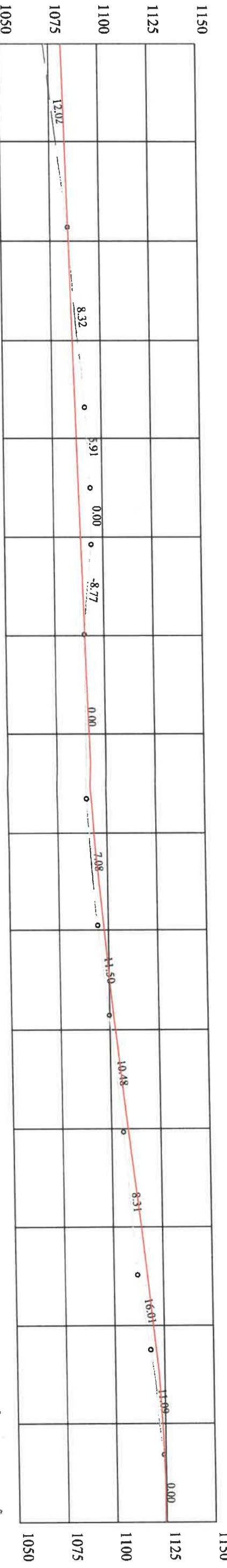


TM: 14-11.4		TM: 14-3.2	
108.77'	83.01'	46.50'	119.32'
			81.96'
			6.55'



1124.00  
1124.00  
23+00 1124.00  
1122.91  
24+00 1120.80  
1120.77  
1118.00  
1118.10  
25+00 1121.09  
1124.40  
1133.70  
1134.40  
26+00

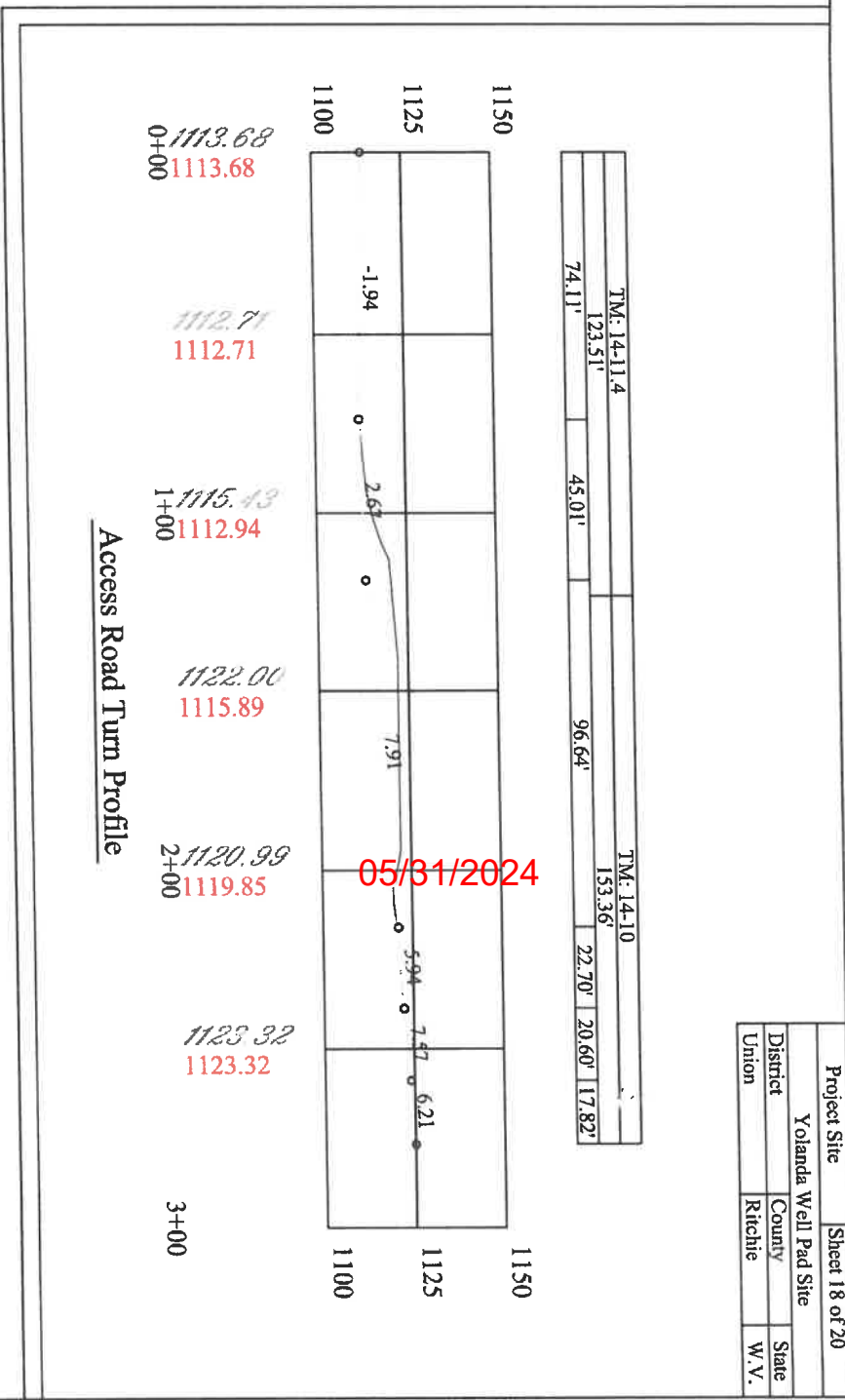
TM: 9-21		TM: 14-11.6		TM: 14-11.4	
116.43'	385.31'	481.22'	44.74'	59.18'	72.70'
	91.32'				37.70'
					53.78'
					108.77'
					14-32114-11.4
					19.21' 281.29'
					108.77'



1072.40  
1072.82  
1078.34  
1078.83  
1084.52  
1084.59  
1088.56  
1088.75  
1092.60  
1092.53  
1094.00  
1094.00  
1090.00  
1090.00  
1090.00  
1090.00  
1091.01  
1091.24  
1094.88  
1094.88  
1100.52  
1100.55  
1105.79  
1105.79  
1109.92  
1109.95  
1116.03  
1116.11  
1122.09  
1122.25  
1124.00  
1124.00

As-Built  
Original Ground  
Design

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



1113.68  
1113.68  
1112.71  
1112.71  
1115.43  
1112.94  
1122.00  
1115.89  
1120.99  
1119.85  
1123.32  
1123.32

TM: 14-11.4		TM: 14-10	
74.11'	45.01'	153.36'	22.70'
			20.60'
			17.82'

Access Road Turn Profile



District: Union  
County: Ritchie  
State: West Virginia

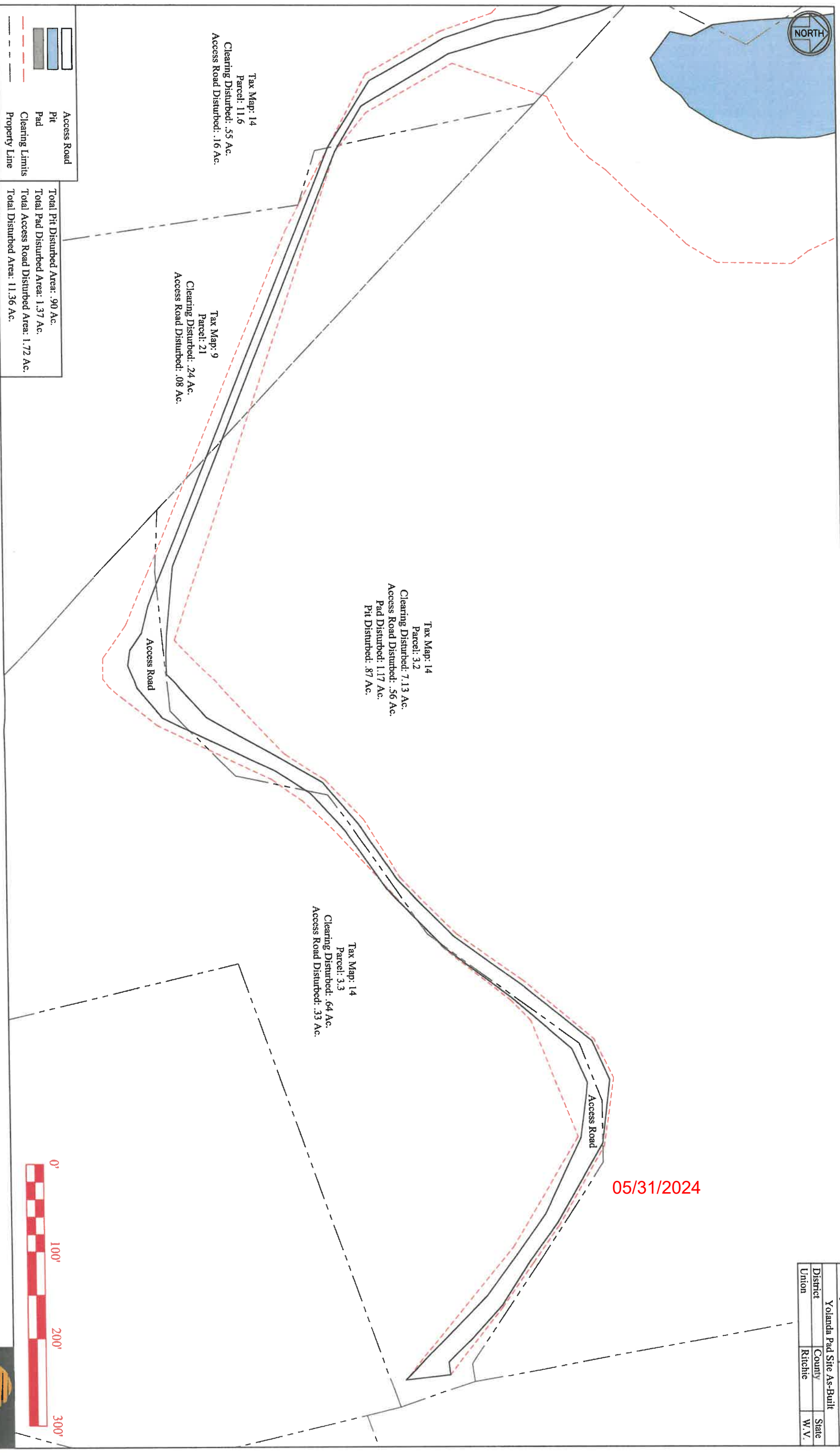
# Yolanda Well Pad Site Access Road Profile





Project Site	Sheet 19 of 20
Yolanda Pad Site As-Built	
District	County
Union	Ritchie
State	W.V.

05/31/2024



District: Union  
County: Ritchie  
State: West Virginia

# Yolanda Pad Site As-Built Disturbed Area





Project Site	Sheet 20 of 20
Yolanda Pad Site As-Built	
District	County
Union	Richie
	W.V.

Tax Map: 9  
Parcel: 21  
Clearing Disturbed: .24 Ac.  
Access Road Disturbed: .08 Ac.

05/31/2024

Tax Map: 14  
Parcel: 3.2  
Clearing Disturbed: 7.13 Ac.  
Access Road Disturbed: .56 Ac.  
Pad Disturbed: 1.17 Ac.  
Pit Disturbed: .87 Ac.

Tax Map: 14  
Parcel: 11.6  
Disturbed Area: .55 Ac.  
Access Road Disturbed: .16 Ac.

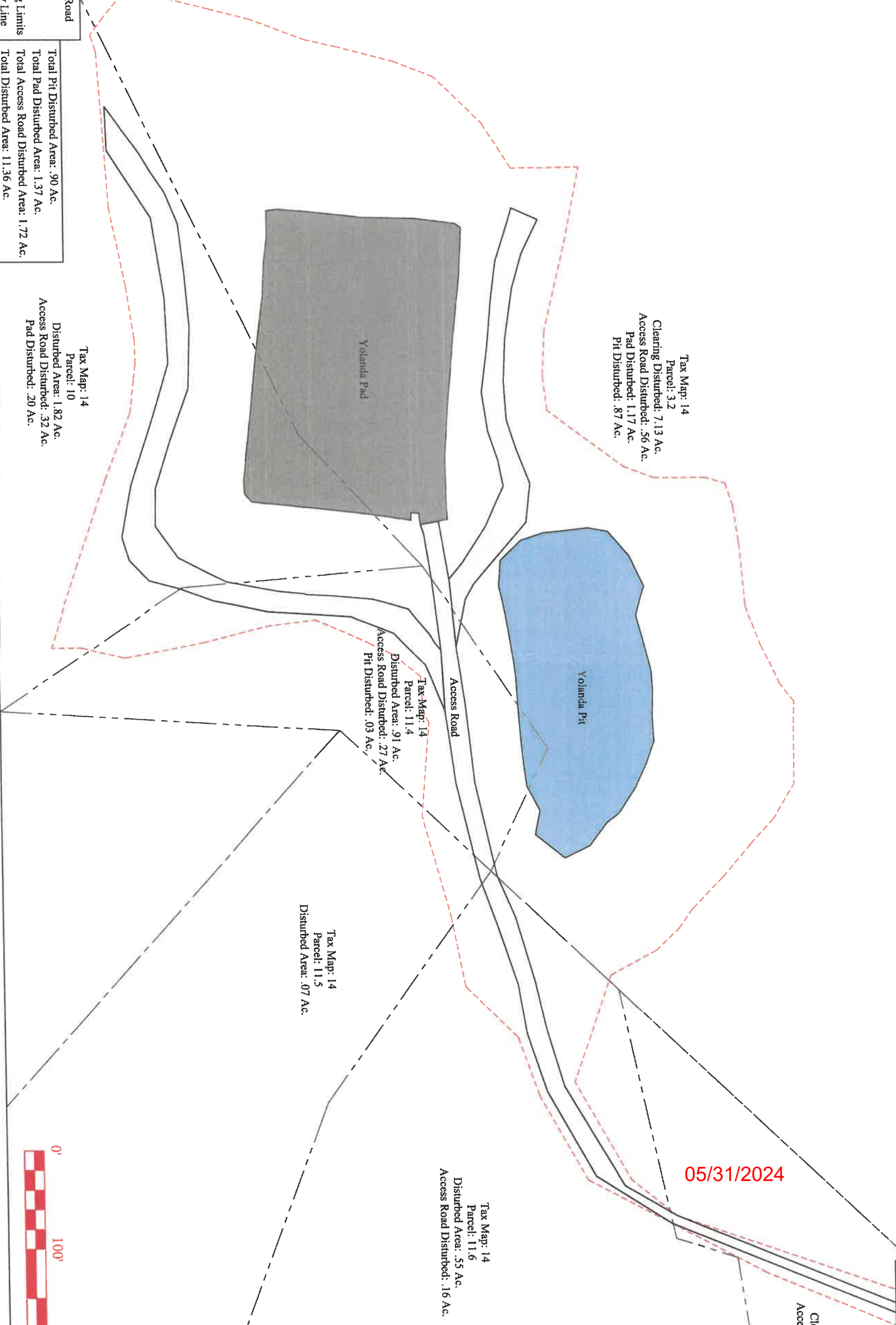
Tax Map: 14  
Parcel: 11.5  
Disturbed Area: .07 Ac.

Tax Map: 14  
Parcel: 11.4  
Disturbed Area: .91 Ac.  
Access Road Disturbed: .27 Ac.  
Pit Disturbed: .03 Ac.

Tax Map: 14  
Parcel: 10  
Disturbed Area: 1.82 Ac.  
Access Road Disturbed: .32 Ac.  
Pad Disturbed: .20 Ac.

Total Pit Disturbed Area: .90 Ac.  
Total Pad Disturbed Area: 1.37 Ac.  
Total Access Road Disturbed Area: 1.72 Ac.  
Total Disturbed Area: 11.36 Ac.

Access Road  
Pit  
Pad  
Clearing Limits  
Property Line



District: Union  
County: Ritchie  
State: West Virginia

# Yolanda Pad Site As-Built Disturbed Area

