



west virginia department of environmental protection

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

www.dep.wv.gov

PERMIT MODIFICATION APPROVAL

/

Re: Permit Modification Approval for

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

A handwritten signature in blue ink, appearing to read 'G. M. ...', is positioned above the title 'Chief'.

Chief

Operator's Well Number:
Farm Name:
U.S. WELL NUMBER:

Date Modification Issued:

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Antero Resources Corporation 494507062 085 - Ritchie Clay Pennsboro 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Ray Unit 2H Well Pad Name: Weekley Trust

3) Farm Name/Surface Owner: David L. Weekley Public Road Access: CR 74-2

4) Elevation, current ground: 1235' Elevation, proposed post-construction: _____

5) Well Type (a) Gas Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

Michael Doff
8-16-18

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 7000' TVD, Anticipated Thickness- 75 feet, Associated Pressure- 2800#

8) Proposed Total Vertical Depth: 7000' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16400' MD

11) Proposed Horizontal Leg Length: 7517'

12) Approximate Fresh Water Strata Depths: 338', 375'

13) Method to Determine Fresh Water Depths: Offset well records. Depths have been adjusted according to surface elevations.

14) Approximate Saltwater Depths: None Identified

15) Approximate Coal Seam Depths: 887'

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No

(a) If Yes, provide Mine Info: Name: _____

Depth: _____

Seam: _____

Owner: _____

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18)

CASING AND TUBING PROGRAM

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20"	New	H-40	94#	80	80	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	425 *see # 19	425 *see # 19	CTS, 590 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2500	2500	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	16400	16400	4102 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	20"	24"	0.438"	1530	50	Class A	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	~1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	12,630	2500	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

PACKERS

*MDC
8-16-18*

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale.

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

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

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."

Anticipated Max Pressure - 9300 lbs
Anticipated Max Rate - 80 bpm

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): Existing 32.87 acres

22) Area to be disturbed for well pad only, less access road (acres): Existing 8.15 acres

23) 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.

24) Describe all cement additives associated with each cement type:

Conductor: no additives, Class A cement.

Surface: Class A cement with 2-3% calcium chloride and 1/4 lb of flake

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

25) Proposed borehole conditioning procedures:

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

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

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

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

*Note: Attach additional sheets as needed.

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Page 3 of 3

8-16-18

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

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

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

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>David L. Weekley Revocable Trust Lease</u> David L. Weekley Revocable Trust	Antero Resources Corporation	1/8+	0295/0030
<u>Norman Fleming, et ux Lease</u> Norman Fleming, et ux	Antero Resources Corporation	1/8+	0306/0511
<u>Brian Keith Jones Lease</u> Brian Keith Jones	Antero Resources Corporation	1/8+	0303/0899
<u>Cliff William Perkins, et ux Lease (TM 1 P 18)</u> Cliff William Perkins, et ux	Antero Resources Corporation	1/8+	0266/0304
<u>Cliff William Perkins, et ux Lease (TM 1 P 17)</u> Cliff William Perkins, et ux	Antero Resources Corporation	1/8+	0266/0298
<u>Raymond Cecil Darnell Lease</u> Raymond Cecil Darnell	Antero Resources Corporation	1/8	0305/0292
<u>Joe Dom, Inc. Dominic Domino Lease</u> Joe Dom, Inc. Dominic Domino Gene Stalnaker, Inc. Angus Energy, Inc. Stalnaker Energy Corporation Antero Resources Appalachian Corporation	Gene Stalnaker, Inc. Angus Energy, Inc. Stalnaker Energy Corporation Antero Resources Appalachian Corporation Antero Resources Corporation	1/8 Assignment Name Change Assignment Name Change	0160/0672 0212/0137 0002/0225 0258/0084 Exhibit 1

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

CONTINUED ON NEXT PAGE

WW-6A1
(5/13)

Operator's Well No. Ray Unit 2H

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>Richard Hall Barnard Lease</u>	Richard Hall Barnard	Antero Resources Corporation	1/8+	0442/0067

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

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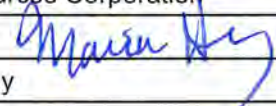
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Environmental Protection

**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 Corporation
By: Maria Henry 
Its: VP of Geology

FORM WW-6A1
EXHIBIT 1

FILED

JUN 10 2013

Natalie E. Tennant
Secretary of State
1900 Kanawha Blvd E
Bldg 1, Suite 157-K
Charleston, WV 25305



Penny Barker, Manager
Corporations Division
Tel: (304)558-8000
Fax: (304)558-8381
Website: www.wvnet.com
E-mail: business@wvnet.com

APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

Office Hours: Monday - Friday
8:30 a.m. - 5:00 p.m. ET

FILE ONE ORIGINAL
(Two if you want a filed
stamped copy returned to you)
FEE: \$25.00

In accordance with the provisions of the West Virginia Code, the undersigned corporation hereby applies for an Amended Certificate of Authority and submits the following statement:

- 1. Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachia Corporation
- 2. Date Certificate of Authority was issued in West Virginia: 6/28/2008
- 3. Corporate name has been changed to: Antero Resources Corporation
(Attach one Certified Copy of Name Change as filed in home State of incorporation.)
- 4. Name the corporation elects to use in WV: Antero Resources Corporation
(due to home state name not being available)
- 5. Other amendments: _____
(attach additional pages if necessary)

6. Name and phone number of contact person. (This is optional, however, if there is a problem with the filing, listing a contact person and phone number may avoid having to return or reject the document.)

Alwyn A. Schopp (305) 367-7310
Contact Name Phone Number

7. Signature information (See below **Important Legal Notice Regarding Signatures**):

Print Name of Signer: Alwyn A. Schopp Title/Capacity: Authorized Person

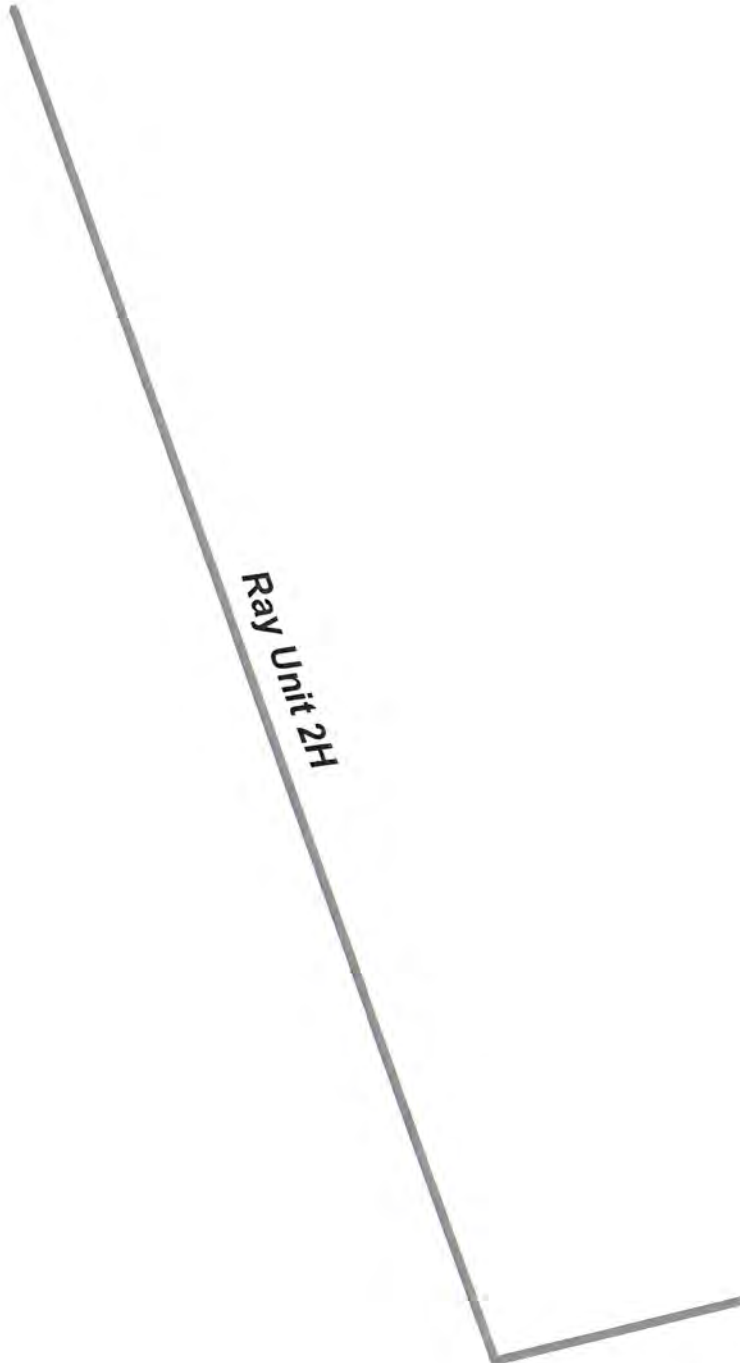
Signature: [Handwritten Signature] Date: June 10, 2013

Important Legal Notice Regarding Signatures For West Virginia Code §31D-1-12b. Penalty for signing false document. Any person who signs a document he or she knows is false in any material respect and knows that the document is to be delivered to the secretary of state for filing is guilty of a misdemeanor and, upon conviction thereof, shall be fined not more than one thousand dollars or confined in the county or regional jail not more than one year, or both.

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AOR



WELL SYMBOLS

January 22, 2018

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RAY UNIT 2H (WEEKLEY TRUST PAD) - AREA OF REVIEW 35-8-5.11 PAGE 2

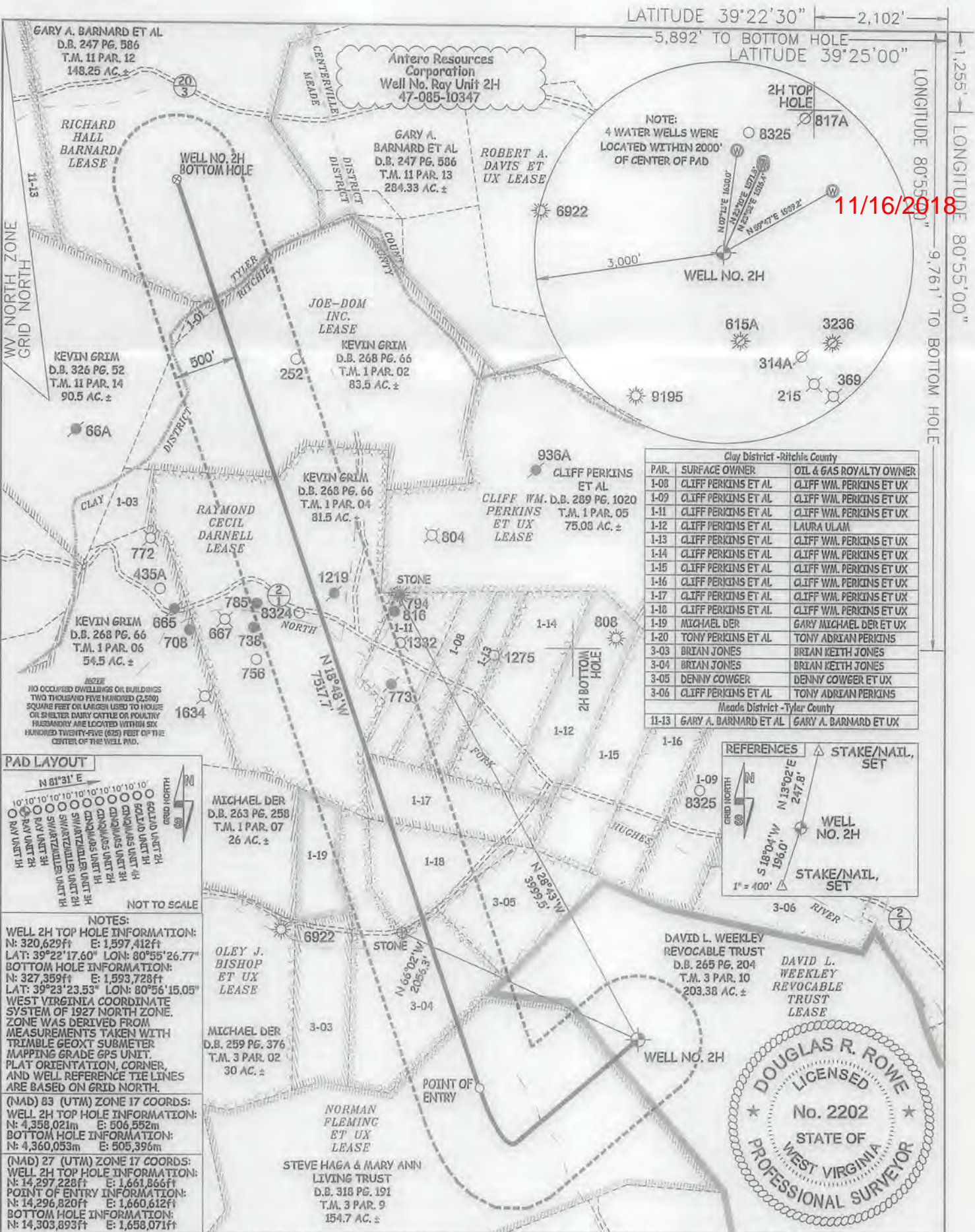
Permit Modification API# 47-085-10347

UWI (APINum)	Well Name	Well Number	Operator	Hist Oper	TD	Perforated Interval (shallowest, deepest)	Perforated Formations	Productible Formation(s) not perf'd
47085069220000	BISHOP OLEY J ETAL	JK-912	ALLIANCE PETR CORP	J & J ENTERPRISES	5995	4529-5757	Weir, Riley, Benson, Rhinestreet	Greenbrier, Bradford
47095013050000	GREGG MILDRED	1	SCHULTZ RUN GAS	COASTAL CORP THE	5016	1903-4756	Greenbrier, Bradford, Riley, Benson	Weir

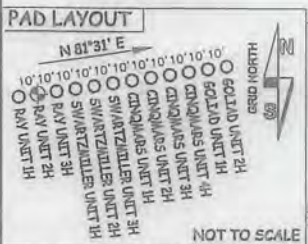
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11/16/2018



NOTES:
WELL 2H TOP HOLE INFORMATION:
N: 320,629ft E: 1,597,412ft
LAT: 39°22'17.60" LON: 80°55'26.77"
BOTTOM HOLE INFORMATION:
N: 327,359ft E: 1,593,728ft
LAT: 39°23'23.53" LON: 80°56'15.05"
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: 4,358,021m E: 506,552m
BOTTOM HOLE INFORMATION:
N: 4,360,053m E: 505,396m

(NAD) 27 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 14,297,228ft E: 1,661,866ft
POINT OF ENTRY INFORMATION:
N: 14,296,820ft E: 1,660,612ft
BOTTOM HOLE INFORMATION:
N: 14,303,893ft E: 1,658,071ft

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 RULES 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 +/-
- Existing Fence
- Found monument, as noted

DOUGLAS R. ROWE P.S. 2202

DATE 07/30/18

OPERATOR'S WELL # RAY UNIT #2H

WELL TYPE: OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION STORAGE ___ DEEP ___ SHALLOW

LOCATION: ELEVATION 1,235' AS BUILT WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE PENNSBORO 7.5' - TH MIDDLEBOURNE 7.5' - BH DISTRICT CLAY COUNTY RITCHIE

SURFACE OWNER DAVID L. WEEKLEY REVOCABLE TRUST ACREAGE 203.38 ACRES +/-
OIL & GAS ROYALTY OWNER DAVID L. WEEKLEY REVOCABLE TRUST; NORMAN FLEMING ET UX; LEASE ACREAGE 229 AC±; 126.5 AC±;
BRIAN KEITH JONES; CLIFF WM. PERKINS ET UX; CLIFF WM. PERKINS ET UX; CLIFF WM. PERKINS ET UX; 31 AC±; 13 AC±; 13.5 AC±; 13 AC±;
RAYMOND CECIL DARNELL; JOE-DOM INC.; RICHARD HALL BARNARD 81.5 AC±; 380 AC±; 148,252 AC±

PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER REDRILL ___ FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD-BHL PLUG & ABANDON ___ CLEAN OUT & REPLUG ___

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,000' TVD 16,400' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Antero Resources Corporation 494507062 085 - Ritchie Clay Pennsboro 7.5'
Operator ID County District Quadrangle

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Other _____

(b) If Gas Shallow Deep _____

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Marcellus Shale: 7000' TVD, Anticipated Thickness- 75 feet, Associated Pressure- 2800#

WV Department of
Environmental Protection

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16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

VOID

WW-6B
(04/15)

Permit Modification API# 47-085-10347
 API NO. 47- 085 - 10347 **11/16/2018**
 OPERATOR WELL NO. Ray Unit 2H
 Well Pad Name: Weekley Trust

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Liners							

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

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Environmental Protection

11/16/2018

WW-6B
(10/14)

API NO. 47-085 - 10347

OPERATOR WELL NO. Ray Unit 2H

Well Pad Name: Weekley Trust

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VOID

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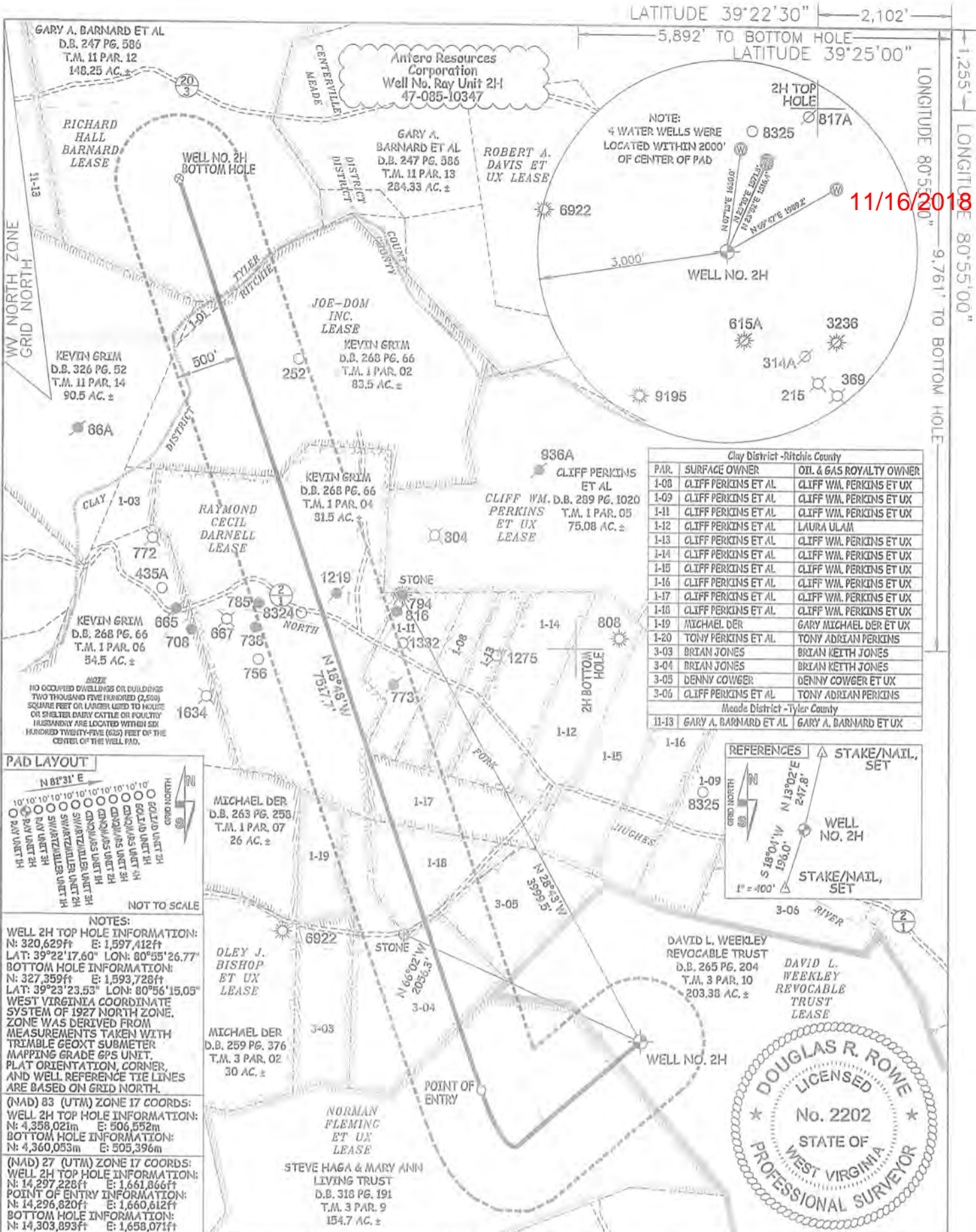
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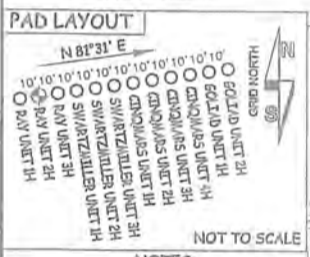
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Environmental Protection



11/16/2018



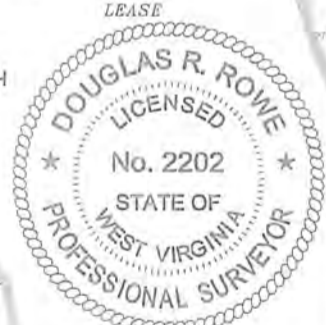
NOTES:

WELL 2H TOP HOLE INFORMATION:
N: 320,629ft E: 1,597,412ft
LAT: 39°22'17.60" LON: 80°55'26.77"
BOTTOM HOLE INFORMATION:
N: 327,359ft E: 1,593,728ft
LAT: 39°23'23.53" LON: 80°56'15.05"

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: 4,358,021m E: 506,552m
BOTTOM HOLE INFORMATION:
N: 4,360,053m E: 505,396m

(NAD) 27 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 14,297,228ft E: 1,661,866ft
POINT OF ENTRY INFORMATION:
N: 14,296,820ft E: 1,660,612ft
BOTTOM HOLE INFORMATION:
N: 14,303,893ft E: 1,658,071ft



JOB # 17-043WA	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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.	LEGEND - - - - - Surface Owner Boundary Lines +/- - - - - - Interior Surface Tracts +/- - - - - - Existing Fence - - - - - Found monument, as noted
DRAWING # RAY2HR		
SCALE 1" = 2000'	STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS WILLOW LAND SURVEYING PLLC 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415	DOUGLAS R. ROWE P.S. 2202 DATE 07/30/18 OPERATOR'S WELL# RAYUNIT#2H
MINIMUM DEGREE OF ACCURACY SUBMETER		COUNTY PERMIT COUNTY NAME PERMIT
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS	WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ (IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X LOCATION: ELEVATION 1,235' AS BUILT WATERSHED NORTH FORK HUGHES RIVER QUADRANGLE PENNSBORO 7.5' - TH MIDDLEBOURNE 7.5' - BH DISTRICT CLAY COUNTY RITCHIE	47 - 085 - 10347 STATE COUNTY PERMIT
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS	SURFACE OWNER DAVID L. WEEKLEY REVOCABLE TRUST ACREAGE 203.38 ACRES +/- OIL & GAS ROYALTY OWNER DAVID L. WEEKLEY REVOCABLE TRUST; NORMAN FLEMING ET UX; LEASE ACREAGE 229 AC±; 126.5 AC±; BRIAN KEITH JONES; CLIFF WM. PERKINS ET UX; CLIFF WM. PERKINS ET UX; CLIFF WM. PERKINS ET UX; RAYMOND CECIL DARNELL; JOE-DOM INC.; RICHARD HALL BARNARD PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER X REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD-BHL PLUG & ABANDON ___ CLEAN OUT & REPLUG ___ TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,000' TVD 16,400' MD WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD DENVER, CO 80202 CHARLESTON, WV 25313	FORM WW-6

WATER CONTAINMENT PAD & SEDIMENT CONTROL PLAN

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SHEET INDEX

- 1 - COVER SHEET
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- 3 - OVERALL PLAN SHEET INDEX
- 4 - ACCESS ROAD & WATER CONTAINMENT PAD AS-BUILT PLAN
- 5 - ACCESS ROAD AS-BUILT PLAN
- 6 - WELL PAD AS-BUILT PLAN
- 7 - ACCESS ROAD AS-BUILT PROFILE, WELL PAD & WATER CONTAINMENT PAD AS-BUILT SECTIONS
- 8 - ACCESS ROAD AS-BUILT PROFILE
- 9 - STOCKPILE AS-BUILT SECTIONS

WEST VIRGINIA
RIVER WATERSHED
BORO QUAD MAPS

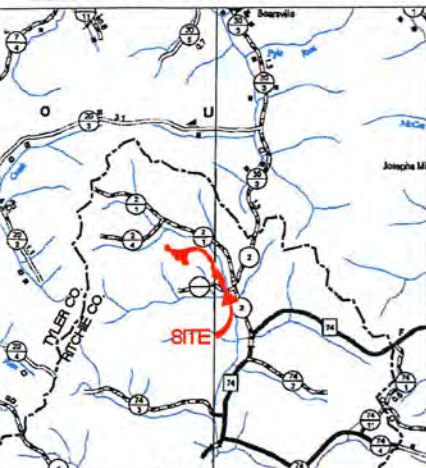


WEST VIRGINIA STATE PLANE COORDINATE SYSTEM
NORTH ZONE, NAD83
ELEVATION BASED ON NAVD83
ESTABLISHED BY SURVEY GRADE GPS & OPUS
POST-PROCESSING

WEEKLEY TRUST LIMITS OF DISTURBANCE AREA (AC)	
Total Site	
Impacts to David L. Weekley, Trustee of the David L. Weekley Revocable Trust UTA TM 3-10	
Access Road "A" (749')	2.72
Access Road "B" (2,486')	10.67
Well Pad	8.15
Water Containment Pad	3.70
Excess/Topsoil Material Stockpiles	7.63
Total Affected Area	32.87
Total Wooded Acres Disturbed	30.22

Proposed Well Name	WV North NAD 27	WV North NAD 83	UTM (METERS) Zone 17	NAD 83 Lat & Long
Ray	N 320527.84	N 320662.16	N 4358020.94	LAT 39-22-17.8714
Unit 1H	E 1597402.38	E 1565961.32	E 506549.28	LONG -80-55-26.2802
Ray	N 320529.32	N 320663.64	N 4358021.44	LAT 39-22-17.8875
Unit 2H	E 1597412.28	E 1565971.21	E 506552.28	LONG -80-55-26.1546
Ray	N 320630.79	N 320665.11	N 4358021.94	LAT 39-22-17.9037
Unit 3H	E 1597422.17	E 1565981.10	E 506555.29	LONG -80-55-26.0290
Swartzmiller	N 320632.26	N 320666.59	N 4358022.44	LAT 39-22-17.9198
Unit 1H	E 1597432.06	E 1565990.99	E 506558.29	LONG -80-55-25.9033
Swartzmiller	N 320633.74	N 320668.06	N 4358022.94	LAT 39-22-17.9359
Unit 2H	E 1597441.95	E 1566000.88	E 506561.30	LONG -80-55-25.7777
Swartzmiller	N 320635.21	N 320669.54	N 4358023.44	LAT 39-22-17.9520
Unit 3H	E 1597451.84	E 1566010.77	E 506564.30	LONG -80-55-25.6520
Cinqmars	N 320636.69	N 320671.01	N 4358023.94	LAT 39-22-17.9682
Unit 1H	E 1597461.73	E 1566020.66	E 506567.31	LONG -80-55-25.5264
Cinqmars	N 320638.16	N 320672.49	N 4358024.44	LAT 39-22-17.9843
Unit 2H	E 1597471.62	E 1566030.55	E 506570.31	LONG -80-55-25.4008
Cinqmars	N 320639.64	N 320673.96	N 4358024.94	LAT 39-22-18.0004
Unit 3H	E 1597481.51	E 1566040.44	E 506573.32	LONG -80-55-25.2751
Cinqmars	N 320641.11	N 320675.44	N 4358025.44	LAT 39-22-18.0165
Unit 4H	E 1597491.40	E 1566050.33	E 506576.33	LONG -80-55-25.1495
Goliad	N 320642.59	N 320676.91	N 4358025.94	LAT 39-22-18.0327
Unit 1H	E 1597501.29	E 1566060.23	E 506579.33	LONG -80-55-25.0239
Goliad	N 320644.06	N 320678.38	N 4358026.44	LAT 39-22-18.0488
Unit 2H	E 1597511.18	E 1566070.12	E 506582.34	LONG -80-55-24.8962
Well Pad Elevation	1,235.0			

WVDOH COUNTY ROAD MAP



5000 0 5000
SCALE: 1" = 5000'

NOTES:

- ALL BMP'S MUST REMAIN IN PLACE AND FUNCTIONAL UNTIL ALL AREAS WITHIN THE LIMIT OF DISTURBANCE ARE COMPLETE AND PERMANENTLY STABILIZED. MAINTENANCE MUST INCLUDE INSPECTION OF ALL EROSION AND SEDIMENT CONTROLS AFTER EACH RUNOFF EVENT IN EXCESS OF 0.5" AND ON A BIWEEKLY BASIS.
- THE CONSTRUCTION SITE SHOULD BE STABILIZED AS SOON AS POSSIBLE AFTER COMPLETION. ESTABLISHMENT OF FINAL STABILIZATION MUST BE INITIATED NO LATER THAN 7 DAYS AFTER REACHING FINAL GRADE. FINAL STABILIZATION MEANS THAT ALL SOIL-DISTURBING ACTIVITIES ARE COMPLETED, AND THAT EITHER A PERMANENT VEGETATIVE COVER WITH A DENSITY OF 70% OR GREATER HAS BEEN ESTABLISHED OR THAT THE SURFACE HAS BEEN STABILIZED BY HARD COVER SUCH AS PAVEMENT OR BUILDINGS. IT SHOULD BE NOTED THAT THE 70% REQUIREMENT REFERS TO THE TOTAL AREA VEGETATED AND NOT JUST A PERCENT OF THE SITE.
- ALL PERMANENT SEDIMENT CONTROL MEASURES CAN BE REMOVED AFTER THE SITE IS PERMANENTLY STABILIZED AND APPROVAL IS RECEIVED FROM THE WVDEP.
- ANY AREAS DISTURBED BY REMOVAL OF CONTROLS SHALL BE REPAIRED, STABILIZED, AND PERMANENTLY SEEDED.
- THE AS-BUILT INFORMATION SHOWN HEREON REFLECTS FIELD DATA COLLECTED RELATING TO THE FINAL GRADING OF THE DISTURBED AREA AS OF MARCH 5, 2018. NAVITUS ENGINEERING IS NOT RESPONSIBLE FOR ANY CHANGES MADE TO THE SITE AFTER THE ABOVE MENTIONED DATES.
- THE EXISTING CONTAINMENT BERM AROUND THE WELL PAD SHALL BE REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS PRIOR TO DRILLING OPERATIONS
- THE EXISTING EGRESSES TO THE WELL PAD SHALL HAVE THE MOUNTABLE BERMS REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS PRIOR TO DRILLING OPERATIONS.

NAVITUS
ENERGY ENGINEERING

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REVISION

DATE



THIS DOCUMENT
WAS PREPARED FOR:
ANTERO RESOURCES
CORPORATION

COVER SHEET

WEEKLEY TRUST
WELL PAD & WATER CONTAINMENT PAD
CLAY DISTRICT
RITCHIE COUNTY, WEST VIRGINIA

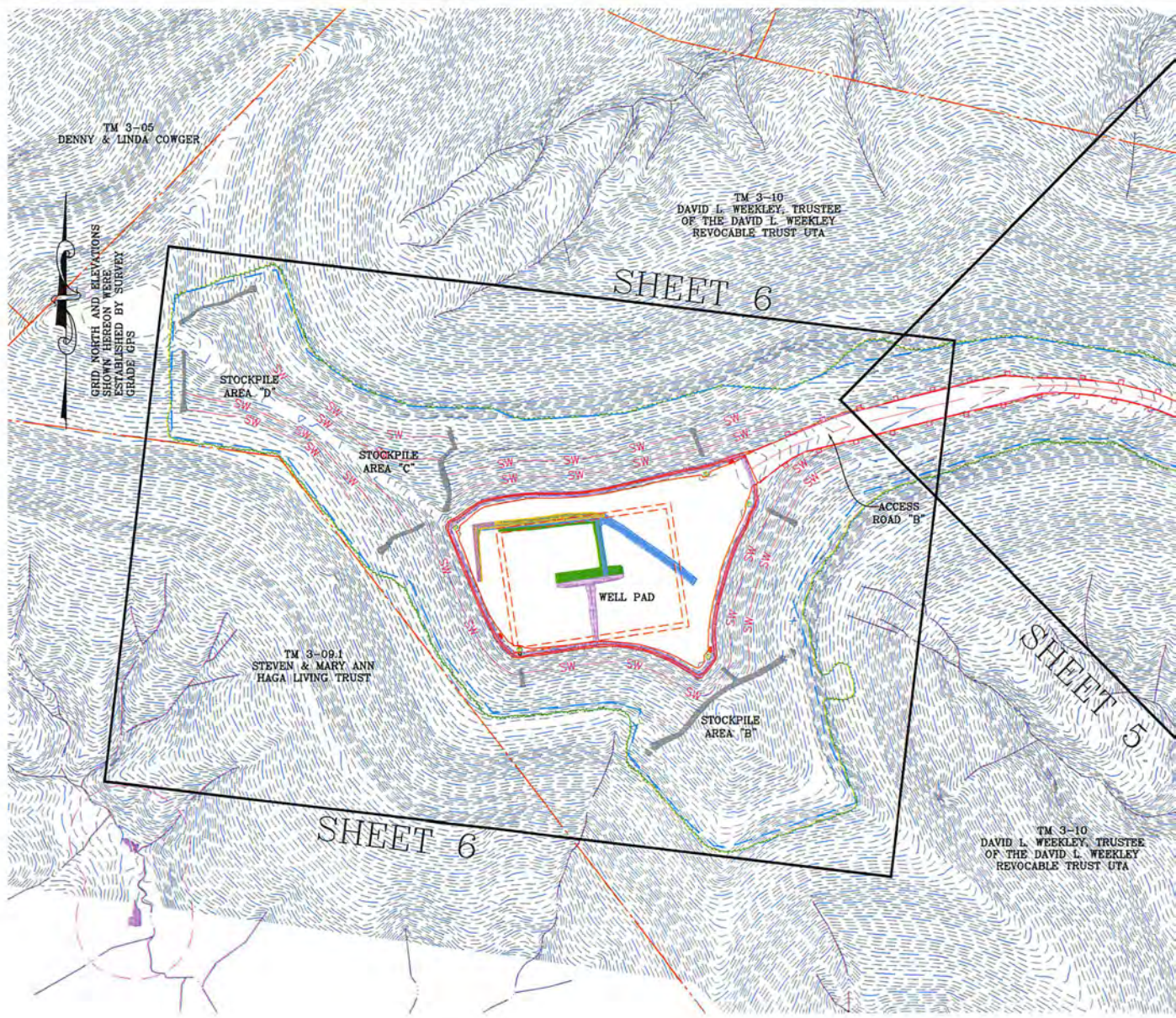


DATE: 03/05/2018
SCALE: AS SHOWN
SHEET 1 OF 9

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!!

LEGEND

LEGEND		
EX. INDEX CONTOUR & CONTOUR LABEL		PR. INDEX CONTOUR
EX. INTERMEDIATE CONTOUR		PR. INTERMEDIATE
EX. PROPERTY LINE		PR. INTERMEDIATE
EX. TOP OF BERM		PR. INDEX ROAD C
EX. ROAD EDGE OF GRAVEL/DIRT		PR. INTERMEDIATE
EX. ROAD EDGE OF PAVEMENT		PR. PADS/STOCKP
EX. ROAD CENTERLINE		PERMITTED LIMITS
EX. GUARDRAIL		MODIFICATION LIM
EX. BRIDGE		PR. ROAD/IMPOUN
EX. DITCHLINE/DRAINAGE FEATURE		PR. ROAD CENTER
EX. RIP-RAP		PR. GUARDRAIL
EX. CULVERT		PR. ROCK CONSTR
EX. TREELINE		PR. AIR BRIDGE
EX. BUILDING		PR. CULVERT
EX. MISCELLANEOUS FEATURE		PR. DITCH
EX. 100 YR FEMA FLOODPLAIN		PR. RIP-RAP TRAP
EX. DELINEATED STREAM		PR. OUTLET PROT
EX. DELINEATED WETLAND/POND		PR. DIVERSION
100' WETLAND/STREAM BUFFER		PR. ROCK LEVEL S
STREAM/WETLAND DELINEATION STUDY AREA		PR. COMPOST FIL
EX. FENCELINE		PR. SUPER SILT F
EX. GATE		PR. WELL HEAD
EX. PERIMETER SAFETY FENCE		PR. PAD DEWATER
EX. ACCESS GATE WITH EMERGENCY LIFELINE		PR. TOP OF PAD
EX. WELL HEAD ON DESIGNED PAD		PR. 220' X 320' P
EX. GAS WELL		PR. SPOT SHOT
EX. PIPELINE		PR. PERIMETER SA
EX. PIPELINE R/W		PR. ACCESS GATE
EX. PIPELINE METER		PR. PIPELINE
EX. PIPELINE VALVE		PR. PIPELINE R/W
EX. PIT		PR. OVERHEAD UT
EX. OVERHEAD UTILITY		PR. POWER POLE/
EX. POWER POLE/GUY WIRE		PR. OVERHEAD UT
EX. UNDERGROUND ELECTRIC		PR. WATERLINE
EX. UNDERGROUND TELEPHONE		BORING LOCATION
EX. UNDERGROUND FIBER OPTIC		X-SECTION/PROFI
EX. UTILITY R/W		X-SECTION/PROFI
EX. WATERLINE		X-SECTION/PROFI
EX. WATER WELL/EX. SPRING		X-SECTION/PROFI
EX. COMPOST SOCK		X-SECTION/PROFI
EX. SUPER SILT FENCE		X-SECTION/PROFI
EX. SILT FENCE		MATCHLINE
APPROX. LOCATION OF SLIDE AREA		EX. METER
APPROX. LOCATION OF BORROW/ SPOIL AREA		EX. TANK
PR. TOE BENCH		EX. COMBUSTOR
EX. APPROX. SURFACE & SUB-SURFACE ELECTRIC LINE AREA		EX. GPU
EX. APPROX. SURFACE & SUB-SURFACE DUMP LINE AREA		EX. SEPARATOR
EX. APPROX. SURFACE & SUB-SURFACE WELL LINE AREA		EX. VRT
EX. APPROX. SURFACE & SUB-SURFACE SALES LINE AREA		EX. KNOCK-OUT



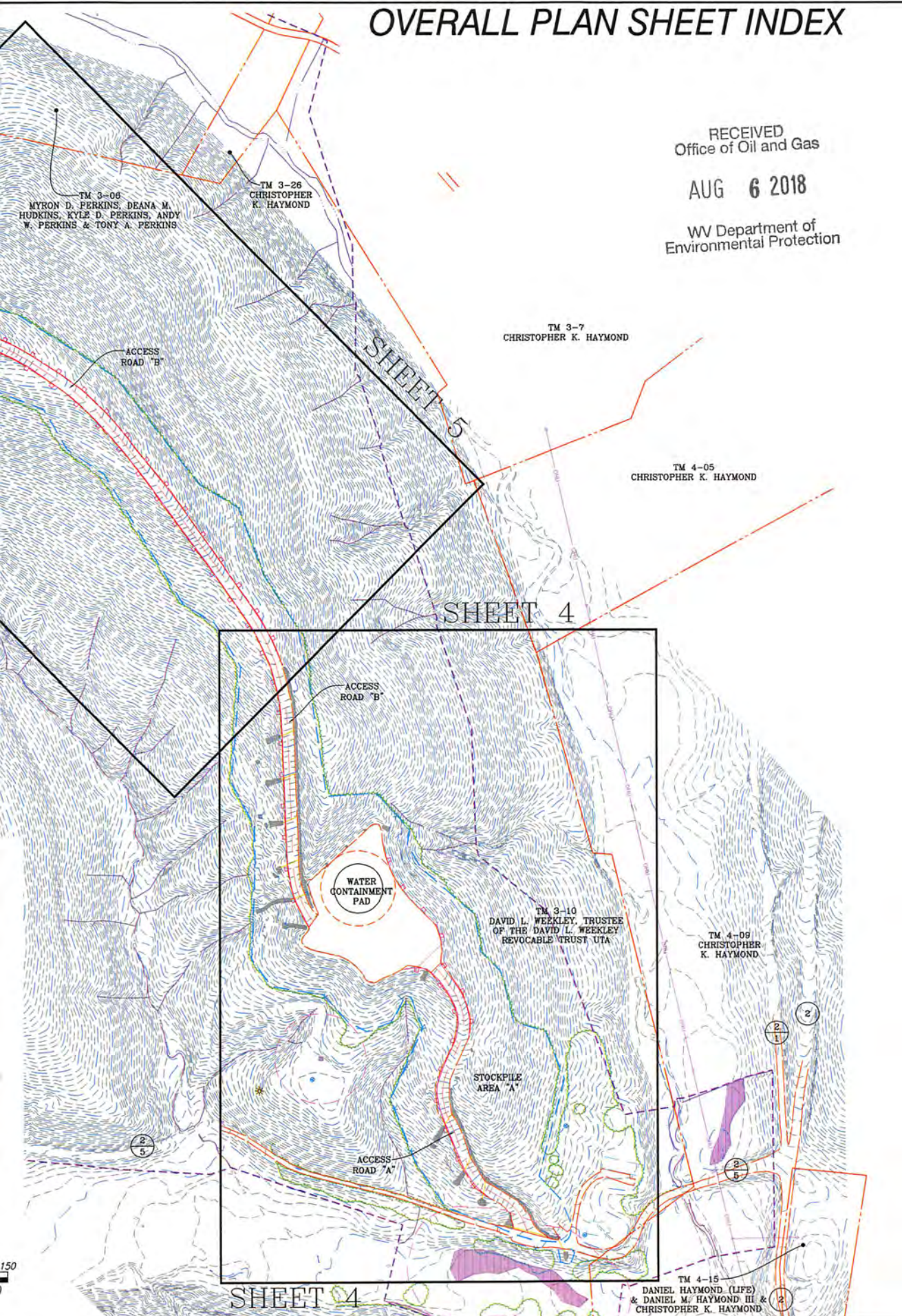
GENERAL NOTES:

1. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON APRIL 6, 2014 AERIAL PHOTOGRAPHY COMPILED MAY, 2014 BY BLUE MOUNTAIN AERIAL MAPPING, BURTON, WEST VIRGINIA.
2. AS-BUILT INFORMATION SHOWN HEREON IS BASED ON FIELD SURVEY PERFORMED BY NAVITUS ENGINEERING, INC. BETWEEN OCTOBER 20, 2017 TO MARCH 5, 2018.
3. THE PROPERTY LINES SHOWN HEREON DO NOT REPRESENT A BOUNDARY SURVEY ON ANY OF THE PARCELS SHOWN. PROPERTY CORNERS AND LINES PERTINENT TO WELL LOCATION ARE BASED ON A FIELD SURVEY. THE REMAINDER OF THE PROPERTY LINES ARE BASED ON COUNTY REAL ESTATE TAX MAPS, GIS INFORMATION AND DEEDS OF RECORD.
4. UTILITIES AND THEIR LOCATIONS AS SHOWN HEREON ARE BASED ON: A) OBSERVABLE EVIDENCE OF THOSE VISIBLE, ABOVE-GROUND FACILITIES, FEATURES, AND MARKERS WHICH WERE FOUND ON THE SUBJECT PROPERTY AT THE TIME OF SURVEY PERFORMED BY NAVITUS ENGINEERING AND B) FIELD MARKINGS PLACED BY UTILITY COMPANIES IN RESPONSE TO THE WV 811 TICKET SUBMITTED BY NAVITUS ENGINEERING. NAVITUS ENGINEERING CANNOT GUARANTEE THE ACCURACY OF THE UTILITY MARKINGS PERFORMED BY OTHERS OR THAT ALL UTILITIES EXISTING WITHIN THE LIMITS OF THIS PLAN ARE SHOWN. ANY UTILITIES ENCOUNTERED SUBSEQUENT TO PLAN APPROVAL OR DURING CONSTRUCTION THAT ARE NOT SHOWN ON THE PLAN SHOULD BE REPORTED TO NAVITUS ENGINEERING AND ANTERO RESOURCES CORPORATION.



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OVERALL PLAN SHEET INDEX



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OVERALL PLAN SHEET INDEX

WEEKLEY TRUST

WELL PAD & WATER CONTAINMENT PAD

CLAY DISTRICT

RITCHIE COUNTY, WEST VIRGINIA



DATE: 03/05/2018

SCALE: 1" = 150'

SHEET 3 OF 9

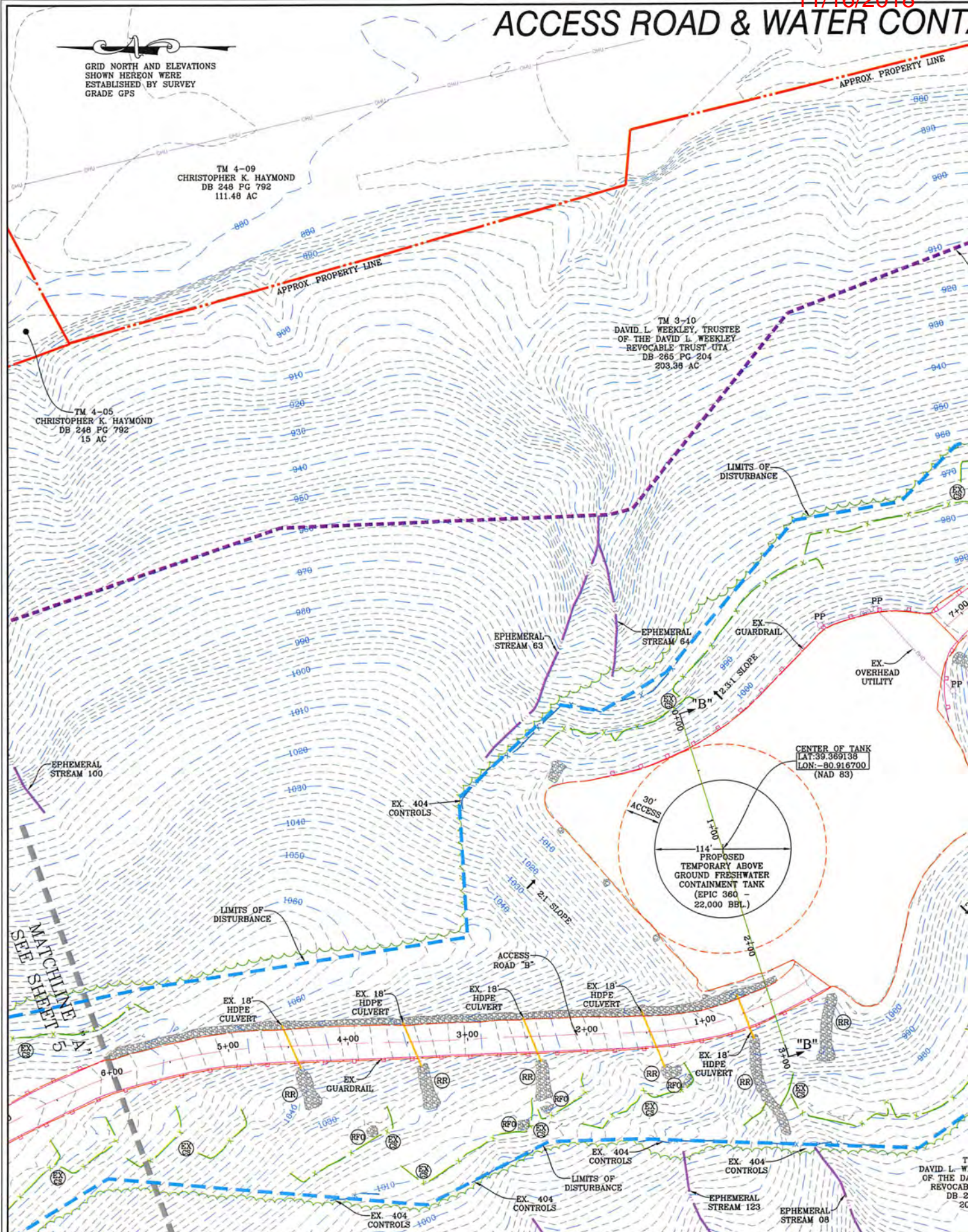
ACCESS ROAD & WATER CONT

GRID NORTH AND ELEVATIONS SHOWN HEREON WERE ESTABLISHED BY SURVEY GRADE GPS

TM 4-09
CHRISTOPHER K. HAYMOND
DB 248 PG 792
111.48 AC

TM 4-05
CHRISTOPHER K. HAYMOND
DB 248 PG 792
15 AC

TM 3-10
DAVID L. WEEKLEY, TRUSTEE
OF THE DAVID L. WEEKLEY
REVOCABLE TRUST-UTA
DB 265, PG 204
203.38 AC



DAVID L. W. OF THE D. REVOCAB DB 2

11/16/2018

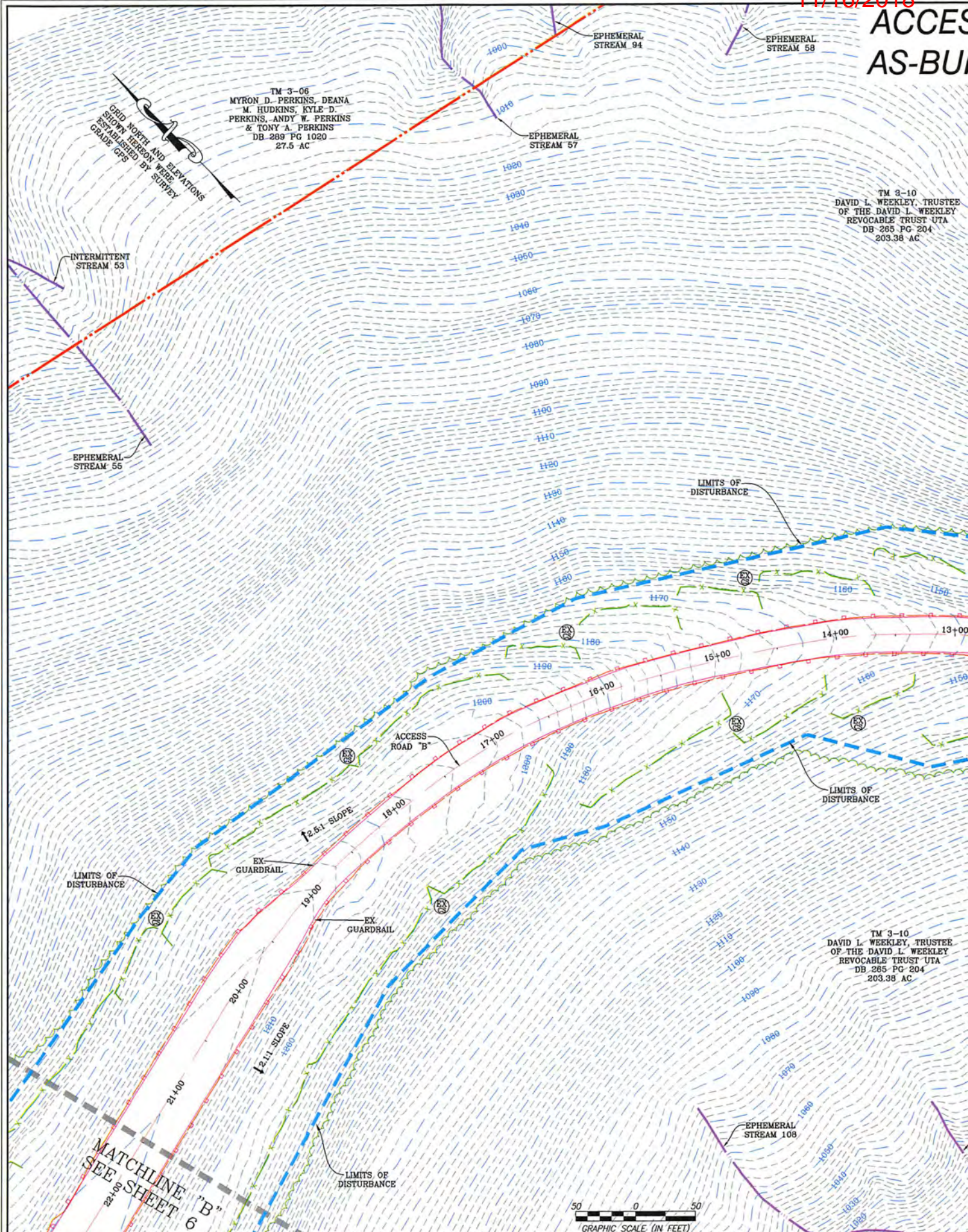
ACCESS AS-BUILT

GRID NORTH AND ELEVATIONS SHOWN HEREON WERE ESTABLISHED BY SURVEY

TM 3-06
MYRON D. PERKINS, DEANA M. HUDKINS, KYLE D. PERKINS, ANDY W. PERKINS & TONY A. PERKINS
DB 289 PG 1020
27.5 AC

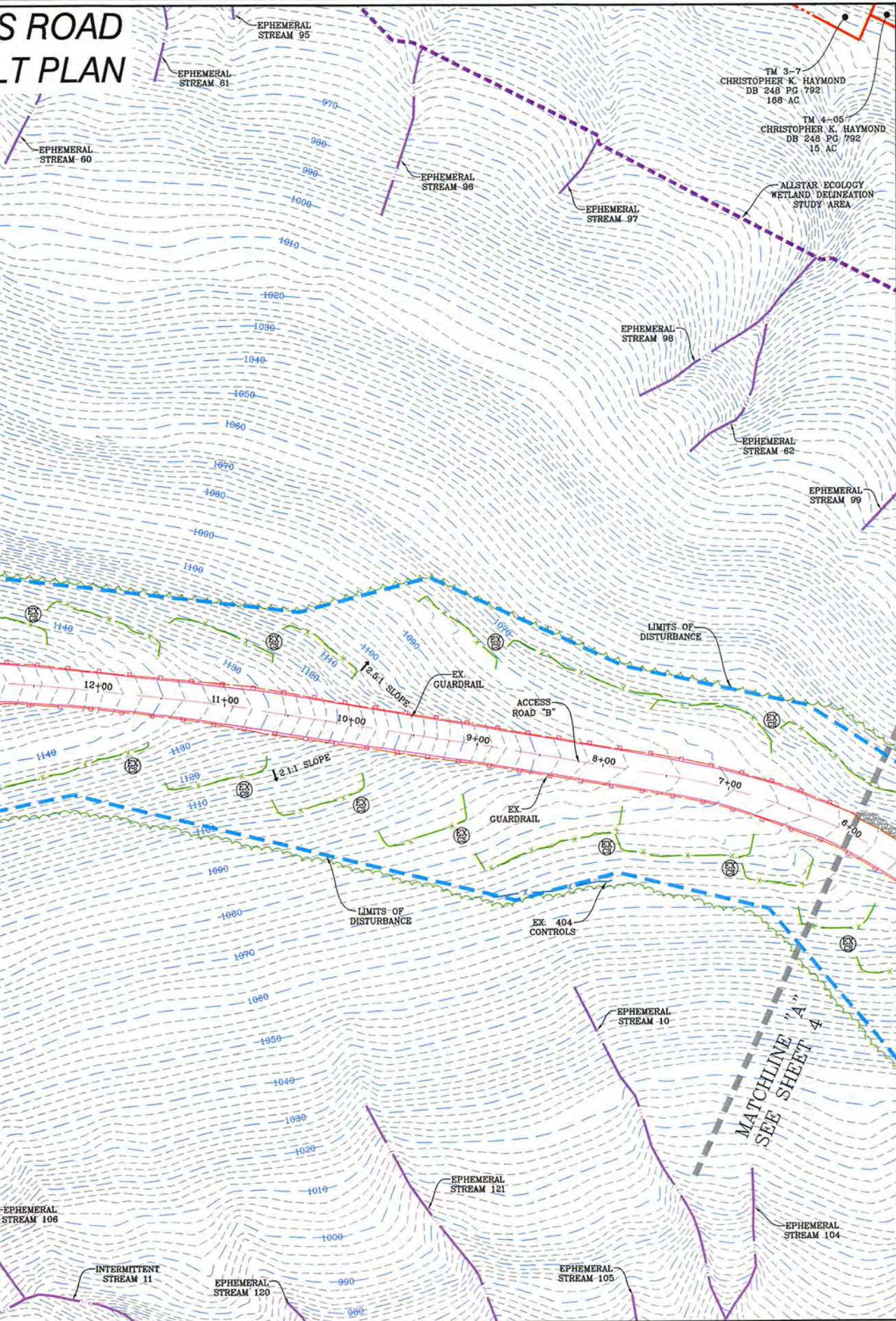
TM 3-10
DAVID L. WEEKLEY, TRUSTEE OF THE DAVID L. WEEKLEY REVOCABLE TRUST UTA
DB 265 PG 204
203.38 AC

TM 3-10
DAVID L. WEEKLEY, TRUSTEE OF THE DAVID L. WEEKLEY REVOCABLE TRUST UTA
DB 265 PG 204
203.38 AC



11/16/2018

S ROAD PLAN



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ACCESS ROAD AS-BUILT PLAN

WEEKLEY TRUST

WELL PAD & WATER CONTAINMENT PAD

CLAY DISTRICT

RITCHIE COUNTY, WEST VIRGINIA

03/05/2018

DATE: 03/05/2018

SCALE: 1" = 50'

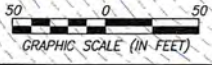
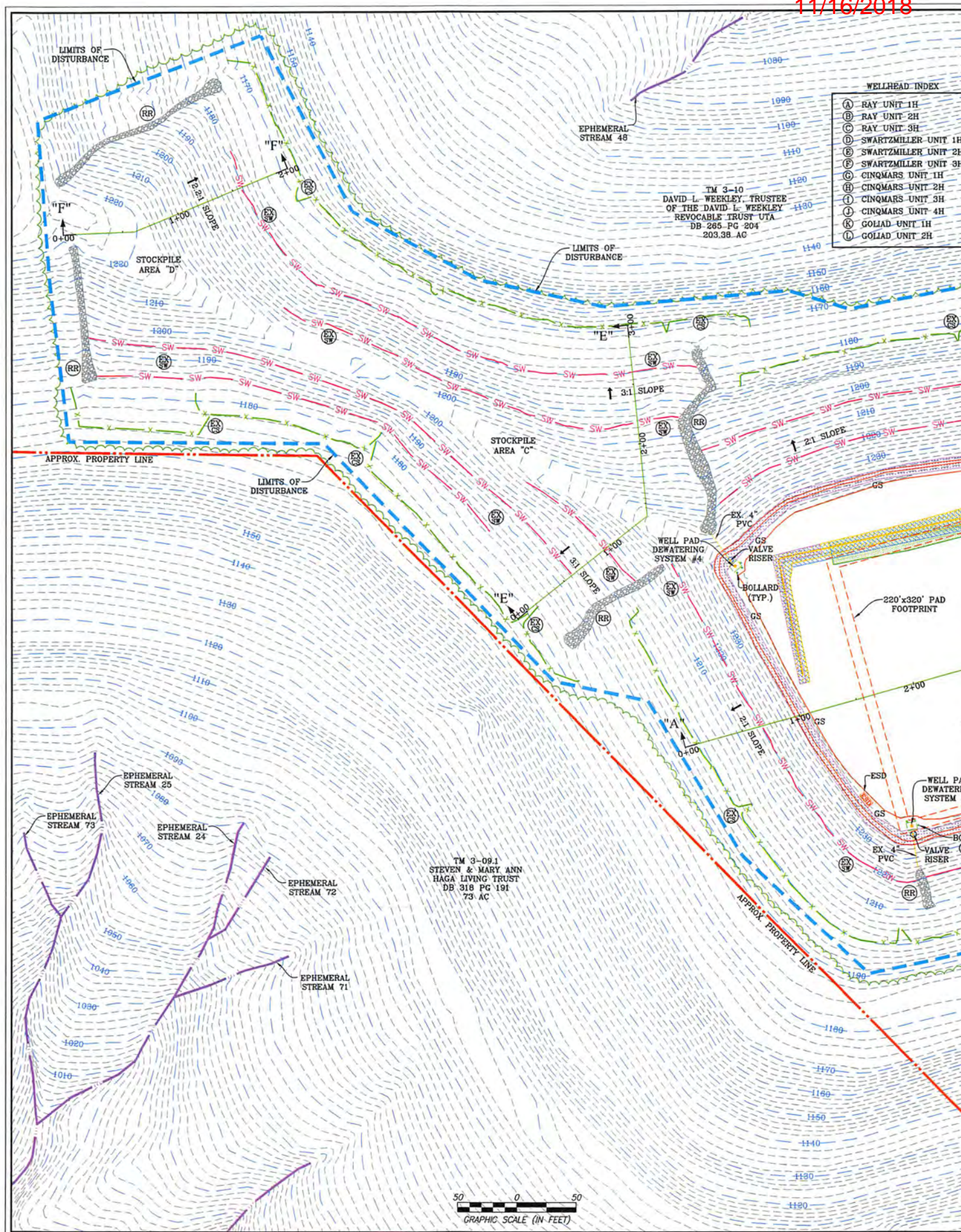
SHEET 5 OF 9

WELLHEAD INDEX

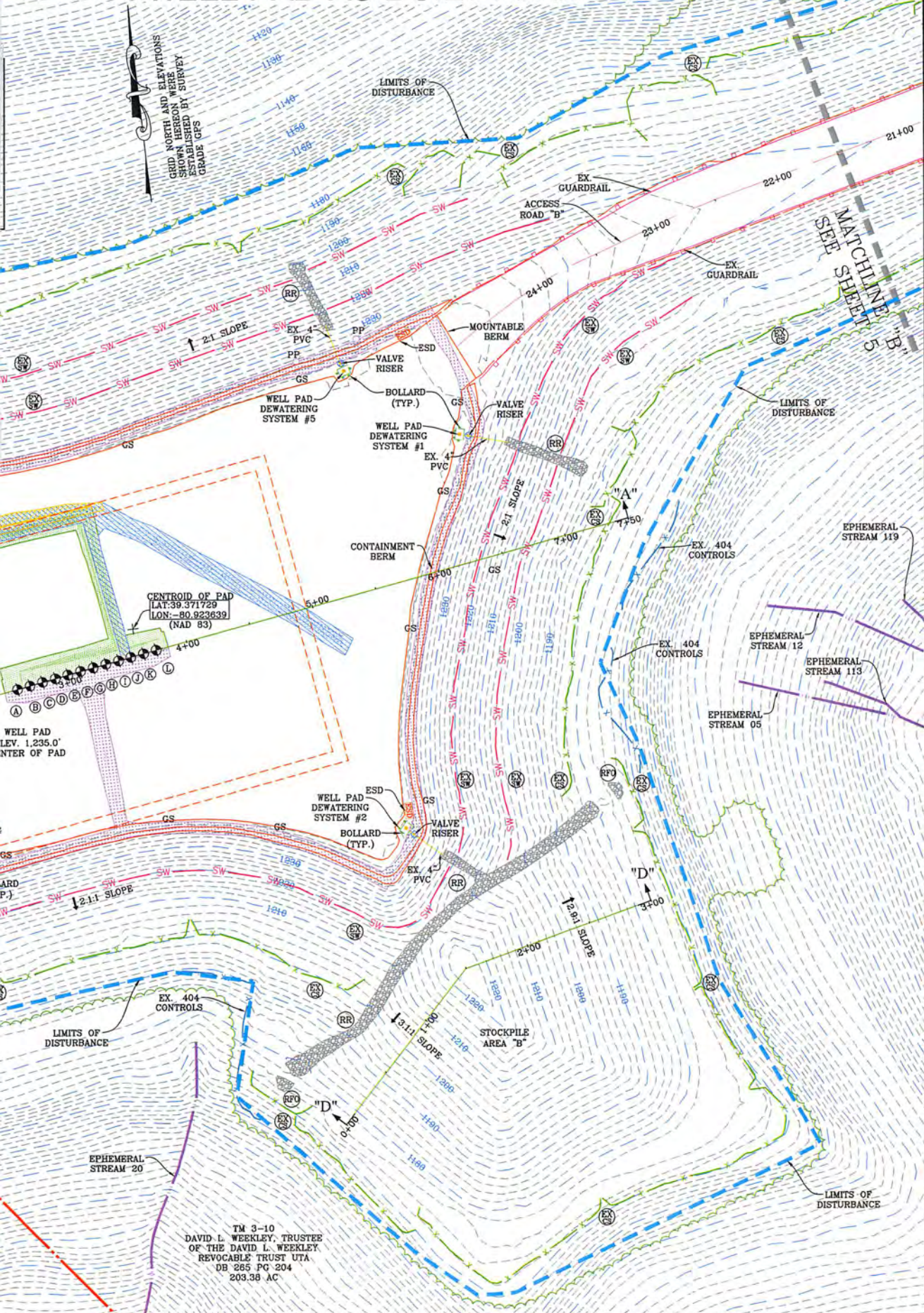
(A)	RAY UNIT 1H
(B)	RAY UNIT 2H
(C)	RAY UNIT 3H
(D)	SWARTZMILLER UNIT 1H
(E)	SWARTZMILLER UNIT 2H
(F)	SWARTZMILLER UNIT 3H
(G)	CINQMARS UNIT 1H
(H)	CINQMARS UNIT 2H
(I)	CINQMARS UNIT 3H
(J)	CINQMARS UNIT 4H
(K)	GOLIAD UNIT 1H
(L)	GOLIAD UNIT 2H

TM 3-10
 DAVID L. WEEKLEY, TRUSTEE
 OF THE DAVID L. WEEKLEY
 REVOCABLE TRUST UTA
 DB 285 PG 204
 203.38 AC

TM 3-09.1
 STEVEN & MARY ANN
 HAGA LIVING TRUST
 DB 318 PG 191
 73 AC



WELL PAD AS-BUILT PLAN



GRID NORTH AND ELEVATIONS SHOWN HEREON WERE ESTABLISHED BY SURVEY GRADE GFS

CENTROID OF PAD
LAT: 39.371729
LON: -80.823639
(NAD 83)

TM 3-10
DAVID L. WEEKLEY, TRUSTEE
OF THE DAVID L. WEEKLEY
REVOCABLE TRUST UTA
DB 265 PG 204
203.38 AC

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Resources

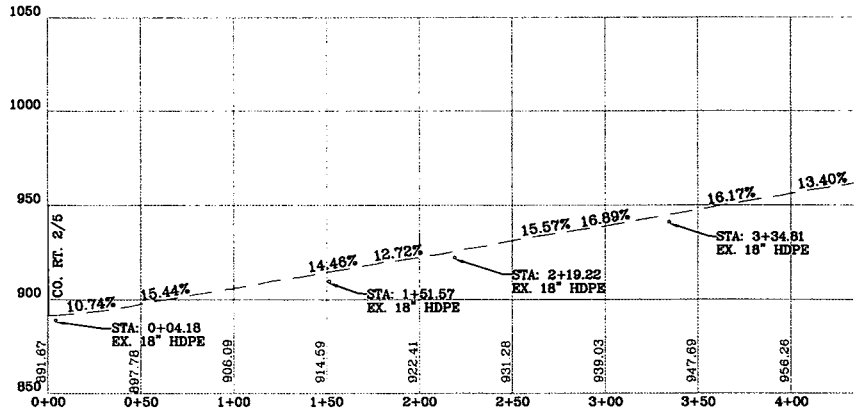
THIS DOCUMENT WAS PREPARED FOR:
ANTERO RESOURCES CORPORATION

WELL PAD AS-BUILT PLAN
WEEKLEY TRUST
WELL PAD & WATER CONTAINMENT PAD
CLAY DISTRICT
RITCHIE COUNTY, WEST VIRGINIA

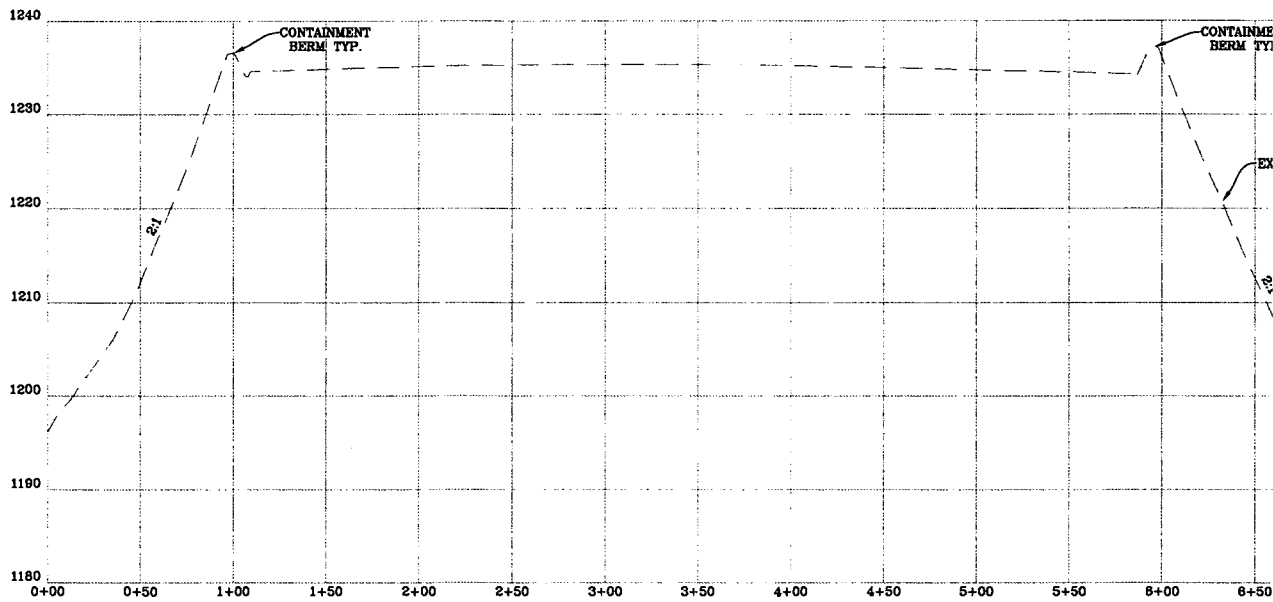
03/05/2018

DATE: 03/05/2018
SCALE: 1" = 50'
SHEET 6 OF 9

ACCESS ROAD AS-BUILT CONTAINMENT PA

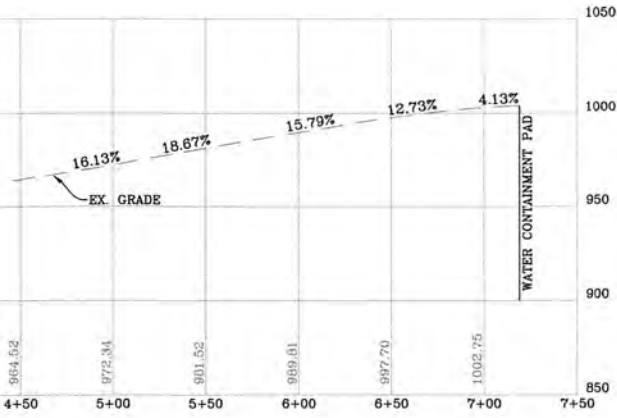


ACCESS ROAD "A" AS-BUILT
SCALE: HORIZ. 1" = 50' VERT. 1" = 10'



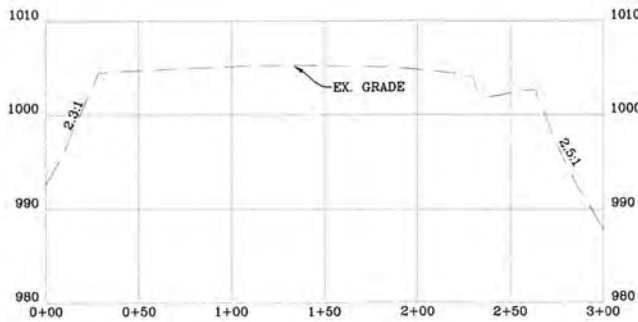
WELL PAD AS-BUILT CROSS-SECTION "A-A"
SCALE: HORIZ. 1" = 50' VERT. 1" = 10'

PROFILE, WELL PAD & WATER CONTAINMENT PAD AS-BUILT SECTIONS



T PROFILE
50'

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Environmental Protection



WATER CONTAINMENT PAD AS-BUILT CROSS-SECTION "B-B"
SCALE: HORIZ. 1" = 50' VERT. 1" = 10'



REVISION

DATE



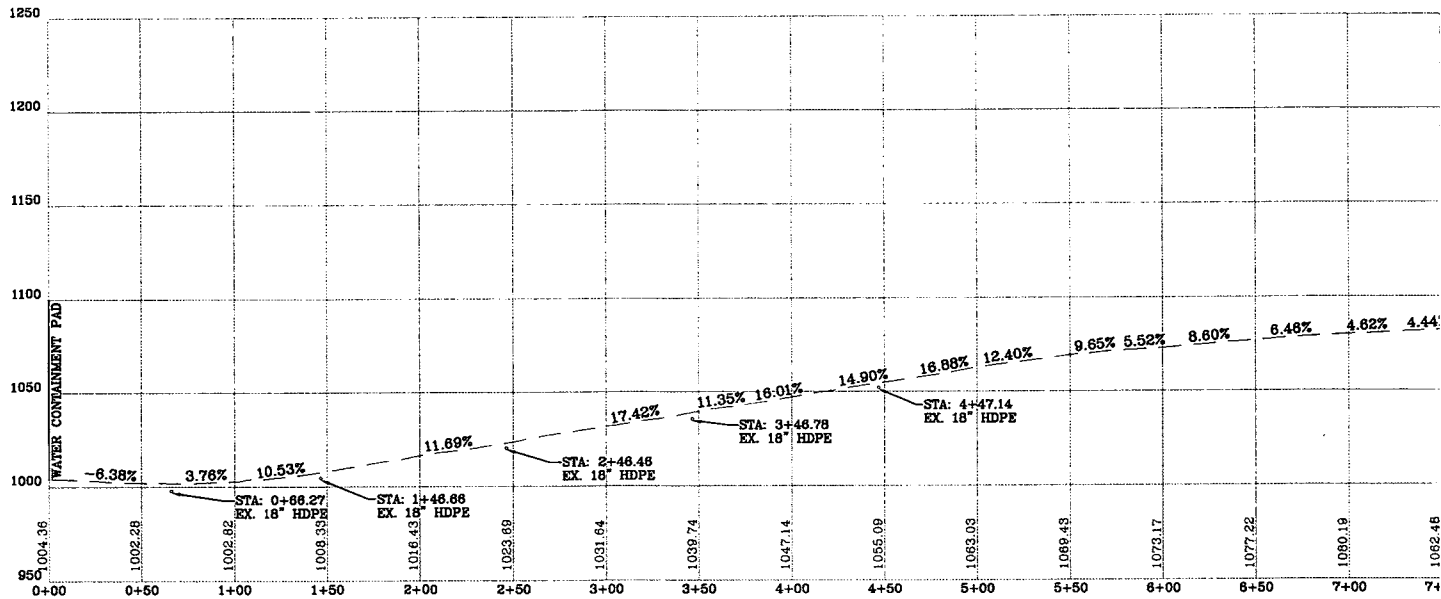
THIS DOCUMENT
WAS PREPARED FOR:
ANTERO RESOURCES
CORPORATION

ACCESS ROAD AS-BUILT PROFILE, WELL PAD &
WATER CONTAINMENT PAD AS-BUILT SECTIONS
WEEKLEY TRUST
WELL PAD & WATER CONTAINMENT PAD
CLAY DISTRICT
RITCHIE COUNTY, WEST VIRGINIA



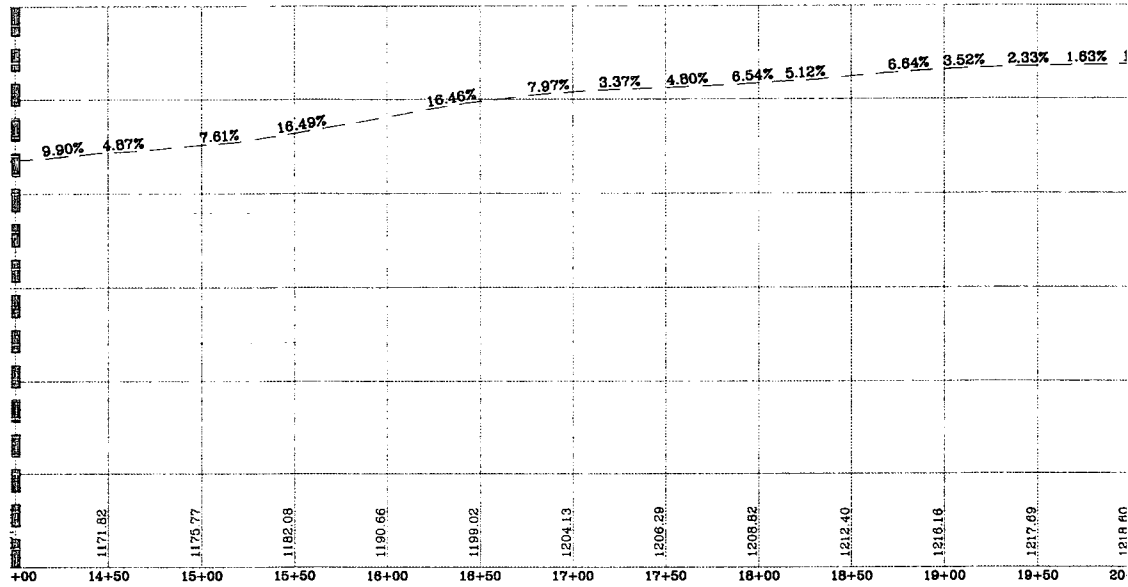
DATE: 03/05/2018
SCALE: AS SHOWN
SHEET 7 OF 9

ACCESS ROAD AS-BU



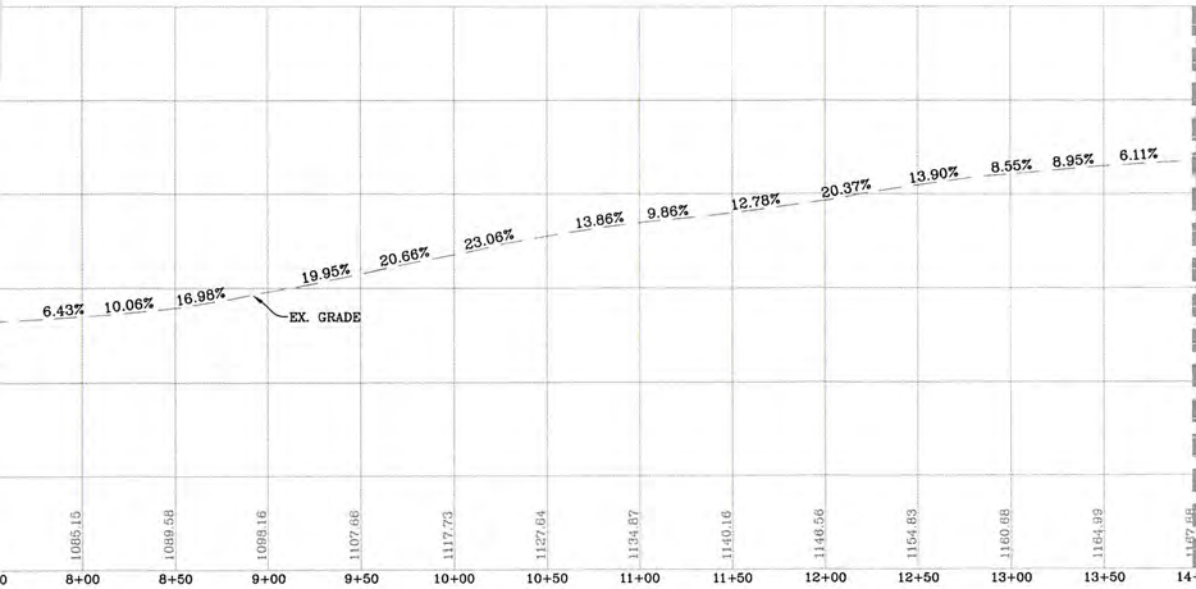
ACCESS ROAD "B" AS-BU
SCALE: HORIZ. 1" = 50' VERT. 1" = 10'

MATCHLINE
SEE ABOVE



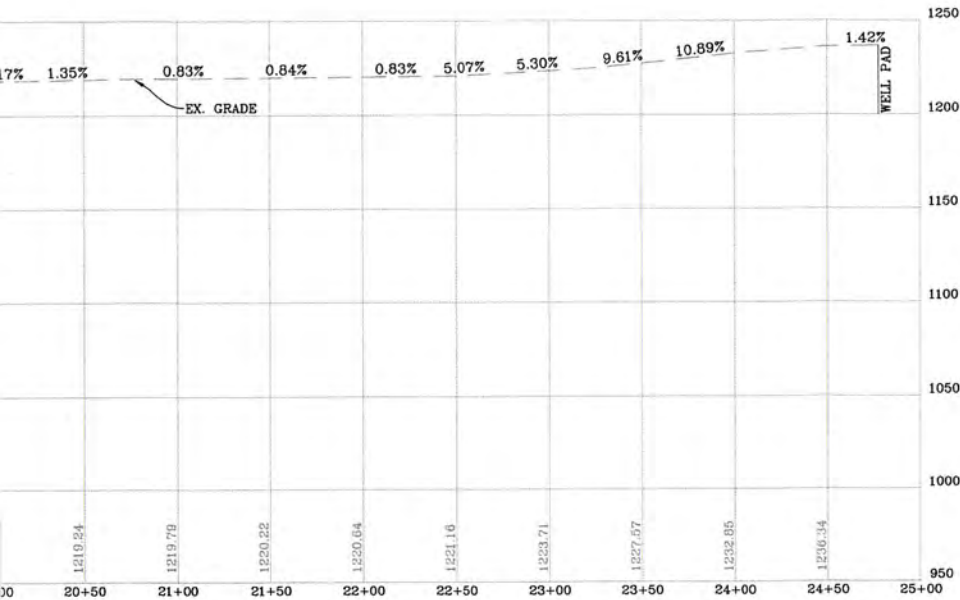
ACCESS ROAD "B" AS-BU
SCALE: HORIZ. 1" = 50' VERT. 1" = 10'

BUILT PROFILE



MATCHLINE
SEE BELOW

LT PROFILE
= 50'



LT PROFILE
= 50'



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DATE



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ACCESS ROAD AS-BUILT PROFILE
WEEKLEY TRUST
WELL PAD & WATER CONTAINMENT PAD
CLAY DISTRICT
RITCHIE COUNTY, WEST VIRGINIA



DATE: 03/05/2018

SCALE: AS SHOWN

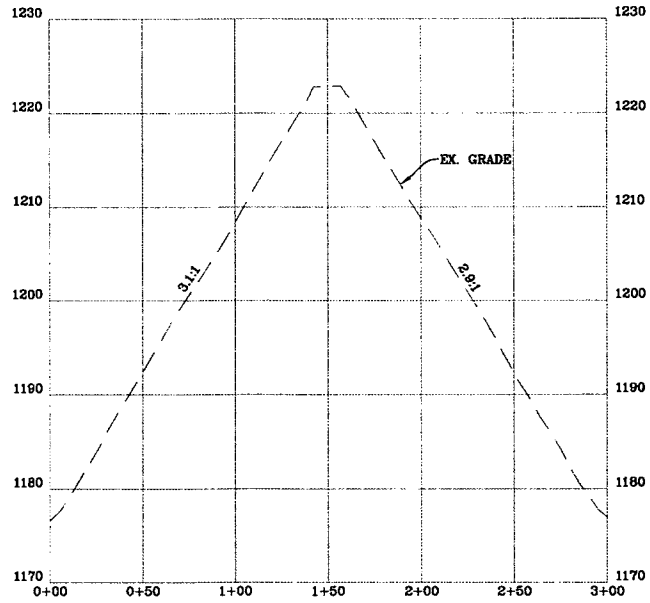
SHEET 8 OF 9

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Office of Oil and Gas

AUG 6 2018

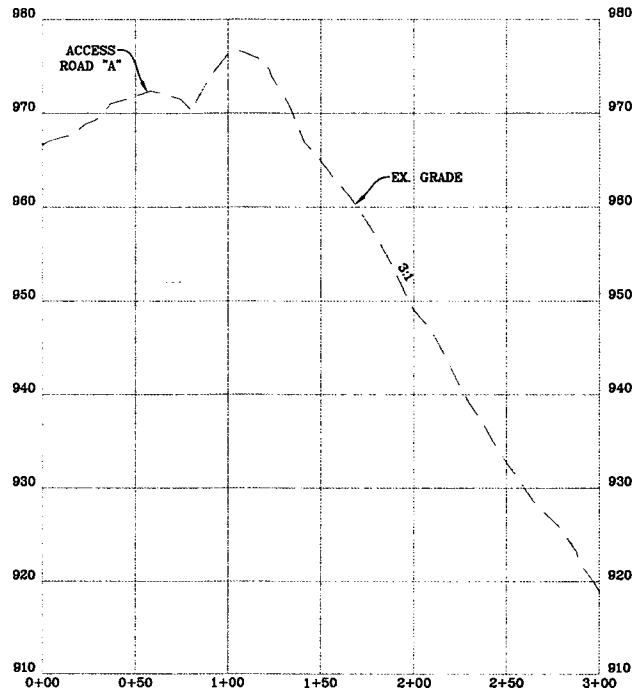
WV Department of
Environmental Protection

STOCKPILE AS-BUILT



STOCKPILE AREA "B" AS-BUILT CROSS-SECTION "D-D"

SCALE: HORIZ. 1" = 50' VERT. 1" = 10'



STOCKPILE AREA "A" AS-BUILT CROSS-SECTION "C-C"

SCALE: HORIZ. 1" = 50' VERT. 1" = 10'

