

Doddridge County Sheriff  
Flood Plain Ordinance Fund


1013  
69-217/515

DATE July 2, 2013

PAY TO THE ORDER OF ANTERO RESOURCES

\$ 6,542.40

Six Thousand Five Hundred Fourty-Two Dollars and 40/100-----DOLLARS

 Security features included. Details on back.



*Ralph Sandora*  
*Beth L. Rogers*

MEMO #13-018 Kirk Pad Reimbursement

*MP*

⑈001013⑈ ⑆051502175⑆

1196499⑈

BLUE TRADITIONAL



**ANTERO RESOURCES APPALACHIAN**  
 1625 17th STREET, SUITE 300  
 DENVER, COLORADO 80202

Vendor Name	Vendor No.	Date	Check Number	Check Total
DODDRIDGE COUNTY COMMISSION	43312	Jun-18-2013	31803	\$6,834.10

VOUCHER	VENDOR INV #	INV DATE	TOTAL AMOUNT	PRIOR PMTS & DISCOUNTS	NET AMOUNT
06-AP-8202	KIRKPAD	06/18/13	6,834.10	0.00	6,834.10
FLOOD PLAIN PERMIT - KIRK PAD					
TOTAL INVOICES PAID					6,834.10

By: BH - MEH - AML  
 Asst. Chief Tax Deputy

Michael Headley  
 Sheriff of Doddridge County

The Person paying Money into the Treasury shall forthwith file one of these Receipts with the County Clerk

## Doddridge County, West Virginia

No. 4775

Date: June 25, 2013  
 \*\*\*Customer copy\*\*\*

Received: #13-018 Antero Resources

\$6,834.10

In Payment For: 318 Building Permits (LP)

For: 12-Flood Plain Ordinanc Fund #20 Fund

By: BH - MEH - AML  
 Asst. Chief Tax Deputy

Michael Headley  
 Sheriff of Doddridge County

**Doddridge County Flood Plain Refund Calculator (if not in Flood Plain)****Kirk Pad**

Estimated Construction Costs	1,066,820.00
Amount over \$100,000	966,820.00
Drilling Oil and Gas Well Fee	1,000.00
Deposit for additional charges	1,000.00
\$5 per \$1,000 over \$100,000	4,834.10
Amount Due with application	6,834.10
95% of Application Fee minus \$1,000 deposit	5,542.40
Cost for Permit	291.71
Total Refund (Includes 100% of 1,000 deposit)	\$6,542.40



June 21, 2013

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

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

Mr. Wellings:

Antero Resources Appalachian Corporation (Antero) would like to submit a Doddridge County Floodplain permit application for our Kirk Drill Pad. Our project is located in Doddridge County, Greenbrier District and per FIRM map #54017C0255C, this location is not within the floodplain.

Attached you will find the following:

- Doddridge County Floodplain Permit Application
- FIRM Map
- A detailed set of plans signed by a WV licensed professional engineer
- Copies of other required permits
- Site Safety Plan

If you have any questions please feel free to contact me at (303) 357-6820.

Thank you in advance for your consideration.

Sincerely,

Shauna Redican  
Permit Representative  
Antero Resources Appalachian Corporation

Enclosures

2013 JUN 25 PM 2:50  
DODDRIDGE COUNTY, WV

# DODDRIDGE COUNTY FLOODPLAIN DEVELOPMENT PERMIT APPLICATION

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

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

APPLICANT'S SIGNATURE Shauna Redican

DATE June 21, 2013

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

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

Antero Resources Appalachian Corporation - Shauna Redican,  
Permit Representative

ADDRESS: 1625 17th Street, Denver, CO 80202

TELEPHONE NUMBER: Contact Shauna Redican: 303-357-6820

**BUILDER'S NAME:** Antero Resources Appalachian Corporation

**ADDRESS:** 1625 17th Street, Denver, CO 80202

**TELEPHONE NUMBER:** (303) 357-7310

**ENGINEER'S NAME:** Allegheny Surveys, Inc. - Charles K. Wilson

**ADDRESS:** 172 Thompson Drive, Bridgeport, WV 26330

**TELEPHONE NUMBER:** 304-848-5035

**PROJECT LOCATION:**

**NAME OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT)** Please see attached Exhibit A

**ADDRESS OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT)** Please see attached Exhibit A

**DISTRICT:** Greenbrier

**DATE/FROM WHOM PROPERTY**

**PURCHASED:** N/A

**LAND BOOK DESCRIPTION:**

**DEED BOOK REFERENCE:** Please see attached Exhibit A

**TAX MAP REFERENCE:** Please see attached Exhibit A

**EXISTING BUILDINGS/USES OF PROPERTY:** None

**NAME OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY** John K. and Mary J. Davis

**ADDRESS OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY** RR 3 Box 15, Salem, WV 26426

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

**DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)**

**A. STRUCTURAL DEVELOPMENT**

**ACTIVITY**

**STRUCTURAL TYPE**

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

**B. OTHER DEVELOPMENT ACTIVITIES:**

- |                                     |  |                          |        |                                     |          |                          |            |
|-------------------------------------|--|--------------------------|--------|-------------------------------------|----------|--------------------------|------------|
| <input checked="" type="checkbox"/> | Fill   | <input type="checkbox"/> | Mining | <input checked="" type="checkbox"/> | Drilling | <input type="checkbox"/> | Pipelining |
| <input checked="" type="checkbox"/> | Grading  |                          |        |                                     |          |                          |            |
| <input type="checkbox"/>            | Excavation (except for STRUCTURAL DEVELOPMENT checked above)   |                          |        |                                     |          |                          |            |
| <input type="checkbox"/>            | Watercourse Altercation (including dredging and channel modification)  |                          |        |                                     |          |                          |            |
| <input checked="" type="checkbox"/> | Drainage Improvements (including culvert work) *Replace existing culvert as shown on pages 6-9 of attached Kirk Pad Design |                          |        |                                     |          |                          |            |
| <input checked="" type="checkbox"/> | Road, Street, or Bridge Construction *Access Road Construction as shown on pages 6-9 of attached Kirk Pad Design           |                          |        |                                     |          |                          |            |
| <input type="checkbox"/>            | Subdivision (including new expansion)  |                          |        |                                     |          |                          |            |
| <input type="checkbox"/>            | Individual Water or Sewer System   |                          |        |                                     |          |                          |            |
| <input type="checkbox"/>            | Other (please specify)   |                          |        |                                     |          |                          |            |

**C. STANDARD SITE PLAN OR SKETCH**

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

**ACTUAL TOTAL CONSTRUCTION COSTS OF THE COMPLETE DEVELOPMENT IRRESPECTIVE OF WHETHER ALL OR ANY PART OF THE SUBJECT PROPOSED CONSTRUCTION PROJECT IS WITHIN THE FLOODPLAIN \$ 1,066,819.56**

\*See attached Floodplain Calculation Fee

**D. ADJACENT AND/OR AFFECTED LANDOWNER**

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

NAME: N/A  
 ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

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

NAME: N/A  
 ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

**E. CONFIRMATION FORM**

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

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



## Kirk Pad Doddridge County Floodplain Permit – Exhibit A

Surface Owner Name	Address	Deed/Page	Tax Map/ Parcel
Kenneth A. Kirk	RR 1 Box 359, Salem, WV 26426	267/652 and 267/652	7/44 and 10/9.1
Homer L. Ford	272 Big Isaac Rd., Salem, WV 26426	WB11/556	7/36.1
John K. & Mary Jo Davis	RR 3 Box 15, Salem ,WV 26426	200/388, 168/650 and 177/714	8/25.3 and 8/32.1

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

NAME (PRINT): Anthony Smith

SIGNATURE: [Handwritten Signature] DATE: 6/24/13

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

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

**THE PROPOSED DEVELOPMENT:**

THE PROPOSED DEVELOPMENT IS LOCATED ON:

FIRM Panel: 255  
 Dated: 10/04/2011

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

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

Unavailable

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

See section 4 for additional instructions.

SIGNED Dan Wellings

DATE 06/25/2013

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

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

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

Other:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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

SIGNED Dan Wellings DATE 06/25/2013

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

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

CONDITIONS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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

COMPLETE 1 OR 2 BELOW:

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

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

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

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

**INSPECTIONS:**

DATE: \_\_\_\_\_ BY: \_\_\_\_\_  
DEFICIENCIES ?      Y/N

COMMENTS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

Certificate of Compliance issued: DATE: \_\_\_\_\_ BY: \_\_\_\_\_

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

PERMIT NUMBER: 13-018

PERMIT DATE: 6/25/2013

**PURPOSE –**

**CONSTRUCTION LOCATION:** \_\_\_\_\_

**OWNER'S ADDRESS:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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

SIGNED *Dan Kellogg* DATE 06/25/2013

**CLEARING & GRUBBING; EROSION & SEDIMENT CONTROLS**

**Kirk Pad**

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
MOBILIZATION	1	EA	\$19,140.00	\$19,140.00
CONSTRUCTION ENTRANCE	0	EA	\$3,172.76	\$0.00
CLEARING & GRUBBING	25.44	AC	\$4,513.25	\$114,817.08
TREE REMOVAL	20.58	AC	\$2,953.00	\$60,772.74
8" COMPOST FILTER SOCK	0	LF	\$2.83	\$0.00
12" COMPOST FILTER SOCK	3,050	LF	\$3.82	\$11,651.00
18" COMPOST FILTER SOCK	150	LF	\$7.94	\$1,191.00
24" COMPOST FILTER SOCK	0	LF	\$9.23	\$0.00
32" COMPOST FILTER SOCK	3,600	LF	\$14.00	\$50,400.00
JUTE MATTING - SLOPE MATTING	32,000	SY	\$2.13	\$68,160.00
SUPER SILT FENCE	1,200	LF	\$8.48	\$10,176.00
9" STRAW WATTLES	7,900	LF	\$3.11	\$24,569.00
<b>TOTAL</b>				<b>\$360,876.82</b>

**RETAINING STRUCTURES**

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
CONCRETE BIN BLOCKS (2' x 2' x 6')	0	EA	\$75.00	\$0.00
GABION CAGES WITH STONE (3' X 3' X 6')	0	EA	\$175.00	\$0.00
HORIZONTAL REINFORCEMENT (INSTALL TENSAR TX190 GEOGRID or EQUIVALENT)	0	SY	\$0.82	\$0.00
<b>TOTAL</b>				<b>\$0.00</b>

**SITE**

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
DRILL PAD EXCAVATION	49,882	CY	\$3.75	\$187,057.50
ACCESS ROADS EXCAVATION	55,262	CY	\$4.16	\$229,889.92
TANK PAD and/or FRAC PIT EXCAVATION	3,401	CY	\$4.13	\$14,046.13
OFFLOAD PAD EXCAVATION	0	CY	\$7.00	\$0.00
SPOIL PAD EXCAVATION	75	CY	\$3.84	\$288.00
TRUCK QUEUE / TURNAROUND EXCAVATION	7,122	CY	\$4.13	\$29,413.86
TOPSOIL	9,000	CY	\$4.09	\$36,810.00
DIVERSION DITCH	0	LF	\$4.50	\$0.00
ROADSIDE DITCH	5,200	LF	\$3.99	\$20,748.00
<b>TOTAL</b>				<b>\$518,253.41</b>

**SUMP(S) PER ANTERO RESOURCES STANDARD DETAIL**

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
INSTALL 102" x 78" x 44" PRE CAST SUMP	4	EA	\$844.22	\$3,376.88
VALVE BOX HDPE PIPE (MINIMUM 12" DIAMETER x 48" HEIGHT)	4	EA	\$545.50	\$2,182.00
4" PVC CONNECTIVE PIPE (ANTERO SUMP DRAIN DETAIL)	120	LF	\$9.42	\$1,130.40
<b>TOTAL</b>				<b>\$6,689.28</b>

**AGGREGATE SURFACING - SPREADING, COMPACTION, and/or INSTALLATION**

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
DRILL PAD AASHTO #1 (8" THICK)	5,800	TON	\$2.59	\$15,022.00
DRILL PAD 1 1/2" or 3/4" CRUSHER RUN STONE (2" THICK)	1,450	TON	\$2.89	\$4,190.50
DRILL PAD GEOTEXTILE FABRIC (US 200)	11,000	SY	\$1.06	\$11,660.00
ACCESS ROADS 6" OR 4" MINUS CRUSHER RUN AGGREGATE (8" THICK)	5,100	TON	\$2.83	\$14,433.00
ACCESS ROADS 1 1/2" OR 3/4" CRUSHER RUN STONE (2" THICK)	1,275	TON	\$2.95	\$3,761.25
ACCESS ROADS GEOTEXTILE FABRIC (US 200)	10,650	SY	\$1.02	\$10,863.00
*INSTALL TENSAR TX190 GEOGRID or EQUIVALENT	10,650	SY	\$0.82	\$8,733.00
OFFLOAD PAD/TRUCK QUEUE/TURNAROUND 6" OR 4" MINUS CRUSHER RUN AGGREGATE (8" THICK)	1,075	TON	\$4.50	\$4,837.50
OFFLOAD PAD/TRUCK QUEUE/TURNAROUND 1 1/2" or 3/4" CRUSHER RUN AGGREGATE (2" THICK)	270	TON	\$4.50	\$1,215.00
OFFLOAD PAD/TRUCK QUEUE/TURNAROUND GEOTEXTILE FABRIC (US 200)	2,250	SY	\$1.25	\$2,812.50
*INSTALL TENSAR TX190 GEOGRID or EQUIVALENT	2,250	SY	\$1.00	\$2,250.00
<b>TOTAL</b>				<b>\$79,777.75</b>

**ROAD CULVERTS**

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
15" HDPE	260	LF	\$20.11	\$5,228.60
18" HDPE	420	LF	\$23.33	\$9,798.60
24" HDPE	0	LF	\$41.20	\$0.00
30" HDPE	0	LF	\$32.50	\$0.00
36" HDPE	0	LF	\$0.00	\$0.00
42" HDPE	0	LF	\$0.00	\$0.00
48" HDPE	0	LF	\$0.00	\$0.00
60" HDPE	0	LF	\$0.00	\$0.00
R4 RIP RAP (INLETS/OUTLETS)	155	TON	\$35.69	\$5,531.95
AASHTO #1 STONE (DITCH CHECKS)	4	TON	\$61.10	\$244.40
DITCH LINING - (ACCESS ROAD) JUTE MATTING	1,300	SY	\$3.00	\$3,900.00

DITCH LINING - (ACCESS ROAD) SYNTHETIC MATTING (TRM)	1,500	SY	\$3.45	\$5,175.00
DIVERSION DITCH LINING - SYNTHETIC MATTING (TRM)	0	SY	\$3.45	\$0.00
<b>TOTAL</b>				<b>\$29,878.55</b>

**FENCING/GATES**

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
4 FT WOVEN WIRE FARM FENCE w/MINIMUM 10 FT POST SPACING (WOODEN and/or "T" POST)	1,250	LF	\$16.50	\$20,625.00
16 FT DOUBLE GATE	1	EA	\$1,200.00	\$1,200.00
<b>TOTAL</b>				<b>\$21,825.00</b>

**SEEDING**

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
SITE SEEDING (LIME, FERTILIZER, SEEDING, AND HYDRO-MULCH w/TACK (HYC-2 OR EQUAL))	15	AC	\$3,301.25	\$49,518.75
<b>TOTAL</b>				<b>\$49,518.75</b>

**UNFORESEEN SITE CONDITIONS**

	QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
*ROCK CLAUSE - BLASTING	0.0	CY	\$3.27	\$0.00
*ROCK CLAUSE - HOE RAMMING	0.0	CY	\$11.35	\$0.00
*FRENCH DRAINS	0.0	FT	\$10.93	\$0.00
*ORANGE SAFETY FENCE w/"T" POST (10FT CENTERS) - WETLAND PROTECTION	0.0	LF	\$10.60	\$0.00
*STEEL PANELS w/"T" POST (10 FT CENTERS) - WETLAND PROTECTION	0.0	LF	\$6.35	\$0.00
*SILT FENCE	0.0	LF	\$4.00	\$0.00
*TEMPORARY SEEDING	0.0	AC	\$2.67	\$0.00
*CONSTRUCTION STAKEOUT	0.0	HOUR	\$1,962.50	\$0.00
*JUTE MATTING - SLOPE MATTING	0.0	SY	\$2.13	\$0.00
<b>TOTAL</b>				<b>\$0.00</b>

<b>GRAND TOTAL</b>	<b>\$1,066,819.56</b>
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# **Well Site Safety Plan**

## **Antero Resources**

**Well Name: Bernice Unit 1H, Dukate Unit 1H, Dukate Unit 2H, Farm Unit 1H, Farm Unit 2H, Sandra Unit 1H, Sandra Unit 2H and Kimberly Unit 2H**

**Pad Location: KIRK PAD**  
Doddridge County/ Greenbrier District

**GPS Coordinates:** Lat 39°13'20.33"/Long 80°35'22.69" (NAD83)

### **Driving Directions:**

From Salem:

Head South on South Street for 0.2 miles. Continue onto Patterson Rd for 0.2 miles. Continue onto Co Route 29/Patterson Fork Rd for 0.2 miles. Continue onto Salem Country Club Rd for 0.4 miles. Salem Country Club Rd turns slightly right and becomes Co Route 29/Patterson Fork Rd. Drive for 1.5 miles; take a slight right onto Co Route 15/Sherwood-Greenbrier Rd. In 2.1 miles, turn left onto Co Route 48/Big Isaac and drive for 0.3 miles. Turn slight right onto Co Route 48/3 and travel for 0.3 miles. Access road will be on the right.

# Approval Sheet

The West Virginia Department of Environmental Protection Office of Oil and Gas has set forth minimum requirements for a Well Site Safety Plan which shall be submitted with each horizontal well application. A horizontal well shall be any well which meets the definition as provided for in Title 35, Series 8, Section 2.2 of the West Virginia Department of Environmental Protection Office of Oil and Gas.

Approved Safety Plans should be maintained and available at the drilling rig at all times and provided to the local emergency planning committee for the emergency planning district in which the well work will occur or to the county office of emergency services at least seven days before commencement of well work or site preparation work that involves any disturbance of land.

The Safety Plan, once approved, may only be modified upon approval by the West Virginia Department of Environmental Protection Office of Oil and Gas ("Office").

This plan has met the requirements of the West Virginia Department of Environmental Protection Office of Oil and Gas Well Site Safety Plan Standards.

Approved this day \_\_\_\_\_ of month \_\_\_\_\_, 20\_\_ by

\_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ Date: \_\_\_\_\_

## Plan Modification\*

Revision No.	Description of Revision	Antero Preparer	Antero Reviewer/Approver	Agency Approval	Date

\*The Office of Oil and Gas must approve all changes and modifications to previously approved plans.

# Site Specific Safety Plan

## Antero Resources

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### 1.0 Siting Requirements

1.1. Exhibit 1 provides a plan view map showing the well location, access road, pits, flare lines, dwellings, and noting the north and prevailing wind directions.

1.2. Exhibit 2 also provides an area topographical map showing the well site location

### 2.0 Site Safety Plan

#### 2.1. Safety Meeting

Safety meetings will be conducted as follows:

- Pre-Drilling,
- Pre-Completion,
- Pre-Workover
- Post Accident/Near Miss, and
- As-Needed.

Safety meetings should be held on-site weekly, at a minimum, prior to the beginning of operations, and:

- Includes personnel employed and involved in the operations, and
- Includes the District Oil and Gas Inspector (or other designated Office of Oil and Gas representative, for the pre-spud meeting only).

Typically, contractor of the operator will conduct these safety meetings with Antero Resources personnel participating as needed. Please list the above personnel as a record of attendance using the form found in Appendix A, or one similar. These records may be maintained separate from this plan.

## **2.2 Personnel and Visitor Log**

This log is intended to provide a current headcount of all persons present at the site at any given time. All personnel and visitors must sign in upon entering the site and sign out upon departure. This log, or one similar, is provided in Appendix B and will be maintained at all times by the Drilling Supervisor or Toolpusher.

## **2.3 Evacuation Plan**

The Drilling Supervisor or Toolpusher will establish a muster point at which all persons on site will assemble for personnel safety and verification of headcount. This point will be located at the entrance to the site.

In the event of an emergency requiring the evacuation of personnel, an audible or visual alarm will be sounded. The Drilling Supervisor and/or the Toolpusher will determine if local residents should be evacuated at this time depending on the outcome of their assessment of the situation.

If local resident evacuation is indicated, the Drilling Supervisor and/or the Toolpusher will be responsible for notifying the local impacted residents, or the local authorities will take this responsibility depending on the urgency, availability and direction of the local authorities. Local authorities have indicated that they will take this responsibility typically and will notify of evacuation mandates via television and radio media announcements in addition to public address units on patrol vehicles. In the event that Antero is directed to take this responsibility, notification will be by dispatching a worker to each affected residence to inform them of evacuation requirements and procedures. See section 8.1 for additional information.

Evacuated local residents may be temporarily housed in local hotels depending on the severity and duration of the emergency. Included in Exhibits 1 & 2 are maps and drawings that may assist in the emergency response and evacuation process.

The Drilling Supervisor and/or the Toolpusher will secure the Personnel and Visitor log before evacuating the site in order to perform a headcount at the muster point.

## **2.4 Emergency Response Personnel**

Requesting public emergency response assistance for this location would be accomplished by the Drilling Supervisor or Toolpusher via telephone to Harrison County Dispatch which can be reached by dialing 911. From there, they will dispatch the appropriate and available emergency response agencies depending on the nature and extent of the emergency.

A list of Emergency Contacts, including Antero's 24 hour emergency contact telephone number, any contractors of the operator, the Department, the local oil and gas inspector, and local emergency response units are found in Appendix C. This list will be posted at the well site.

## **2.5 Local Schools and Public Facilities**

In the event of an emergency requiring the evacuation of schools and public facilities the Drilling Supervisor or Toolpusher will make the required notifications unless the local public emergency responders take on this responsibility. Generally, local emergency responders have stated that they will assume this responsibility. Exhibit 3 lists all schools and public facilities, with their contact information, within a one-mile radius of the horizontal well location.

## **2.6 Material Safety Data Sheets**

The Drilling Supervisor or Contractor of the Operator will maintain Material Data Safety Sheets (MSDS) for all materials and chemicals used on the well site. The MSDS sheets should be located in the Company Representatives Office on-site. Copies of the MSDS sheets may also be obtained from the area Safety Coordinator, the operator contact for maintaining MSDSs, by calling the local Antero Resource Office at 304-622-3842. See Appendix F for a list of hazardous chemicals used during phases of operation.

## **3.0 Casing Requirements**

### **3.1 Geologic Prognosis**

A list of anticipated freshwater, saltwater, oil and gas, hydrogen sulfide, thief zones, and high pressure and high volume zones, including their expected depth are attached to this plan in Exhibit 4, WW-6B.

### **3.2 Casing and Cementing Program**

Exhibit 4 shows the detailed casing and cementing program, which meets the standards of the American Petroleum Institute (API) and employs a minimum of three strings of casing which are of sufficient weight, quantity and quality for the anticipated conditions to be encountered. This

casing and cementing program is designed to maintain well control and integrity. The casing setting depths are sufficient to cover and seal off those zones as identified in Exhibit 4.

## **4.0 BOP Requirements**

### **4.1 BOP Equipment**

The following is a list of all BOP equipment with types, sizes and ratings to be utilized and available during the drilling, completion and work-over of the well.

5M system:

- Annular preventer\*
- Pipe ram, blind ram, and, if conditions warrant, as specified by the authorized officer, another pipe ram shall also be required\*
- A second pipe ram preventer shall be used with a tapered drill string
- Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3-inch minimum diameter, kill side shall be at least 2-inch diameter)\*
- 3 inch diameter choke line
- 2 choke line valves (3 inch minimum)\*
- Kill line (2 inch minimum)
- 2 chokes with 1 remotely controlled from rig floor
- 2 kill line valves and a check valve (2 inch minimum)\*
- Upper kelly cock valve with handle available
- When the expected pressures approach working pressure of the system, 1 remote kill line tested to stack pressure (which shall run to the outer edge of the substructure and be unobstructed)
- Lower kelly cock valve with handle available
- Safety valve(s) and subs to fit all drill string connections in use
- Inside BOP or float sub available
- Pressure gauge on choke manifold
- All BOPE connections subjected to well pressure shall be flanged, welded, or clamped\*

- Fill-up line above the uppermost preventer.

If repair or replacement of the BOPE is required after testing, this work shall be performed prior to drilling out the casing shoe.

When the BOPE cannot function to secure the hole, the hole shall be secured using cement, retrievable packer or a bridge plug packer, bridge plug, or other acceptable approved method to assure safe well conditions.

Minimum standards for choke manifold equipment.

- i. All choke lines shall be straight lines unless turns use tee blocks or are targeted with running tees, and shall be anchored to prevent whip and reduce vibration.
- ii. Choke manifold equipment configuration shall be functionally equivalent to the appropriate example diagram shown in Appendix C. The actual configuration of the chokes may vary.

All valves (except chokes) in the kill line choke manifold, and choke line shall be a type that does not restrict the flow (full opening) and that allows a straight through flow).

Pressure gauges in the well control system shall be a type designed for drilling fluid service

5M and higher system accumulator shall have sufficient capacity to open the hydraulically-controlled gate valve (if so equipped) and close all rams plus the annular preventer (for 3 ram systems add a 50 percent safety factor to compensate for any fluid loss in the control system or preventers) and retain a minimum pressure of 200 psi above precharge on the closing manifold without use of the closing unit pumps. The fluid reservoir capacity shall be double the usable fluid volume of the accumulator system capacity and the fluid level of the reservoir shall be maintained at the manufacturer's recommendations. Two independent sources of power shall be available for powering the closing unit pumps. Sufficient nitrogen bottles are suitable as a backup power source only, and shall be recharged when the pressure falls below manufacturer's specifications.

#### Accumulator Precharge Pressure Test

This test shall be conducted prior to connecting the closing unit to the BOP stack and at least once every 6 months. The accumulator pressure shall be corrected if the measured precharge pressure is found to be above or below the maximum or minimum limit specified below (only nitrogen gas may be used to precharge):



### Power Availability

Power for the closing unit pumps shall be available to the unit at all times so that the pumps shall automatically start when the closing valve manifold pressure has decreased to the pre-set level.

### Accumulator Pump Capacity

Each BOP closing unit shall be equipped with sufficient number and sizes of pumps so that, with the accumulator system isolated from service, the pumps shall be capable of opening the hydraulically-operated gate valve (if so equipped), plus closing the annular preventer on the smallest size drill pipe to be used within 2 minutes, and obtain a minimum of 200 psi above specified accumulator precharge pressure.

### Locking Devices

A manual locking device (i.e., hand wheels) or automatic locking devices shall be installed on all systems of 2M or greater. A valve shall be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative.

<b>Accumulator working pressure rating</b>	<b>Minimum acceptable operating pressure</b>	<b>Desired precharge pressure</b>	<b>Maximum acceptable precharge pressure</b>	<b>Minimum acceptable precharge pressure</b>
1,500 psi	1,500 psi	750 psi	800 psi	700 psi
2,000 psi	2,000 psi	1,000 psi	1,100 psi	900 psi
3,000 psi	3,000 psi	1,000 psi	1,100 psi	900 psi

### Remote Controls

Remote controls shall be readily accessible to the driller. Remote controls for all 3M or greater systems shall be capable of closing all preventers. Remote controls for 5M or greater systems shall be capable of both opening and closing all preventers. Master controls shall be at the accumulator and shall be capable of opening and closing all preventers and the choke line valve (if so equipped). No remote control for a 2M system is required.

## 4.2 Procedure and Schedule for Testing BOP Equipment

### Well Control Equipment Testing

- i. Perform all tests described below using clear water or an air..
- ii. Ram type preventers and associated equipment shall be tested to approved stack working pressure if isolated by test plug or to 80 percent of internal yield pressure of casing if BOP stack is not isolated from casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off of pressure is acceptable. For a test not utilizing a test plug, if a decline in pressure of more than 10 percent in 30 minutes occurs, the test shall be considered to have failed. Valve on casing head below test plug shall be open during test of BOP stack.
- iii. Annular type preventers shall be tested to 70 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.
- iv. As a minimum, the above test shall be performed:
  - a. when initially installed:
  - b. whenever any seal subject to test pressure is broken:
  - c. following related repairs: and
  - d. 30-day intervals.
- v. Valves shall be tested from working pressure side during BOPE tests with all downstream valves open.
- vi. When testing the kill line valve(s), the check valve shall be held open or the ball removed.
- vii. Annular preventers shall be functionally operated at least weekly.
- viii. Pipe and blind rams shall be activated each trip, however, this function need not be performed more than once a day.
- ix. A BOPE pit level drill shall be conducted weekly for each drilling crew.
- x. Pressure tests shall apply to all related well control equipment.
- xi. All of the above described tests and/or drills shall be recorded in the drilling log.
- xii. For intermediate wellbore drilling phase, the BOP equipment will be pressure and function tested upon initial installation.
- xiii. For the bottom and horizontal wellbore drilling phase, the BOP equipment will be pressure and function tested upon initial installation, weekly, and after each bit trip.

### **4.3 BOP Installation Schedule**

The BOP will be installed after running surface casing as well as after running intermediate casing. BOP equipment shall be installed on the innermost string of casing after the surface casing.

### **4.4 Well Control Training**

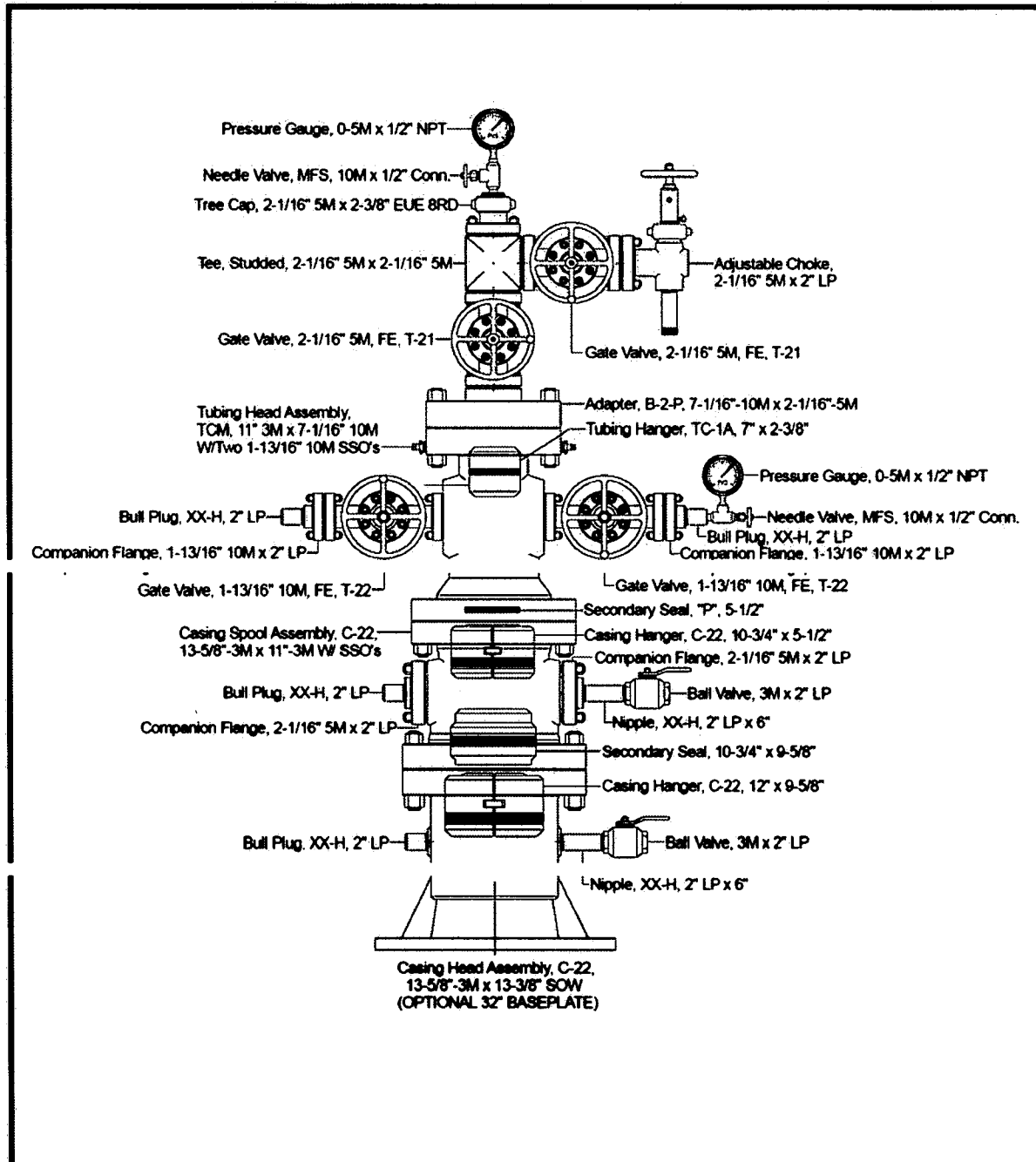
All Drilling Supervisors and Toolpushers used on this well will be IADC trained and certified. A trained person will be present during the drilling operations. Training certificates will be available for review on the location. The list of personnel with said training is provided in Appendix E.

### **4.5 Drilling Record**

The Drilling Supervisor will maintain detailed records of significant drilling events such as lost circulation, hydrogen sulfide gas, fluid entry, kicks and abnormal pressures through the electronic data entry and recording system, Wellview. This system allows the Drilling Supervisor to enter daily reports containing the specified information. The records are then retained electronically at Antero Main Office in Denver, CO.

The Emergency Response Plan for this operating area requires the Drilling Supervisor to notify the district oil and gas inspector or the designated Office of Oil and Gas representative any unusual drilling events such as hydrogen sulfide gas or significant kicks that occur during drilling operations. Any encounter of hydrogen sulfide gas requires immediate notification of the Office of Oil and Gas.

## 4.6 Schematic and Description of the Wellhead Assembly



## **5.0 Well Flaring Operations**

### **5.1 Size, Construction and Length of Flare Line**

The flare line will be a 4" diameter, steel line that extends 50' from the well. The line will be anchored to the surface of the ground by cross pinning it in place using metal staking at multiple points along the line.

The choke assembly is described in previous section of this document and in drawing "5M Choke Manifold Equipment" BLM drawing Onshore Oil and Gas Order Number 2, Appendix D.

We do not anticipate flaring since we would first attempt to route the flow to the Gas Buster and work the gas kick off from there. Flaring would occur as a last resort or if needed.

### **5.2 Flare Lighting System**

The system for lighting the flare will be an automatic flare igniter using a solar collector panel and battery charger system. A second igniter will be installed as a backup. Should flaring be required or needed.

The Drilling Supervisor will give notification to the local fire department prior to lighting the flare, if practicable, or as soon as possible thereafter.

### **5.3 Flare Safe Distances**

The flare line(s) discharge shall be located not less than 50 feet from the well head, having straight lines unless turns are targeted with running tees, and shall be positioned downwind of rig and trailers. The flare system shall have an effective method for ignition. All flammable material beyond the end of the flare line will be cleared to a minimum distance of 50feet.

### **5.4 Flare Duration**

The flare duration should not exceed the maximum time requirements needed to complete the operation.

## 6.0 Well Killing Operations

### 6.1 Mud Mixing Inventory

The following shows the inventory of all materials that will be on-site for the mixing of mud:

- 20 sack of Soda Ash
- 480 sacks of KCL
- 200 sacks of Biolose
- 40 sack of Xan-Plex
- 20 buckets of X-Cide 102
- 3 Drums of KD-40
- 5 Buckets of LD-S
- 15 super sack of MIL Bar
- 100 sacks of Soletex
- 40 Sacks of Graphite
- 300 Sack of Salt

Volume of mixed mud = pit volume + equivalent volume in tanks  
= 500 bbls + 500 bbls  
= 1000 bbls total

Mixed Mud Weight The mixed mud weight will vary depending on the bottom hole pressures and will be calculated and adjusted as we gather more information; we intend to use 12.8 lb – 13.0 lb mud but will adjust the mud weight as information becomes available

Volume of Add'l

Weighting Mat'l Antero will have the necessary materials available to mix up enough mud to weight the mud up 1 lb more than the mud used for drilling; as an estimate, we expect to have 10 pallets of barite on site and 12 pallets of bentonite

Volume Water for Mixing The rig has a 400 bbl rig water tank and the location will have 800 bbls additional in separate tanks.

## **6.2 Mud Mixing Units**

The drilling rig is equipped with 2 mud tanks with agitators and jets such that it can make two pills.

## **6.3 Kill Procedures**

The following paragraph describes the methodology and type of kill procedures that will be used if needed. These procedures are recognized by the IADC.

Once a Kick is detected a prompt shut in of the well is essential. The exact shut in method will be dictated by the operation being performed at the time of the kick, available equipment, plus other extenuating circumstance. The following types of kill operations may be performed to bring the well back under control. The different methods listed below to be used will be determined by the operation being performed at the time of the kick.

### **Kill Procedures**

- 1.) Drillers Method
- 2.) Wait and Weight Method
- 3.) Circulate and Weight Method
- 4.) Concurrent Method
- 5.) Reverse Circulation Method
- 6.) Dynamic Kill Method
- 7.) Bullheading Method
- 8.) Volumetric Method

## **7.0 Hydrogen Sulfide Operations**

### **7.1 H<sub>2</sub>S Monitoring**

The equipment and method used for the monitoring, detection and warning of the presence of hydrogen sulfide gas during drilling, completions and work-over operations will be portable electronic gas detection such as BW gas detectors or equivalent. These detectors will be

typically located near the well bore on the drilling rig, outside the data van or on the drillers stand.

## **7.2 H2S Training**

All personnel that will be involved in the drilling operations will be trained in H2S in drilling operations to a minimum of the awareness level. Additional training will be given to the Drilling Supervisors both in H2S and emergency response duties related specifically to air toxins. All of the aforementioned training will be completed prior to spudding the well. These records may be kept separate from this plan.

## **7.3 Personal Protection Equipment**

The following personal protection equipment will be available and in use as needed on location:

- Fire Retardant Clothing (FRC),
- Hardhats,
- safety shoes,
- safety glasses and/or safety goggles/face shields,
- hearing protection earplugs,
- cotton and chemical resistant work gloves, and
- dust mask respirators.

In the event that other hazards are identified or presented during the drilling operation, we will attempt to eliminate the hazard, and if not practical, additional PPE will be provided to mitigate the risk to the worker. In the event that H2S is detected, a hazard assessment will be performed for this exposure along with risk mitigation.

## **7.4 H2S Notification and Control**

The emergency alarm will be audible or visual type which will be detectable by all personnel on location. If dangerous levels of H2S are detected, we will immediately implement our Emergency Response Plan which will provide for site control and evacuation as needed. Generally, the site will be secured such that access is allowed only for trained emergency response personnel. Site security will be accomplished by trained workers stationed at safe points on the perimeter and access road to the site.

If H2S is detected and confirmed, a telephonic notification will be made to the local oil and gas inspector.



## **8.0 Notification and Protection Zone Standards**

### **8.1 Method of Notification**

In an emergency which requires the notification of residents and emergency personnel that may be affected during drilling such as release of H<sub>2</sub>S, flaring, etc., the emergency response plan will be immediately implemented. This plan specifies the roles and responsibilities of on-site personnel in case of emergency and addresses emergency notification of potentially affected residents and public emergency response personnel.

In general under the situation presently described, after the activation of the emergency alarm, the on-site personnel will muster for a headcount by the On-Scene Incident Commander which is usually the Drilling Supervisor or Toolpusher. After initial assessment of the situation, the OSIC will notify the public emergency response agency from which direction will be taken. If the agency directs, on-site personnel will notify all local impacted residents of the incident by dispatching a worker by truck to each potentially affected residence. If the public emergency responder does not direct this notification to be made by the operator, then the public response agency will be responsible for this notification. The local emergency responders have, in general, stated that emergency notification of local residents will be accomplished by their means including television and radio announcement as well as public address systems on patrol vehicles. Antero safety coordinators who are located in the field may assist with the notification of local residents.

### **8.2 Established Protection Zones**

Protection zones will be established and maintained based on the nature, extent and severity of the event. These protection zones will be based on those safe distances outlined in the applicable portions of the DOT Emergency Response Guidebook.

## Safety Meeting Log

Date: \_\_\_\_\_ Location(Pad): \_\_\_\_\_ Well Name: \_\_\_\_\_

	<u>Name</u>	<u>Organization</u>	<u>Job Title</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____
11.	_____	_____	_____
12.	_____	_____	_____
13.	_____	_____	_____
14.	_____	_____	_____
15.	_____	_____	_____
16.	_____	_____	_____
18.	_____	_____	_____
19.	_____	_____	_____
20.	_____	_____	_____
21.	_____	_____	_____
22.	_____	_____	_____
23.	_____	_____	_____
24.	_____	_____	_____
25.	_____	_____	_____

Appendix B.

## Daily Personal and Visitor Log

DATE	TIME IN	TIME OUT	NAME	ORGANIZATION

Appendix C.

**EMERGENCY CONTACT LIST AND PHONE NUMBERS**

Contact	Phone Number
<p><b><i>Designated Person and Incident Commander:</i></b></p> <p>John Kawcak, <i>Operations Manager</i>            Tim Culberson, <i>Midstream Construction Manager</i>            Terry Wyckoff, <i>Midstream Production Manager</i></p>	<p>817.368.1553 John            918.916.0116 Tim            304.991.0720 Terry</p>
<p><b><i>Designated Backup Person Incident Commander/Response Coordinator:</i></b></p> <p>Mike Ward            Ricky Jones            Norman Wood            Stanley Dudley            Jeff Partridge            Landon West            Tim Henrich            Mike Alcorn            James Harvey            Tim Murrell            Delf Martinez            Ralph Ybarra            Virgil Gaither            James Neal</p>	<p>580.276.7484 Mike            580.927.6276 Ricky            903.353.4429 Norman            970.618.7602 Stanley            940.577.2288 Jeff            940.389.0602 Landon            720.530.3059 Tim H.            304.627.7070 Mike            918.916.4340 James            903.256.6040 Tim            970.629.0055 Delf            580.927.5606 Ralph            580.504.2366 Virgil            607.644.8701 James</p>
<p>Frontier #3            Frontier #14            Frontier #17            Frontier #8            Frontier #22            Hall Drilling #3</p>	<p>832.487.7965 Rig Sat Phone            713.758.0662 Rig Sat Phone            713,758.0730 Rig Sat Phone            832.531.7014 Rig Sat Phone            713.758.0893 Rig Sat Phone            713.758.0881 Rig Sat Phone</p>
<p>Antero Resources            Denver Office            1625 17th Street, Suite 300            Denver, CO 80202</p>	<p>Office: (303) 357-7310            Fax: 303-357-7315</p>
<p><b>Environmental Manager</b>            Jerry Alberts</p>	<p>Direct: (303) 357-7341            Cell: 720-201-0160 24hr</p>

Contact	Phone Number
<b>Safety Manager</b> Rick Blankenship	Direct: (303) 357-7378 Cell: (720) 235-2775 24hr
<b>Vice President Production</b> Kevin Kilstrom	Direct: (303) 357-7335 Cell: (303) 808-0254 24hr
<b>Federal and State Agencies</b>	
National Response Center	(800) 424-8802
West Virginia Office of Water Resources' Emergency Notification Number, Oil Spill Response	1-800-642-3074
West Virginia Office of Oil and Gas Sam Ward, WVDEP Inspector – Harrison County Joe Taylor, WVDEP Inspector – Tyler County David Cowan, WVDEP Inspector – Ritchie County Douglas Newlon, WVDEP Inspector – Doddridge County	(304) 389-7583 cell Sam Ward (304) 380-7469 cell Joe Taylor (304) 389-3509 cell David Cowan (304) 932-8049 cell Douglas Newlon
Environmental Protection Agency (EPA) Region 3	Phone: 215-814-3231 Fax: 215-814-3163
West Virginia Worker's Compensation	1-888-4WVCOMP 1-304-926-3400
West Virginia Fish and Wildlife Service, Field Office, Elkins, WV	<b>Phone:</b> 304-636-6586 <b>Fax:</b> 304-636-7824
US OSHA Charles Green	1-800-321-OSHA (1-800-321-6742) 304.347.5937
<b>Local Agencies and Responders</b>	
Sheriff/Police/Fire Department	911
Harrison County LEPC	304.624.9700 John Keeling
Hospital- United Hospital Center--Clarksburg	304. 624.2121
Harrison County Emergency and Dispatch Business Office	911 304.623.6559

Contact	Phone Number
Doddridge County Emergency	911 304.873.3253
Doddridge County LEPC	304.782.2124 Roland W. Kniceley
WV Highway Patrol	304,782,2124 <a href="mailto:doddridgeoes@dishmail.net">doddridgeoes@dishmail.net</a>
Public Water Intakes (see App G for add'l points)	to be determined
<b>Waste Removal</b>	
TK Stanley—Waste Removal, Vac Truck	304.622.6677
Stallion	330.760.4248
Waste Management	
<b>Contractors</b>	
Hall Drilling Services MT Hall	304588 3368
TK Stanley	304.622.6677
<b>Cleanup Crews</b>	
Ryan Environmental	304.641.0244
<b>Water Haulers</b>	
TK Stanley	304.476.0396
Hall Drilling	304.483.8125
<b>Frac Tank Suppliers</b>	
TK Stanley—Frac Tank Rental	304.622.6677
Stallion	330.760.4248
<b>Winch Trucks</b>	
TK Stanley	304.476.9588

Contact	Phone Number
Water Moving/Pumping	
TK Stanley	304.476.0396
Pumping Services—Kill Fluids	
Halliburton—Jane Lew	724.743.6601 Central Dispatch
Light Plants	254.434.1469 Hot Lights- Josh
Wolfpack	304-623-1199.
BOPs	
Blue Dot	304.290.7399
Snubbing Services	Basic Energy- 724-825-2548 Bryan Berlison
Cudd Well Control	713.849.2769 Houston
Wild Well Control	281.353.5481
Roustabout Crews	740.473-1305 Hall Drilling Office 304.588.66474 Hall Drilling- Jack 601.410.7440 TK Stanley Office 724.984.7626 TK Stanley- Brett

**WV Emergency Reporting**

In the event of a hazardous waste or hazardous material release or emergency, please contact:  
1-800-642-3074.

Additional Contact Information

**1-800-424-8802 National Response Center**

**1-304-558-5938 DEP Elkview Emergency Response Unit**

**Email Contacts:**

**Mike Dorsey Mike.H.Dorsey@wv.gov**

**Rusty Joins Rusty.T.Joins@wv.gov**

# WHERE TO FIND HELP

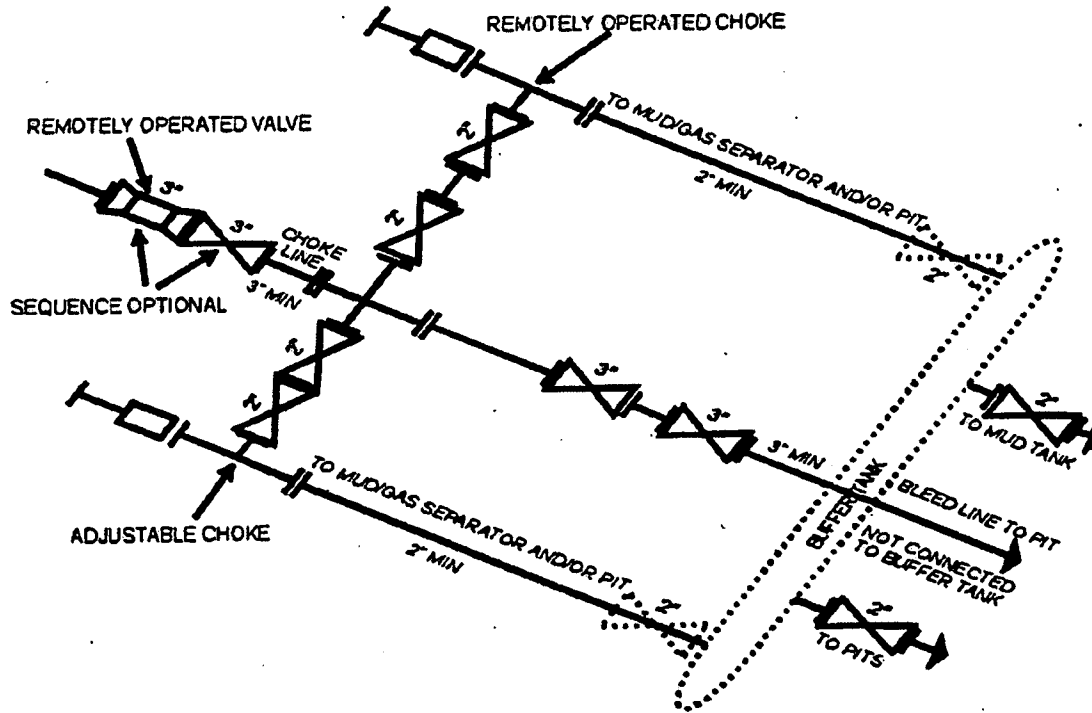
## Doddridge County:

**Ambulance, Fire, Law Enforcement Emergencies Call 911**  
**Poison Control Center....1-304-388-4211 or 1-800-222-1222**  
**Emergency Alert System Radio WFBY-FM 106.5**

<b>FIRE:</b>	
Doddridge County Ambulance Authority	304-838-5718
Greenwood V.F.D	304-873-3669
McClellan V.F.D	304-782-2774
Smithburg V.F.D	304-873-1493
West Union V.F.D	304-873-1391
B.A.N.C.S V.F.D	304-873-3722
<b>EMS:</b>	
Doddridge County Office of Emergency Service	304-782-2124
Doddridge County EMS	304-873-3330
<b>LAW ENFORCEMENT:</b>	
Doddridge County Sheriff Department	304-873-1000
West Union Police Department	304-873-1107
West Virginia State Police Doddridge County Detachment	304-873-2101
<b>OTHER IMPORTANT NUMBERS:</b>	
W.V. Dept. of Health & Human Resources	304-627-2295
National Response Center (Chemical, Oil Spills & Chemical/Biological Terrorism) (State Emergency Spill Notification)	1-800-424-8802 1-800-642-3074
Allegheny Power	1-800-255-3443
WV State Fire Marshal ( Arson Hotline)	304-588-2191 1-800-233-3473
Dominion Hope Gas	1-800-688-4673



Appendix D: Choke Manifold Schematic



**5M CHOKES MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY**

Although not required for any of the choke manifold systems, buffer tanks are sometimes installed downstream of the choke assemblies for the purpose of manifolding the bleed lines together. When buffer tanks are employed, valves shall be installed upstream to isolate a failure or malfunction without interrupting flow control. Though not shown on 2M, 3M, 10M, OR 15M drawings, it would also be applicable to those situations.

[54 FR 39528, Sept. 27, 1989]

**Appendix E. List of Well Control Trained Personnel**

1. John Kawcak- Antero
2. Mike Ward- Drilling Consultant
3. Ricky Jones- Drilling Superintendent
4. Mike Alcorn- Drilling Superintendent
5. Landon West- Completion Consultant
6. Jeff Partridge-Completion Consultant
7. Norman Wood- Drilling Consultant
8. Delf Martinez- Drilling Consultant
9. James Harvey- Drilling Consultant
10. Steve Guffey- Drilling Consultant
11. Tim Murell- Drilling Consultant
12. James Neal-Drilling Consultant
13. Virgil Gaither-Drilling Consultant
14. Ralph Ybarra- Drilling Consultant
15. Bob Belcher- Completion Consultant (Willowbend)
16. Kris Humpert- Completion Consultant (Willowbend)
17. Ronnie Fuller- Completion Consultant (Willowbend)
18. Trevor Lively- Completion Consultant (Willowbend)
19. Trey Armstrong- Completion Consultant (Willowbend)
20. Gary Linn- Completion Consultant (Willowbend)
21. Justin Bowers- Completion Consultant (Willowbend)
22. Michael Petitt- Completion Consultant (Willowbend)
23. Stephen Sanders- Completion Consultant (Willowbend)

Appendix F. List of Hazardous Chemicals used during Phases of Operation:

<u>Chemical Name</u>	<u>Daily Qty. on Location</u>	<u>Storage Container</u>
Diesel Fuel Oil	2000 Gallons	Double Walled Tank
<b><u>Drilling</u></b>		
Airfoam HD	275 gallons	Drum
Alpha 1655	220 gallons	Drum
Aluminum Stearate	150 lbs	Tote
Caustic Soda	1500 lbs	Bag
Claytrol	440 gallons	Drum
Conqor 404	55 gallons	Drum
Diesel Fuel Oil	8000 gallons	Double Walled Tank
Gear Oil	250 gallons	Double Walled Tank
Hydraulic Fluid	250 gallons	Double Walled Tank
KCL (Potassium Chloride)	15000 lbs	Bag
LD-9	100 gallons	Bucket
Lime	2500 lbs	Bag
Mil-Bar	80000 lbs	Super Sack
Mil-Lube	220 gallons	Drum
Milmica	2500 lbs	Bag
Mil-Pac LV	2500 lbs	Bag
Mil-Plug (Walnut Shells)	5000 lbs	Bag
Milstarch	10000 lbs	Bag
Mineral Oil	265 gallons	Tote
Motor Oil	250 gallons	Double Walled Tank
New-Drill	160 gallons	Bucket
Perma-Lose HT	10000 lbs	Bag
Salt	30000 lbs	Super Sack
Soda Ash	1000 lbs	Bag
SWF	265 gallons	Drum
W.O. Defoam	160 gallons	Bucket
Xan-Plex D	1200 lbs	Bag
X-Cide 102	160 gallons	Bucket
<b><u>Completions</u></b>		
15% Hydrochloric Acid	1000 gallons	Acid Tanker
DAP 901 (Scale Inhibitor)	284 gallons	Tote
DAP-923 (Acid Additive)	1.8 gallons	Acid Tanker
Diesel Fuel Oil	8000 gallons	Tanker
DWP-111 (Gel)	4980 gallons	Tote
DWP-204 (Buffer)	496 gallons	Tote
DWP-612 (FR)	1116 gallons	Tote
DWP-901 (Oxide Breaker)	1112 pounds	Bucket
DWP-944 (Biocide)	224 gallons	Tote
Oil 40 (Pump Flush)	300 gallons	Tote
EB-4L(Gel Breaker)	362 gallons	Tote
HCl Acid	1000 gallons	Tanker
KR-153SL(Biocide)	74 gallons	Tote

Appendix F. **CONTINUED**

**Completions -CONTINUED**

Super Scale Inhibitor	112 gallons	Tote
WFR-3B(Friction Reducer)	372 gallons	Tote

**Service/Work over**

FR-1100(Friction Reducer)	800 gallons	Bucket
FR-1205(Pipe on Pipe)	265 gallons	Bucket
FR1302(Liquid Beads)	80 gallons	Bucket
FR-1400(Gel Sweep/Friction Reducer)	550 gallons	Tote
76 DynaLife LEP Grease	20 gallons	Bucket
LithoPlex rt. No. 2 grease	2 gallons	Tube
Hi Temp red grease	3 gallons	Tube
50/50 antifreeze	15 gallons	Bucket
Hydraulic oil 68	15 gallons	Bucket
Hydraulic oil 46	25 gallons	Bucket
Premium Lithium grease	1 gallon	Spray Can
P.B. Blaster	2 gallons	Spray Can
Transmission fluid	10 gallons	Bucket
Max-gear	15 gallons	Bucket
Brakleen	3 gallons	Spray Can
Off-road diesel	700 gallons	Double Walled Tank

**Reclamation**

Diesel Fuel Oil	2000 gallons	Double Walled Bulk Tank
-----------------	--------------	-------------------------

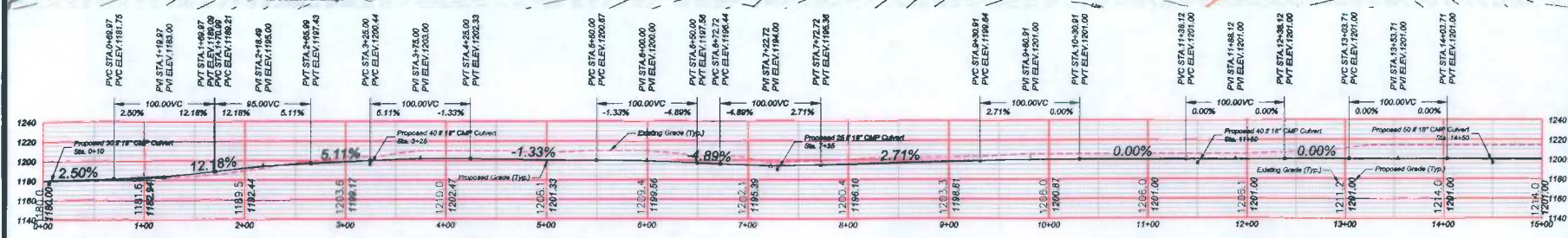
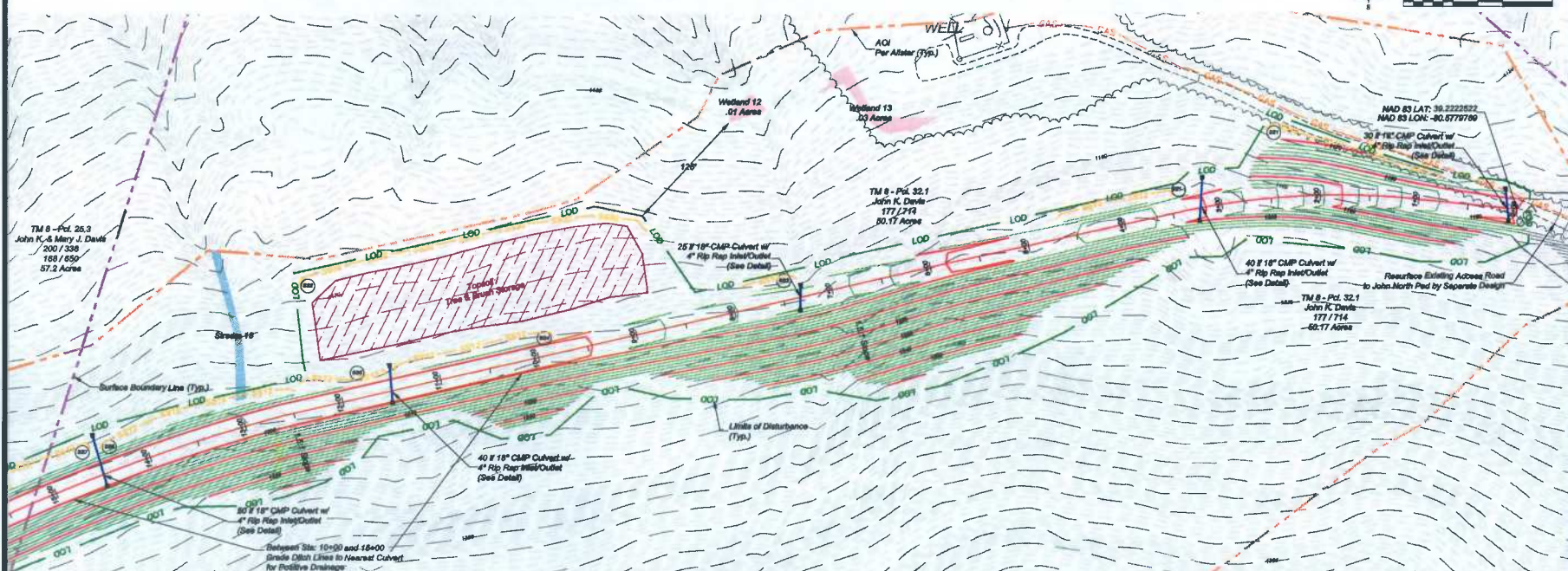
**Salem Compressor Station**

Used Oil	50 barrels	Bulk Tank
Compressor Oil	1600 gallons	Bulk Tank
Engine Oil	1600 gallons	Bulk Tank
Ethylene Glycol	2000 gallons	Bulk Tank
Produced Water	420 barrels	Bulk Tank

**Note:** The attached list represents anticipated materials used for planned operations on the well site. In the event of an unplanned event on the well site, additional materials may be required. Additional MSDS for any unplanned events will be maintained on the well site in accordance with OSHA CFR 1910.1200 standards.

The Drilling Supervisor or Contractor of the Operator will maintain Material Data Safety Sheets (MSDS) for all materials and chemicals used on the well site in accordance with OSHA CFR 1910.1200 standards. The MSDS should be located in the Company Representative's Office on-site. Copies of the MSDS may also be obtained from the area Safety Coordinator, the operator contact for maintaining MSDS, by calling the local Antero Resource Office at 304-622-3842 or 800-878-1373.

# SITE PLAN (1) - ACCESS ROAD A STA: 0+00 - 15+00



**LINED DITCH TREATMENT vs. SLOPE OF DITCH**  
 Line with Jute Matting if slope is less than 3%  
 Line with just reinforcement matting (FRM) if slope is greater than 3%  
 \*FRM reinforcement matting shall be Erosion Resistance or Landfill TSM 435 or equal

**Legend**

---	Existing 2' Contour	—●—	Proposed Check Dam
---	Existing 10' Contour	—○—	Proposed Culvert W/ Inlet & Outlet Protection
---	Existing True Line	—○—	Proposed Straw Wattles
---	Existing Utility Line / Pole	—○—	Proposed Silt Sock w/ Diameter
---	Surface Owner Property Line	—○—	Proposed 2' Contour
---	Existing Gas Line CL	—○—	Proposed 10' Contour
---	LOD	—○—	Proposed Rip-Rap
---	Proposed Diversion Ditch	—○—	Silt Sock Diameter in Inches
---	Proposed 2' Contour	—○—	* Super Silt Fence Can be Substituted for Silt Sock of any Size
---	Proposed 10' Contour	—○—	
---	Proposed Super Silt Fence	—○—	

**ACCESS ROAD A PROFILE**  
 Horizontal & Vertical Scale: 1" = 50'

DATE	REVISIONS
5-7-13	Updated Per New Astero Standards
5-13-13	Revised Topsoil Area Location
5-14-13	Revised Per Astero Comments



Allegheny Surveys, Inc.  
 172 Thompson Drive  
 Bridgeport, WV 26330  
 (304) 846-5035



**L&W ENTERPRISES, INC.**  
 11800 UNIVERSITY BLVD  
 FREDERICK, MD 21704  
 PA. REG. NO. 1000000000000000  
 MD. REG. NO. 1000000000000000

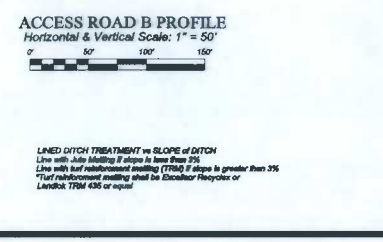
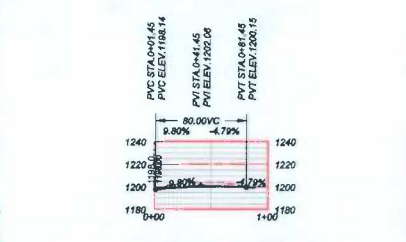
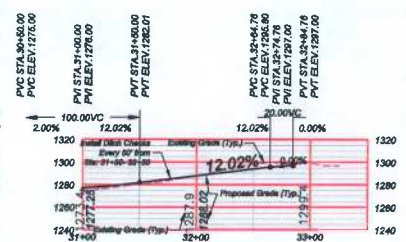
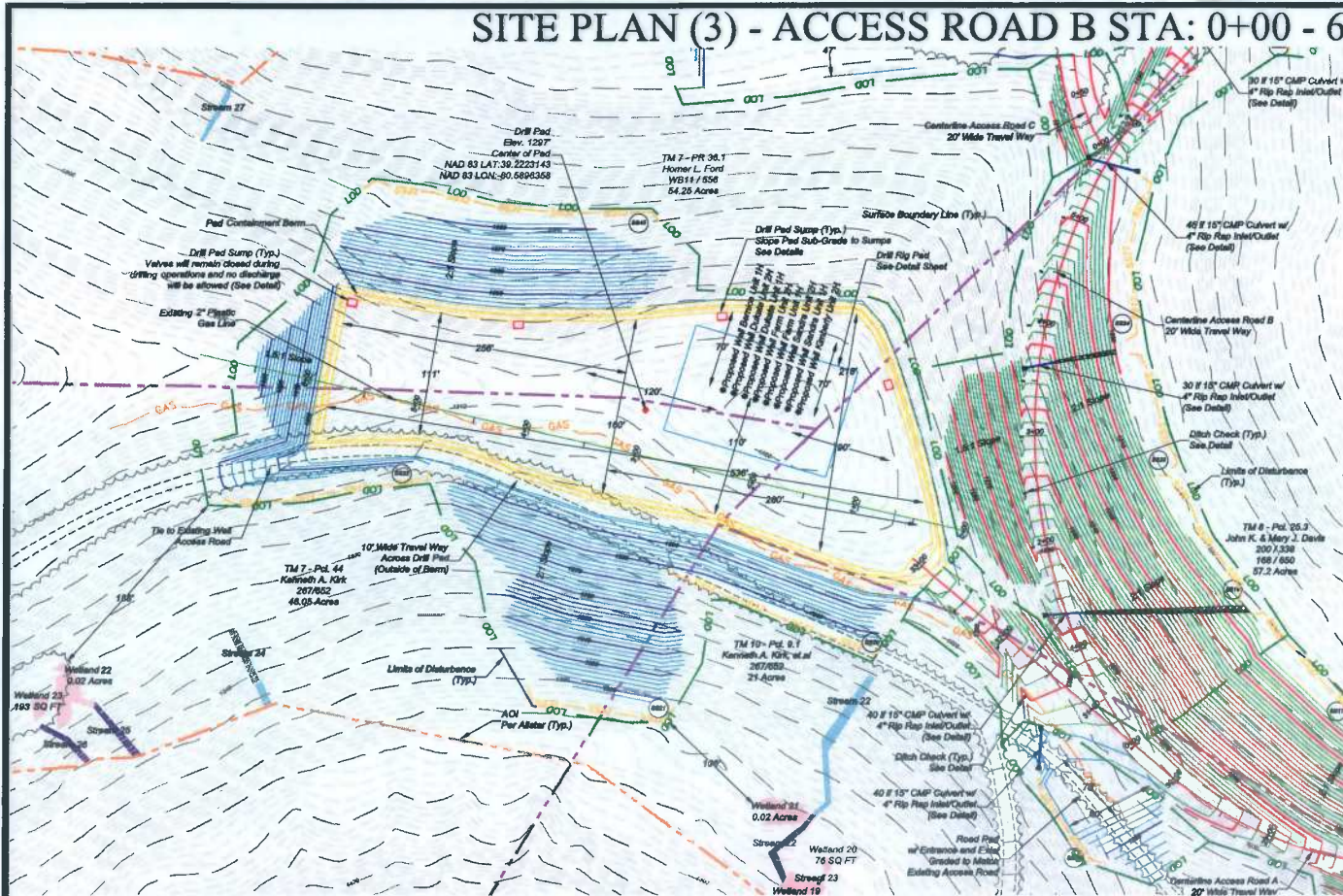


**PREPARED FOR**  
**ANTERO RESOURCES**  
**ATFALACHIAN CORP.**

**SITE PLAN (1) - ACCESS ROAD A STA: 0+00 - 15+00**  
**KIRK PAD**  
 GREENERIDGE DISTRICT  
 DODDRIEGE COUNTY, WV  
 Date: 11/2/12  
 Scale: 1" = 50'  
 Drawn By: CLW/CJM  
 File No. Astero 136-12  
 Page 6 of 18



# SITE PLAN (3) - ACCESS ROAD B STA: 0+00 - 6+50



**LINED DITCH TREATMENT vs. SLOPE OF DITCH**  
Line with John Mailing if slope is less than 3%  
Line with bar reinforcement setting (FR90) if slope is greater than 3%  
\*Bar reinforcement setting shall be Discolor Respones or Landtek TRM 436 or equal

Legend			
—	Existing 2" Contour	—	Proposed Check Dam
—	Existing 10' Contour	—	Proposed Culvert W/ Inlet & Outlet Protection
—	Existing Utility Line / Pole	—	Proposed Straw Wattles
—	Surface Owner Property Line	—	Proposed 8" Soxx w/ Diameter
—	Existing Gas Line CL	—	Proposed 2" Contour
—	LDD	—	Proposed 10' Contour
—	Limits of Disturbance	—	Proposed Rip-Rap
—	Proposed Diversion Ditch	—	Proposed 2" Contour
—	Proposed 2" Contour	—	* Soxx Diameter in Inches
—	Proposed 10' Contour	—	* Super Soxx Fence Can be Substituted for Soxx of any Size
—	Proposed Super Soxx Fence		

DATE	REVISIONS
11-15-12	Revised Well Layout Configuration
5-7-13	Updated Per New Antero Standards
5-14-13	Revised Per Antero Comments

Allegany Surveys, Inc.  
172 Thompson Drive  
Bridgeport, WV 26330  
(304) 648-6035



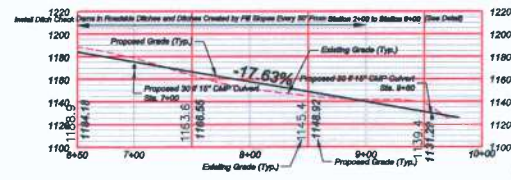
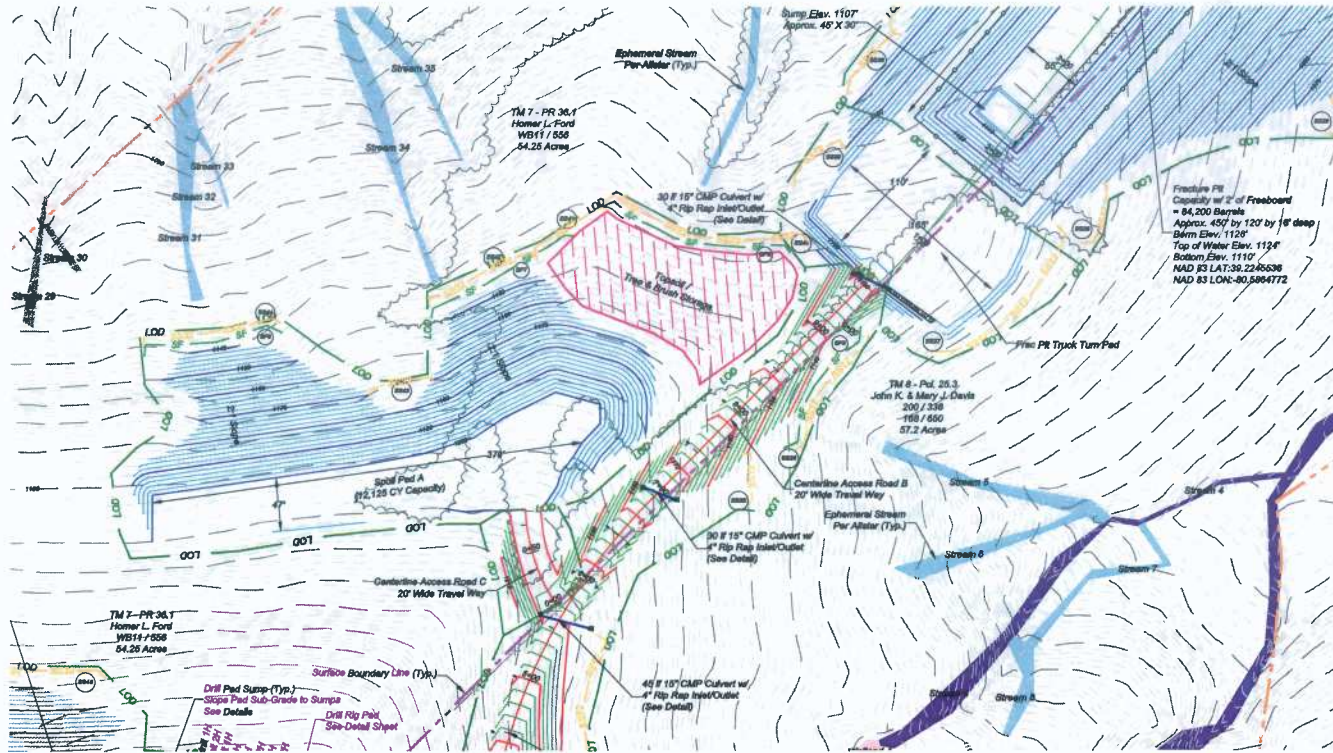
**L&W ENTERPRISES, INC.**  
1000 10th St.  
Martinsburg, WV 26151  
Tel: 304.263.1234  
Fax: 304.263.1234  
Email: eng@lweinc.com



**ANTERO RESOURCES**  
THIS DOCUMENT PREPARED FOR  
ANTERO RESOURCES  
APPALACHIAN CORP

SITE PLAN (3) - ACCESS ROAD B STA: 0+00 - 6+50  
**KIRK PAD**  
GREENER DISTRICT  
DODDRAIDGE COUNTY, WV  
Date: 11/2/12  
Scale: 1" = 50'  
Designed by: CEW/CKM  
File No. Antero 136-12  
Page 4 of 18

# SITE PLAN (4) - ACCESS ROAD B STA: 6+50 - 9+70



**ACCESS ROAD B PROFILE**  
Horizontal & Vertical Scale: 1" = 50'  
0' 50' 100' 150'

LINED DITCH TREATMENT W/ SLOPE OF DITCH  
Line with 1/4\"/>

Legend			
---	Existing 2' Contour	—	Proposed Check Dam
---	Existing 10' Contour	—	Proposed Culvert W/ Inlet & Outlet Protection
---	Existing Tree Line	—	Proposed Straw Wattles
---	Existing Utility Line / Pole	—	Proposed Silt Soak w/ Diameter
---	Surface Owner Property Line	—	Proposed 2' Contour
---	Existing Gas Line CL	---	Proposed 10' Contour
---	LOD	---	Proposed Rip-Rap
---	Limits of Disturbance	---	Proposed 10' Contour
---	Proposed Diversion Ditch	---	Proposed Rip-Rap
---	Proposed 2' Contour	---	Silt Soak Diameter in Inches
---	Proposed 10' Contour	---	* Super Silt Fences Can be Substituted for Silt Soak of any Size
---	Proposed Super Silt Fence		

DATE	REVISIONS
5-7-13	Updated Per New Antero Standards

Allegany Surveys, Inc.  
172 Thompson Drive  
Bridgeport, WV 26330  
(304) 648-5035



**L&W ENTERPRISES, INC.**  
P.E. #3427481  
INTERSTATE, WV #467  
STATE: WEST VIRGINIA



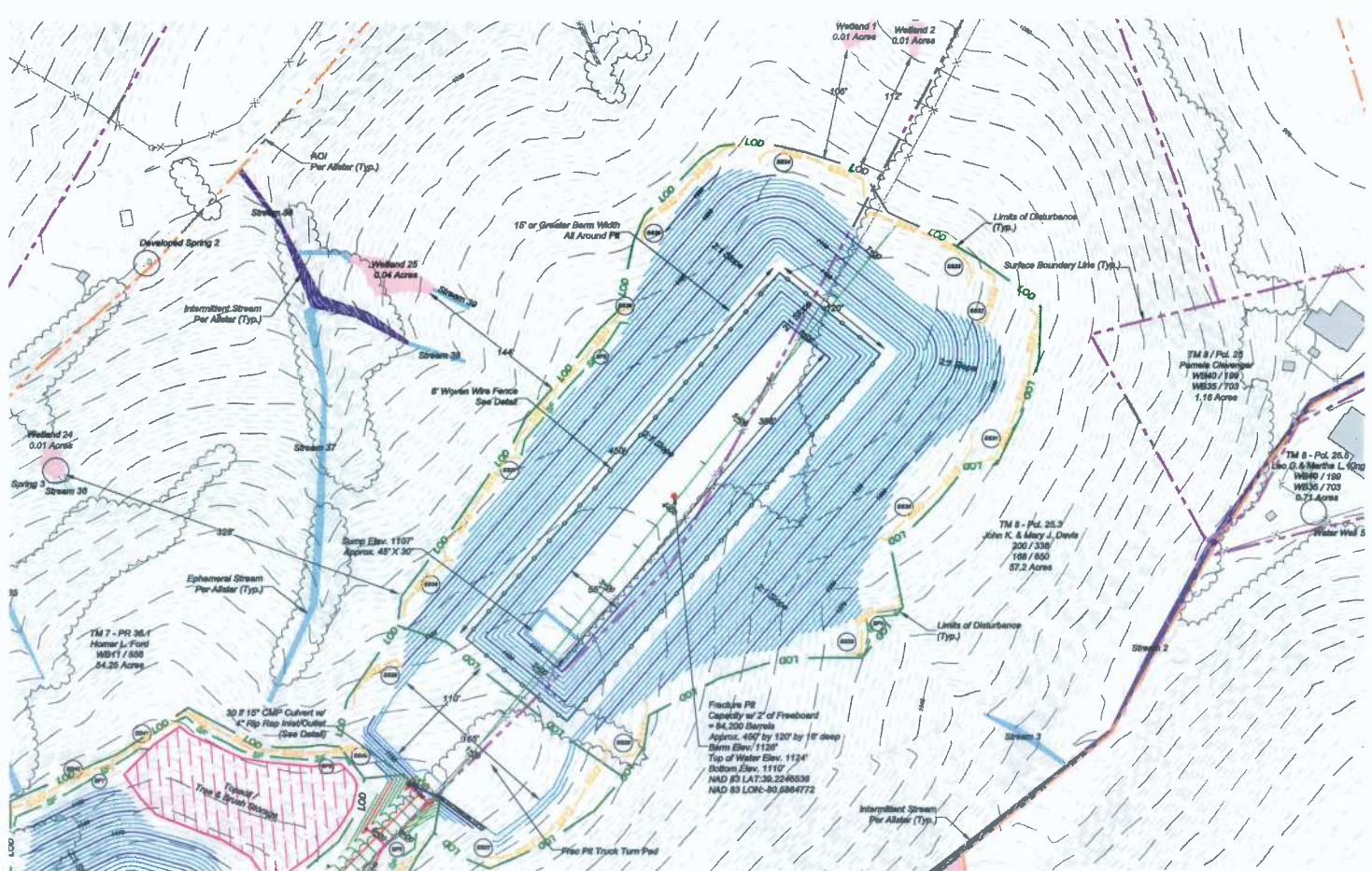
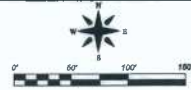
**ANTERO RESOURCES**

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ANTERO RESOURCES  
APPALACHIAN CORP.

SITE PLAN (4) - ACCESS ROAD B STA: 6+50 - 9+70  
**KIRK PAD**  
GREENBRIER DISTRICT  
DOODRIDGE COUNTY, WV  
Date: 11/2/12  
Scale: 1" = 50'  
Designed By: CWC/CKM  
File No. Antero 136-12  
Page 3 of 18



# SITE PLAN (5)



**Legend**

--- Existing 2' Contour	--- Existing 10' Contour	--- Existing Utility Line / Pole	--- Surface Owner Property Line	--- Existing Gies Line G	--- LOD	--- Proposed Diversion Ditch	--- Proposed 2' Contour	--- Proposed 10' Contour	--- SF	--- Proposed Super Sill Fence	--- Proposed Check Dam	--- Proposed Culvert W/ Inlet & Outlet Protection	--- Proposed Stream Wattle	--- Proposed Sill Soax w/ Diameter	--- Proposed 2' Contour	--- Proposed 10' Contour	--- Proposed Rip-Rap
-------------------------	--------------------------	----------------------------------	---------------------------------	--------------------------	---------	------------------------------	-------------------------	--------------------------	--------	-------------------------------	------------------------	---	----------------------------	------------------------------------	-------------------------	--------------------------	----------------------

\* Sill Soax Diameter in Inches  
 \* Super Sill Fence Can be Substituted for Sill Soax of Any Size

DATE	REVISIONS
5-7-13	Updated Per New Antero Standards
5-14-13	Revised Per Antero Comments

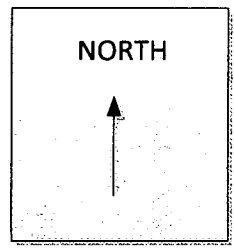
SITE PLAN (5)  
**KIRK PAD**  
 GREENERBEE DISTRICT  
 DODDRIIDGE COUNTY, WV

Antero Resources  
 THIS DOCUMENT PREPARED FOR ANTERO RESOURCES ATFALACHIAN COBY

**L&W ENTERPRISES, INC.**  
 11407 STATE ST.  
 FERRISBURGH, WV 26037  
 TEL: 304-257-4414  
 FAX: 304-257-2224  
 EMAIL: INFO@LWENTR.COM

Alleggheny Surveys, Inc.  
 172 Thompson Drive  
 Bridgeport, WV 26330  
 (304) 846-5035

Scale: 1" = 50'  
 Date: 1/2/12  
 Designed by: GCM/CKM  
 File No. Antero 136-12  
 Page 15 of 18



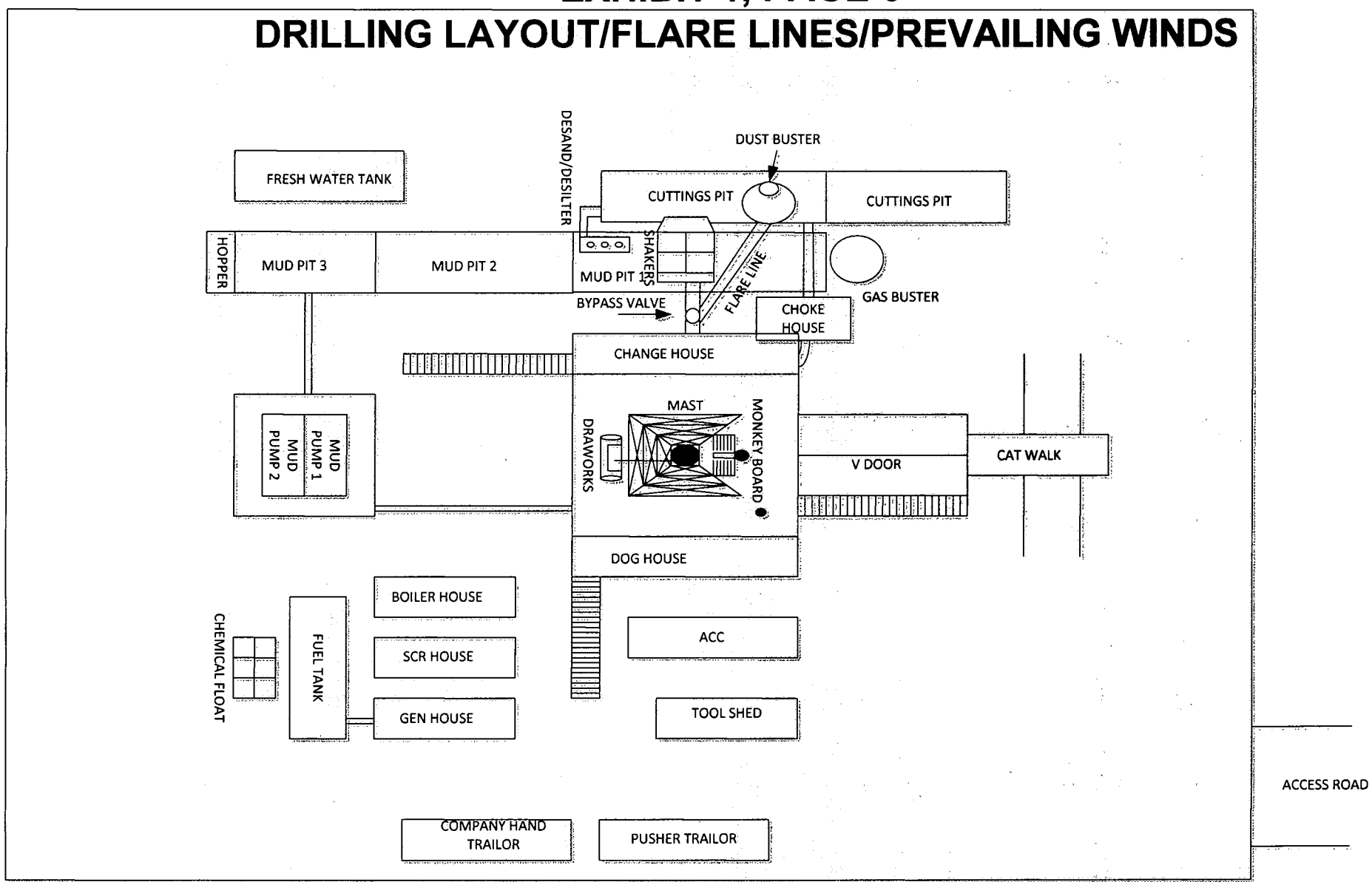
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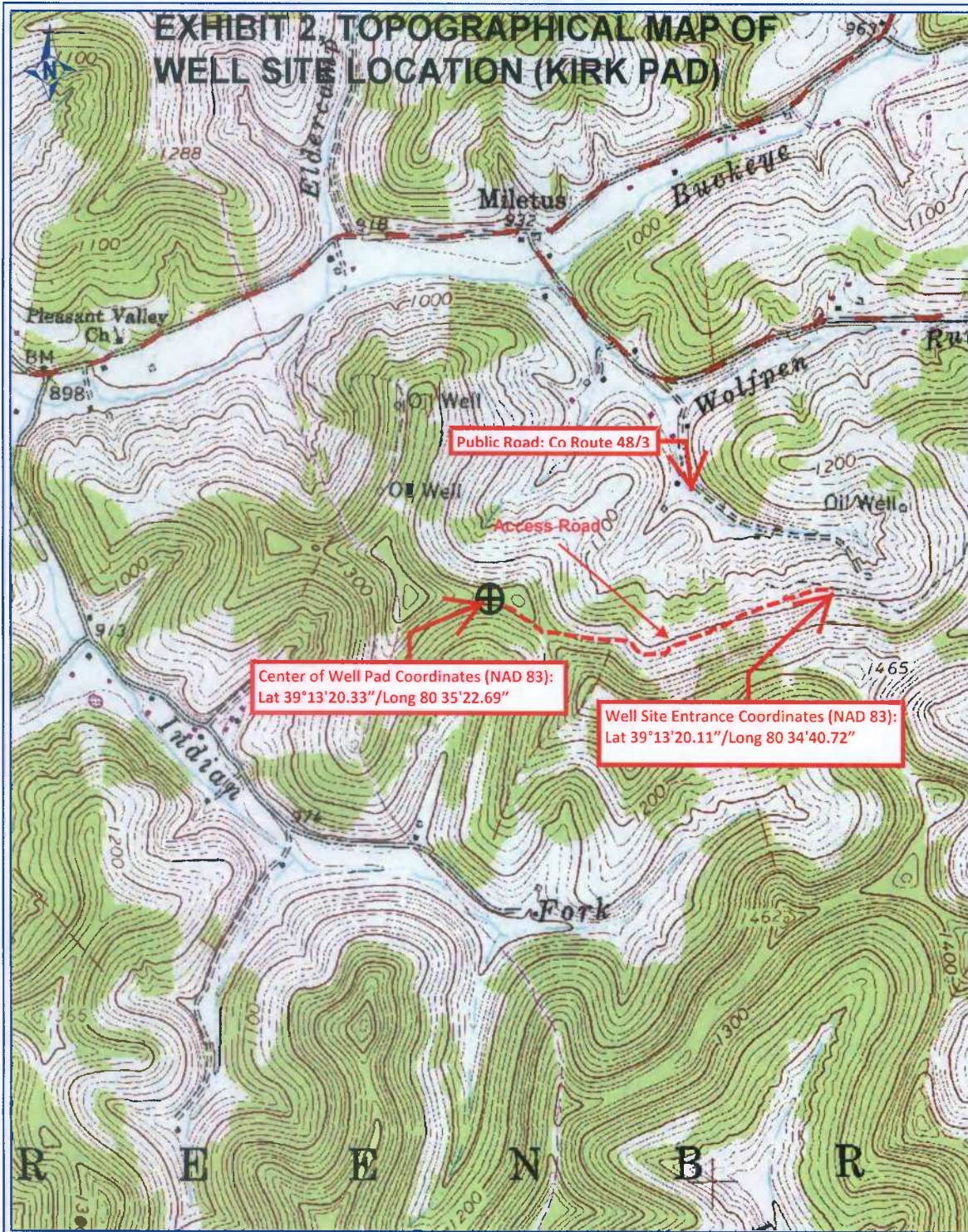


# EXHIBIT 1, PAGE 6

EXHIBIT 1  
KIRK PAD

## DRILLING LAYOUT/FLARE LINES/PREVAILING WINDS





Center of Well Pad Coordinates (NAD 83):  
 Lat 39°13'20.33"/Long 80 35'22.69"

Well Site Entrance Coordinates (NAD 83):  
 Lat 39°13'20.11"/Long 80 34'40.72"

PETRA 5/1/2013 4:09:35 PM

## Antero Resources Corp

APPALACHIAN BASIN

KIRK PAD

Doddridge County

REMARKS  
 QUADRANGLE: BIG ISAAC  
 WATERSHED: BIG ISAAC CREEK  
 DISTRICT: GREENBRIER

By: ECM



**KIRK PAD - EXHIBIT 3  
LIST OF ALL SCHOOLS & PUBLIC FACILITIES WITHIN A  
ONE- MILE RADIUS OF PROPOSED WELL SITE**

<b>Facility Name</b>	<b>Telephone Number</b>
**None identified within a 1-mile radius**	

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

WW - 6B  
(3/13)

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

1) Well Operator: Antero Resources Appalachian Corporation 494488557 017-Doddridge Greenbrier Big Isaac  
Operator ID County District Quadrangle

2) Operator's Well Number: Dukate Unit 2H Well Pad Name: Kirk Pad

3 Elevation, current ground: 1315' Elevation, proposed post-construction: 1297'

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

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Marcellus Shale: 7600' TVD, Anticipated Thickness- 50 Feet, Associated Pressure- 3200#

7) Proposed Total Vertical Depth: 7600' TVD

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 17,000' MD

10) Approximate Fresh Water Strata Depths: 246', 353'

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

12) Approximate Saltwater Depths: 1963'

13) Approximate Coal Seam Depths: 349', 633', 901'

14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No

16) Describe proposed well work: Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale

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

17) Describe fracturing/stimulating methods in detail:

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

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 25.44 acres

19) Area to be disturbed for well pad only, less access road (acres): 4.69 acres

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, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/ 48#	405'	405' *see above	CTS, 563 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2480'	2480'	CTS, 1010 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	17000'	17000'	4276 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7200'	
Liners							

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield</u>
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1.18
Intermediate						
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12630	Lead-HPOZ & 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			

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 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.

# KIRK PAD

## PROJECT LOD OVER FEMA FIRM MAP 54017C0255C

### ANTERO RESOURCES APPALACHIAN CORPORATION



Allegheny Surveys, Inc.  
172 Thompson Drive  
Bridgeport, WV 26330  
(304) 848-8036

L&W ENTERPRISES, INC.

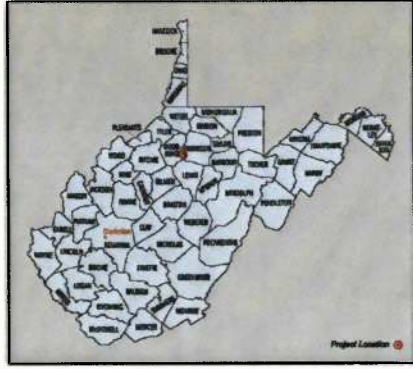
PO BOX 826  
14 SOUTH GROVE ST.  
PETERSBURG, WV 26847  
PH: 304-257-4818  
FAX: 304-257-2224  
EMAIL: NURS@GTT.LIN.NET



THIS DOCUMENT  
PREPARED FOR  
ANTERO RESOURCES  
APPALACHIAN CORP

PROJECT LOD OVER FEMA FIRM  
MAP 54017C0255C  
**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIDGE COUNTY, WV

Date: 6/14/13  
Scale: 1"=300'  
Designed By: CKW/CKM  
File No. Antero 136-12  
Page: 1 of 1



SITE LOCATIONS NAD 83		
Beginn Access Road (UTM Meters)	N=4341626.45 m	E=538429.19 m
Center of PI (UTM Meters)	N=4341777.49 m	E=538694.27 m
Center of Pad (UTM Meters)	N=4341827.77 m	E=538422.75 m
	LATITUDE	LONGITUDE
Beginn Access Road	39.222262	-80.577977
Center of PI	39.224554	-80.586477
Center of Pad	39.222315	-80.586630

GREENBRIER DISTRICT  
DODDRIDGE COUNTY, WV  
HEADWATERS MIDDLE ISLAND CREEK / BUCKEYE CREEK WATERSHEDS

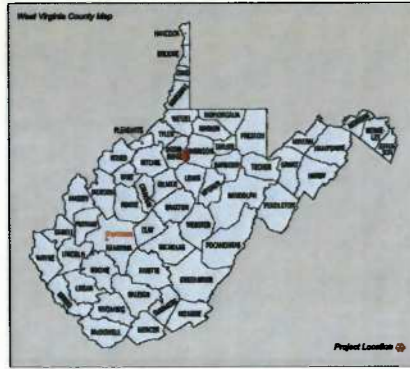
FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO
HEC-RAS STUDY COMPLETED:	N/A
FLOODPLAIN SHOWN ON DRAWINGS:	N/A
FIRM MAP NUMBER(S) FOR SITE:	54017C0255C
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	N/A



# KIRK PAD

## SITE DESIGN, CONSTRUCTION PLAN, & EROSION & SEDIMENT CONTROL PLANS

### ANTERO RESOURCES APPALACHIAN CORPORATION



Prop. Well Bernice Unit 1H	Prop. Well Duke Unit 2H	Prop. Well Duke Unit 1H	Prop. Well Farm Unit 2H
WV-N NAD83 N: 264977.38 WV-N NAD83 E: 1659678.33 LAT NAD83: 39.2223873 LON NAD83: -80.5892947	WV-N NAD83 N: 264974.52 WV-N NAD83 E: 1659685.91 LAT NAD83: 39.2223598 LON NAD83: -80.5892607	WV-N NAD83 N: 264971.66 WV-N NAD83 E: 1659695.49 LAT NAD83: 39.2223253 LON NAD83: -80.5892268	WV-N NAD83 N: 264968.80 WV-N NAD83 E: 1659905.00 LAT NAD83: 39.2223447 LON NAD83: -80.5892928
Prop. Well Farm Unit 1H	Prop. Well Sandra Unit 2H	Prop. Well Sandra Unit 1H	Prop. Well Kimberly Unit 2H
WV-N NAD83 N: 264965.94 WV-N NAD83 E: 1659914.86 LAT NAD83: 39.2223272 LON NAD83: -80.5892589	WV-N NAD83 N: 264963.08 WV-N NAD83 E: 1659924.24 LAT NAD83: 39.2223297 LON NAD83: -80.5892249	WV-N NAD83 N: 264960.22 WV-N NAD83 E: 1659933.82 LAT NAD83: 39.2223221 LON NAD83: -80.5891910	WV-N NAD83 N: 264957.36 WV-N NAD83 E: 1659943.41 LAT NAD83: 39.2223146 LON NAD83: -80.5891570

**Project Contacts**

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304-380-6181 Cell

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Dusty Woods  
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**Surveyor & Engineer**

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304-848-5035 Off. 304-619-4937 Cell

Kirk Wilson, PE - L&W Enterprises, Inc.  
304-257-4818 Off. 304-668-0365 Cell

**Design Certification**

The drawings, construction notes, and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas §35-4-21. The information reflects a temporary frac pit pond. The computed above grade storage volume is less than 15 acre feet, filling method pumped, pond is lined.

**Well Location Restrictions:**

All Pad and Frac Pit construction complies with the following restrictions.

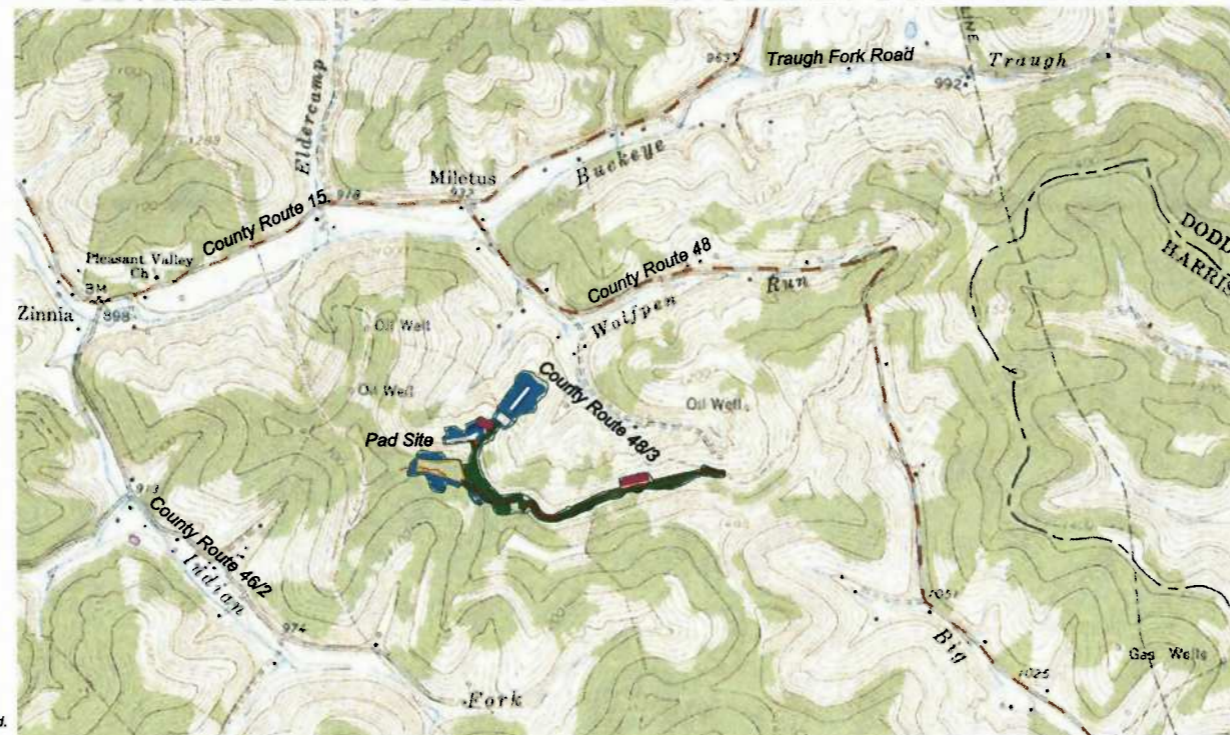
- 250' from an existing well or developed spring used for human or domestic animals.
- 625' from occupied dwelling or barn greater than 2500 SF used for poultry or dairy measured from the center of the pad.
- 100' from edge of disturbance to wetlands, perennial streams, natural or artificial lake, pond or reservoir.
- 300' from edge of disturbance to a naturally reproducing trout stream.
- 1000' of a surface or ground water intake to a public water supply.

<b>FLOODPLAIN CONDITIONS</b>	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO
HEC-RAS STUDY COMPLETED:	N/A
FLOODPLAIN SHOWN ON DRAWINGS:	N/A
FIRM MAP NUMBER(S) FOR SITE:	54017C0255C
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	N/A

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!!**



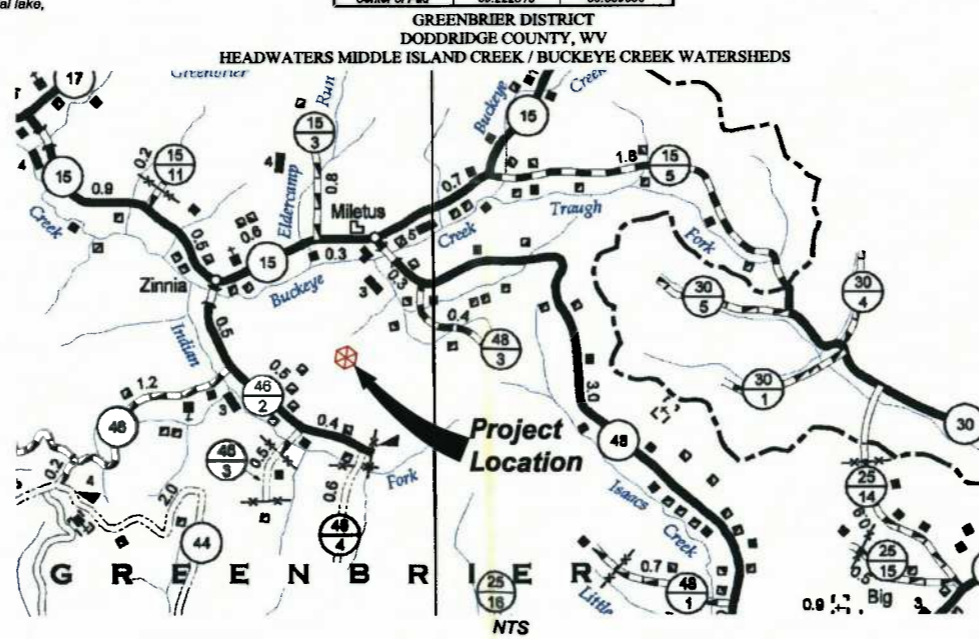
**Know what's below.  
Call before you dig.**



**BIG ISAAC QUAD**

0 1000 2000 3000

SITE LOCATIONS NAD 83			
Depth Acc. Road (UTM Meters)	N=4341525.45 m	E=536429.19 m	
Center of Pit (UTM Meters)	N=4341777.48 m	E=535694.27 m	
Center of Pad (UTM Meters)	N=4341627.77 m	E=535422.76 m	
	<b>LATITUDE</b>	<b>LONGITUDE</b>	
Depth Access Road	39.222282	-80.577977	
Center of Pit	39.224554	-80.586477	
Center of Pad	39.222315	-80.589638	



West Virginia State Plane Coordinate System  
North Zone, NAD83  
Elevations Based on NAVD88  
Established By Survey Grade GPS & OPUS Post-Processing

Property Owner Information - Kirk Pad					
Greenbrier District - Doddridge County					
Owner	TM/Parcel	Deed/Page	Total Acres	Type of Disturbance	Acres
Homer L. Ford	7/36.1	WB11/556	54.25	Access Road B	0.35
				Access Road C	0.15
				Drill Pad	1.90
				Frac Pit	2.20
				Frac Pit Truck Turn Pad	0.38
				Spoil Pad A	2.46
				Total	7.44
Kenneth A. Kirk	7/94	267/652	46.05	Drill Pad	1.79
				Total	1.79
Kenneth A. Kirk, et al	10/9.1	267/652	21	Access Road A	0.98
				Access Road B	0.02
				Road Pad	0.29
				Drill Pad	0.42
				Total	1.71
John K. & Mary J. Davis	8/25.3	209/338 B	57.2	Access Road A	4.29
				Access Road B	2.30
				Drill Pad	0.58
				Frac Pit	2.32
				Frac Pit Truck Turn Pad	0.34
				Total	9.83
John K. Davis	TM B / Par 92.1	177/744	50.17	Access Road A	4.67
				Total	4.67
				Grand Total	25.44

LOD Area (ac)	
Road A (3,285 ft)	9.94
Road B (1,028 ft)	2.67
Road C (89 ft)	0.15
Drill Pad	4.69
Frac Pit	4.52
Frac Pit Truck Turn Pad	0.72
Spoil Pad A	2.46
Road Pad	0.29
Total Affected Area	25.44
Total Wooded Acres Disturbed	20.58
Total Linear Feet of Access Road	4,402

Ephemeral Stream Impact (Linear feet)				
Stream and Impact Cause	Slope Fill (LF)	Inlet/Outlet Structures (LF)	Constr. Disturb. To LOD (LF)	Total Impact (LF)
Stream 17 - Road A	14	0	16	30
Stream 18 - Road A	0	0	10	10
<b>Total Ephemeral Impact</b>	<b>14</b>	<b>0</b>	<b>26</b>	<b>40</b>
Intermittent Stream Impact (Linear feet)				
Stream and Impact Cause	Slope Fill (LF)	Inlet/Outlet Structures (LF)	Constr. Disturb. To LOD (LF)	Total Impact (LF)
Stream 2 - Road A	30	0	55	85
<b>Total Intermittent Impact</b>	<b>30</b>	<b>0</b>	<b>55</b>	<b>85</b>
			<b>Total Stream Impacts</b>	<b>125</b>

Wetland Impact (Square feet)			
Wetland and Impact Cause	FHII (SF)	Constr. Disturb. To LOD (SF)	Total Impact (SF)
Wetland 9 - Road A	436	0	436
Wetland 10 - Road A	0	30	30
<b>Total Square Feet</b>	<b>436</b>	<b>30</b>	<b>466</b>
<b>Total Acres</b>	<b>0.010</b>	<b>0.00069</b>	<b>0.011</b>

**DRAWING INDEX**

- 1 COVER SHEET/LOCATION MAP
- 2 SCHEDULE OF QUANTITIES
- 3 CONSTRUCTION, EROSION, & SEDIMENT CONTROL NOTES
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- 5 PLAN SHEET INDEX
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- 11 DRILL PAD BASELINE PROFILE & CROSS SECTIONS
- 12 FRACTURE PIT BASELINE PROFILE & CROSS SECTIONS
- 13-14 ACCESS ROAD A CROSS SECTIONS
- 15 ACCESS ROAD B CROSS SECTIONS
- 16 DETAILS
- 17 RECLAMATION PLAN
- 18 KIRK PAD COUNTY ROAD ACCESS

DATE	REVISIONS	DATE: 11/2/12
11-15-12	Revised Well Layout Configuration	Scale: N/A
2-4-13	Added Sheet 18 - Kirk Pad County Road Access	Designed By: CKW/CKM
5-7-13	Updated Per New Antero Standards	File No. Antero 136-12
5-13-13	Revised Topsoil Area Location	Page 1 of 18
5-14-13	Revised Per Antero Comments	



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Bridgeport, WV 26330  
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 EMAIL: ERB@CTLINC.NET  
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 PETERSBURG, WV 26847



**ANTERO RESOURCES**

THIS DOCUMENT  
PREPARED FOR  
ANTERO RESOURCES  
APPALACHIAN CORP

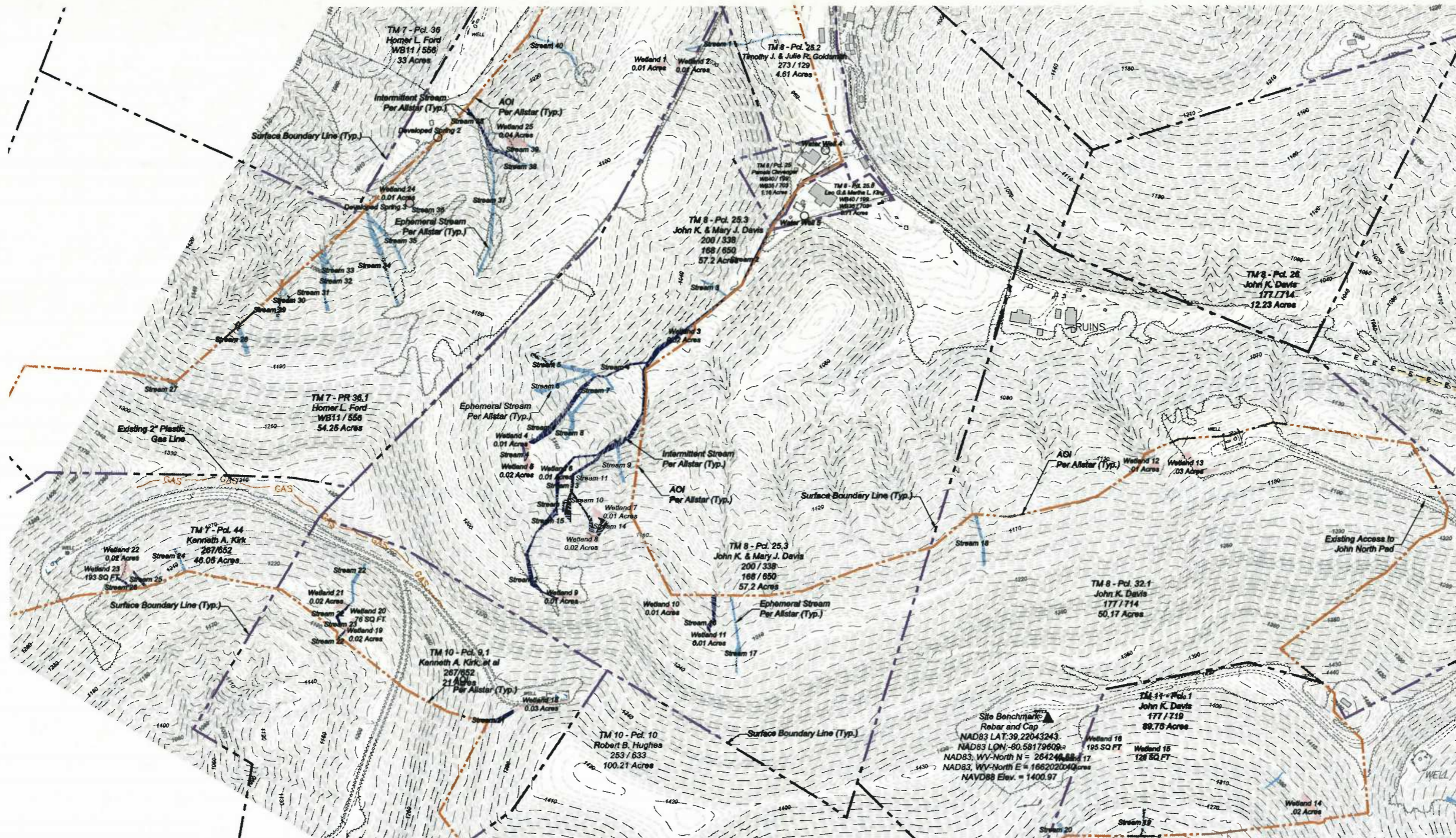
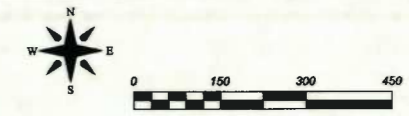
COVER SHEET/LOCATION MAP  
**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIDGE COUNTY, WV





All topographic information shown hereon is based on aerial photography provided by Blue Mountain Aerial Mapping with a flight date of Spring 2011

# EXISTING CONDITIONS



NOTE: All surface boundary line shown hereon are based on current Deeds and boundary evidence collected with mapping grade GPS receivers.

### Legend

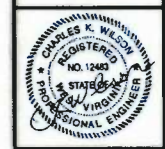
- - - Existing 2' Contour
- - - Existing 10' Contour
- - - Existing Tree Line
- - - Existing Utility Pole / Line
- - - Existing Gas Line CL

DATE	REVISIONS
5-7-13	Updated Per New Antero Standards

Date: 11/2/12  
 Scale: 1" = 150'  
 Designed By: CEW/CKM  
 File No. Antero 136-12  
 Page 4 of 18



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 EMAIL: KIRK@GTLLINE.NET

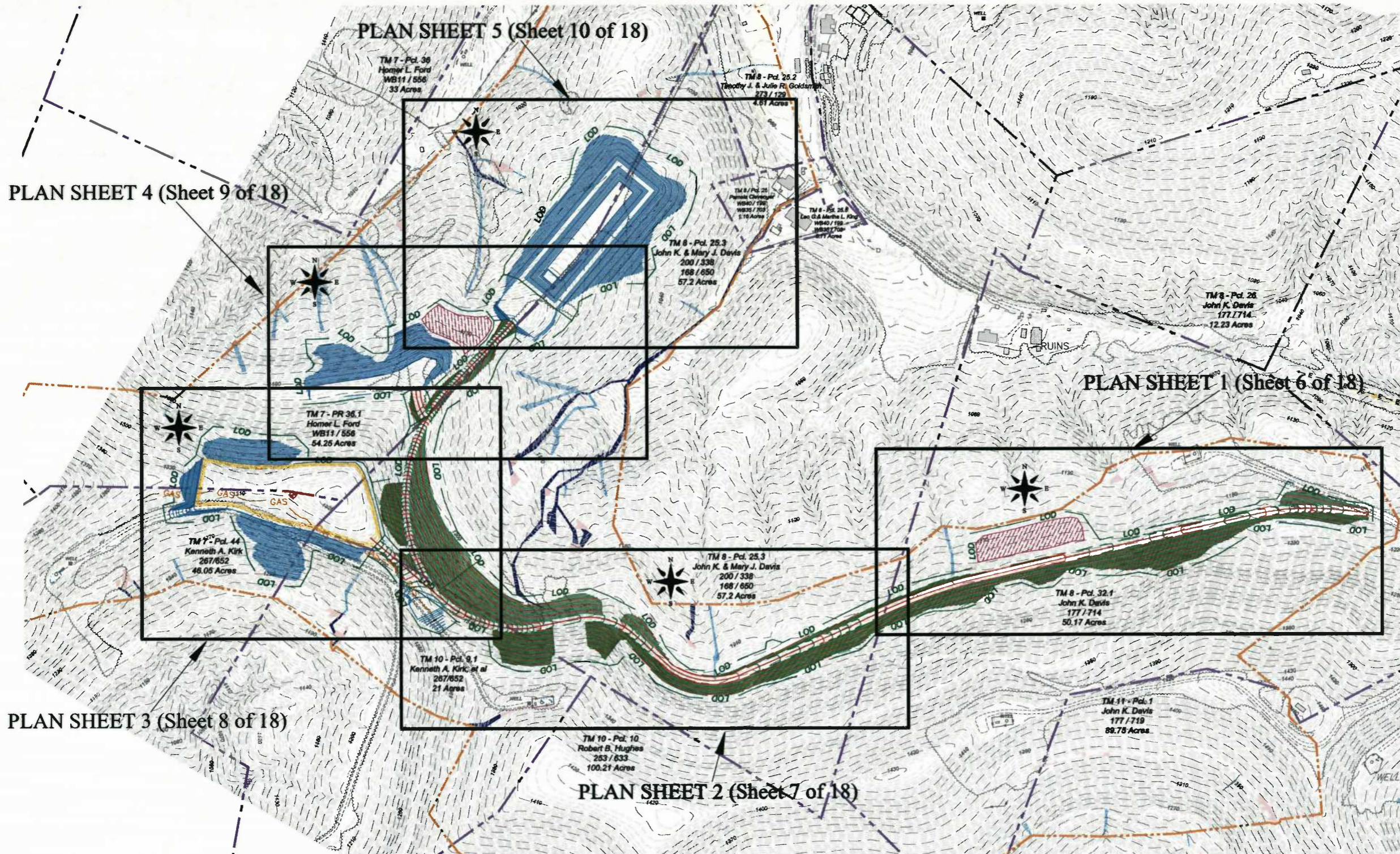
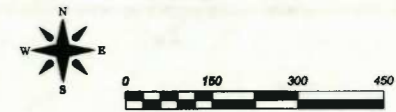


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EXISTING CONDITIONS  
**KIRK PAD**  
 GREENBRIER DISTRICT,  
 DODDRIDGE COUNTY, WV

All topographic information shown hereon is based on aerial photography provided by Blue Mountain Aerial Mapping with a flight date of Spring 2011

# PLAN SHEET INDEX



NOTE: All surface boundary line shown hereon are based on current Deeds and boundary evidence collected with mapping grade GPS receivers.

**Legend**

- 1000- Existing 2' Contour
- 100- Existing 10' Contour
- - - Existing Tree Line
- E Existing Utility Pole / Line
- GAS Existing Gas Line CL

DATE	REVISIONS
5-7-13	Updated Per New Antero Standards
5-13-13	Revised Topsoil Area Location

Date: 11/2/12  
 Scale: 1" = 150'  
 Designed By: CKW/CKM  
 File No. Antero 136-12  
 Page 5 of 18



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PLAN SHEET INDEX  
**KIRK PAD**  
 GREENBRIER DISTRICT  
 DODDRIDGE COUNTY, WV

# SITE PLAN (1) - ACCESS ROAD A STA: 0+00 - 15+00



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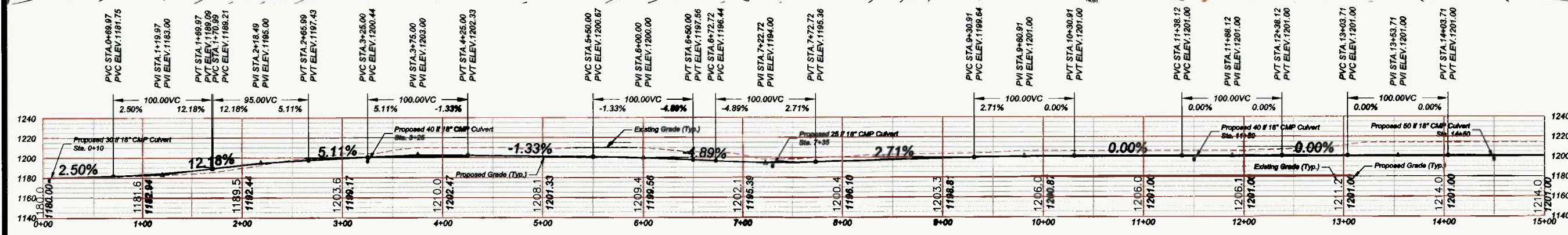
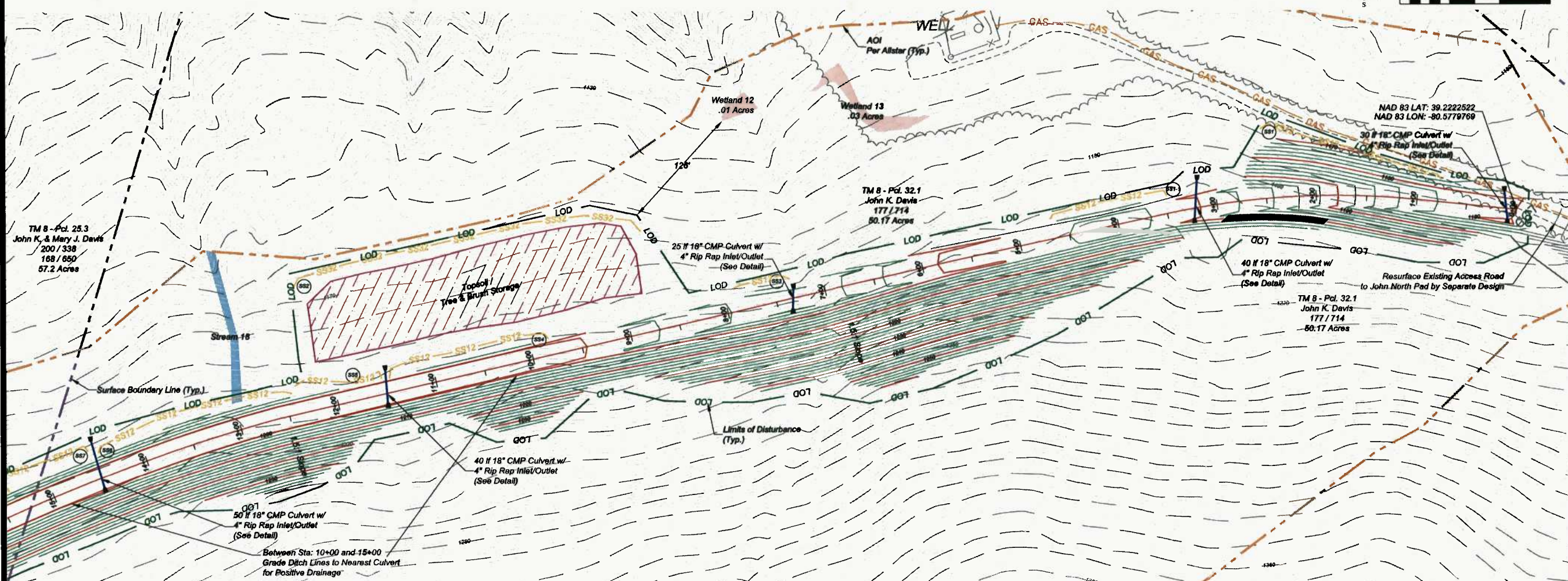
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SITE PLAN (1) - ACCESS ROAD A STA: 0+00 - 15+00

KIRK PAD  
GREENBRIER DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 11/2/12  
Scale: 1" = 50'  
Designed By: CKW/CKM  
File No.: Antero 136-12  
Page 6 of 18



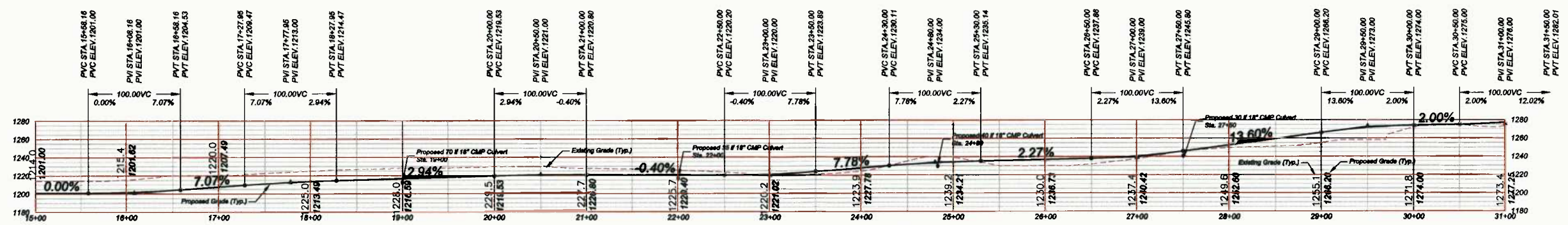
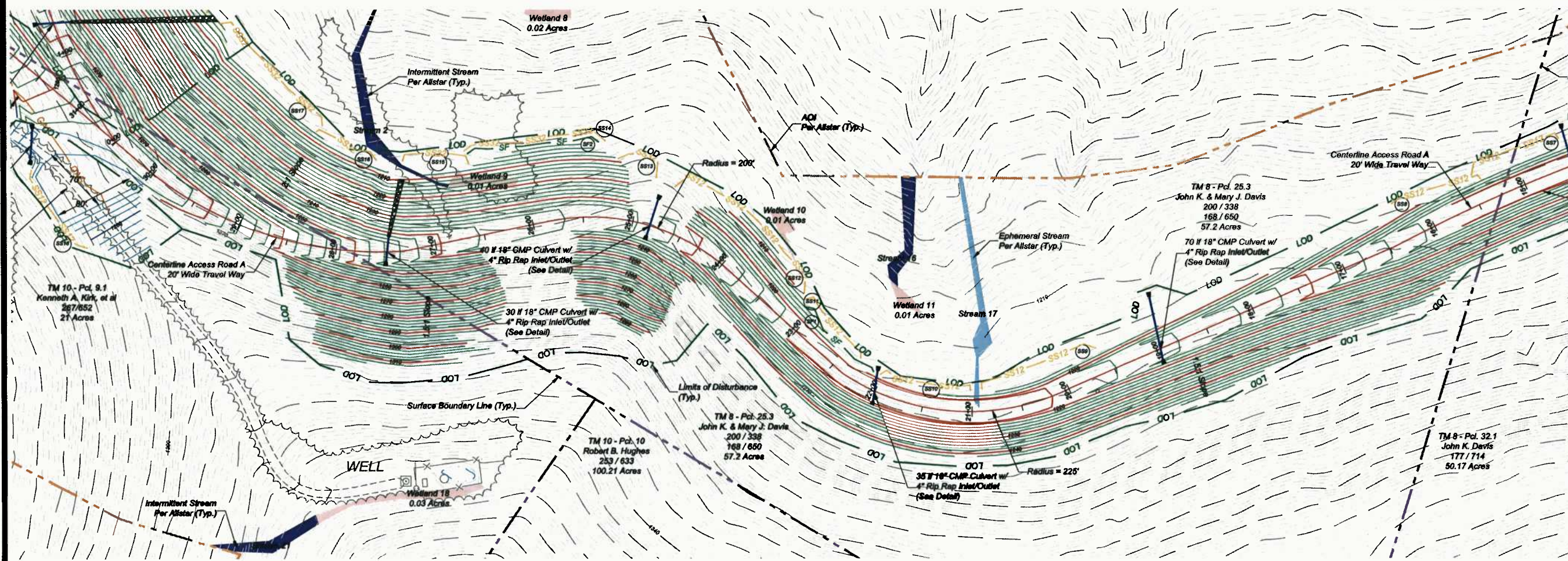
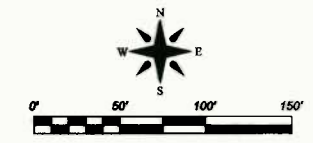
ACCESS ROAD A PROFILE  
Horizontal & Vertical Scale: 1" = 50'



LINED DITCH TREATMENT vs SLOPE OF DITCH  
Line with Jute Matting if slope is less than 3%  
Line with turf reinforcement matting (TRM) if slope is greater than 3%  
\*Turf reinforcement matting shall be Excelsior Recyclcex or Landlok TRM 435 or equal

Legend	
--- 1230	Existing 2' Contour
--- 1000	Existing 10' Contour
---	Existing Tree Line
-E-E-	Existing Utility Line / Pole
- - -	Surface Owner Property Line
- - - -	Existing Gas Line CL
---	Limits of Disturbance
->->	Proposed Diversion Ditch
---	Proposed 2' Contour
---	Proposed 10' Contour
---	Proposed Super Silt Fence
---	Proposed Check Dam
---	Proposed Culvert W/ Inlet & Outlet Protection
---	Proposed Straw Wattles
---	Proposed Silt Sox w/ Diameter
---	Proposed 2' Contour
---	Proposed 10' Contour
---	Proposed Rip-Rap
* Silt Sox Diameter in Inches	
* Super Silt Fence Can be Substituted for Silt Sox of any Size	

# SITE PLAN (2) - ACCESS ROAD A STA: 15+00 - 31+00



**ACCESS ROAD A PROFILE**  
Horizontal & Vertical Scale: 1" = 60'



LINED DITCH TREATMENT vs SLOPE OF DITCH  
Line with Jute Matting if slope is less than 3%  
Line with turf reinforcement matting (TRM) if slope is greater than 3%  
\*Turf reinforcement matting shall be Excelsior Recycloex or Landlok TRM 435 or equal

Legend	
Existing 2' Contour	Proposed Check Dam
Existing 10' Contour	Proposed Culvert W/ Inlet & Outlet Protection
Existing Tree Line	Proposed Straw Wattles
Existing Utility Line / Pole	Proposed Silt Sox w/ Diameter
Surface Owner Property Line	Proposed 2' Contour
GAS - Existing Gas Line CL	Proposed 10' Contour
LOD - Limits of Disturbance	Proposed Rip-Rap
Proposed Diversion Ditch	Silt Sox Diameter in Inches
Proposed 2' Contour	Super Silt Fence Can be Substituted for Silt Sox of any Size
Proposed 10' Contour	
SF - Proposed Super Silt Fence	


DATE	REVISIONS
5-7-13	Updated Per New Antero Standards



**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIIDGE COUNTY, WV



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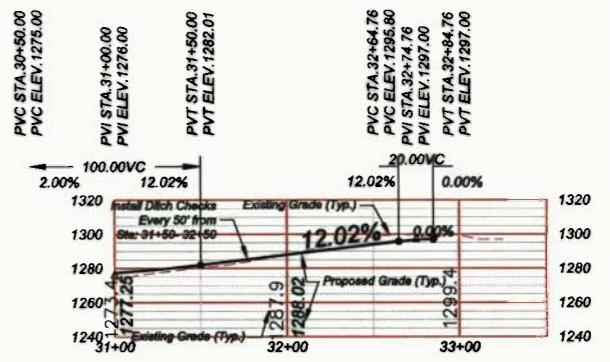
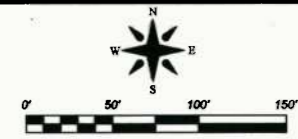
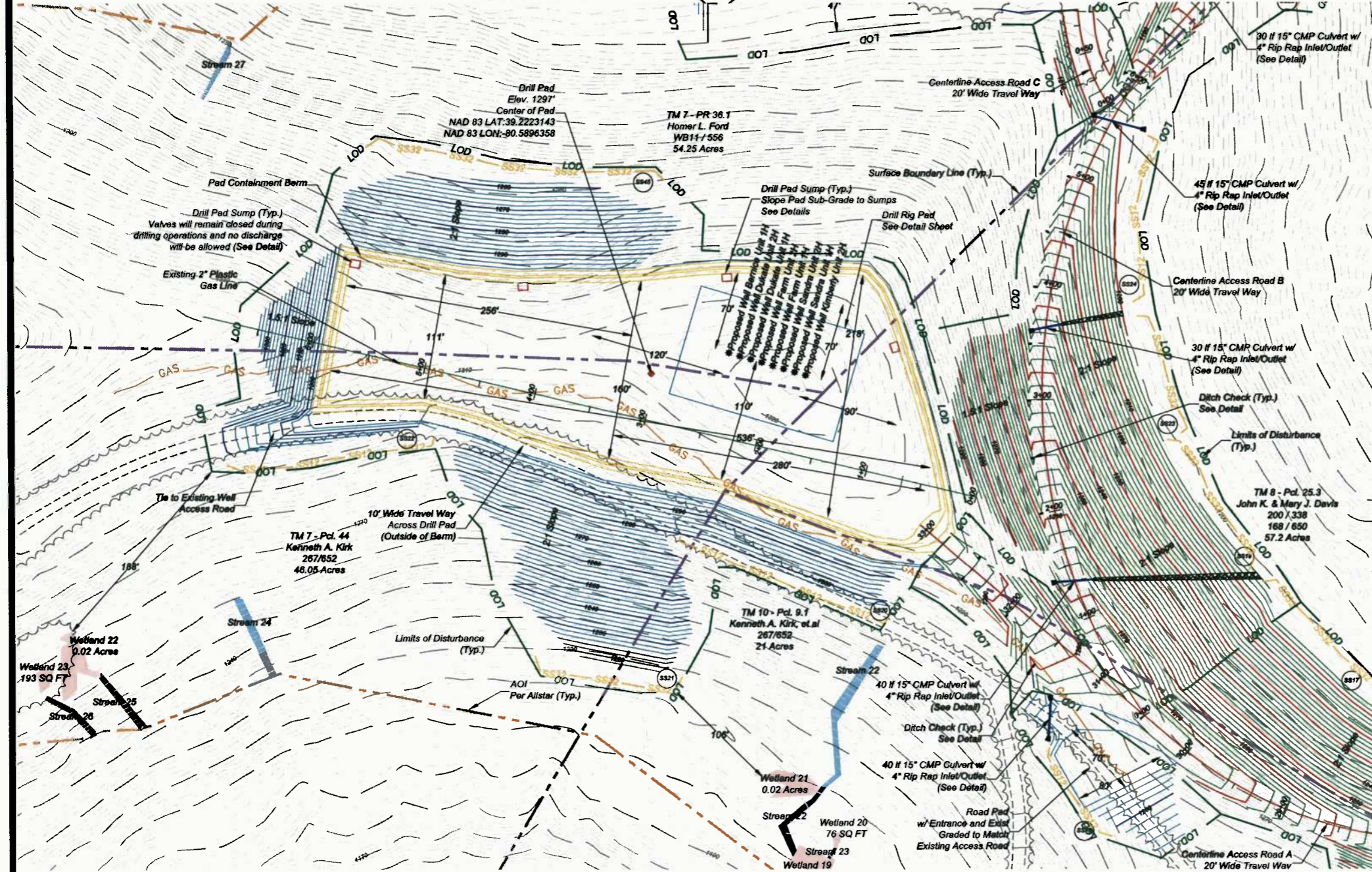


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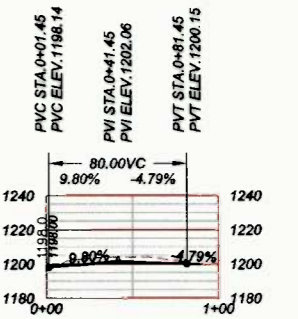
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Date: 11/2/12  
Scale: 1" = 50'  
Designed By: CEW/CKM  
File No. Antero 136-12  
Page 7 of 18

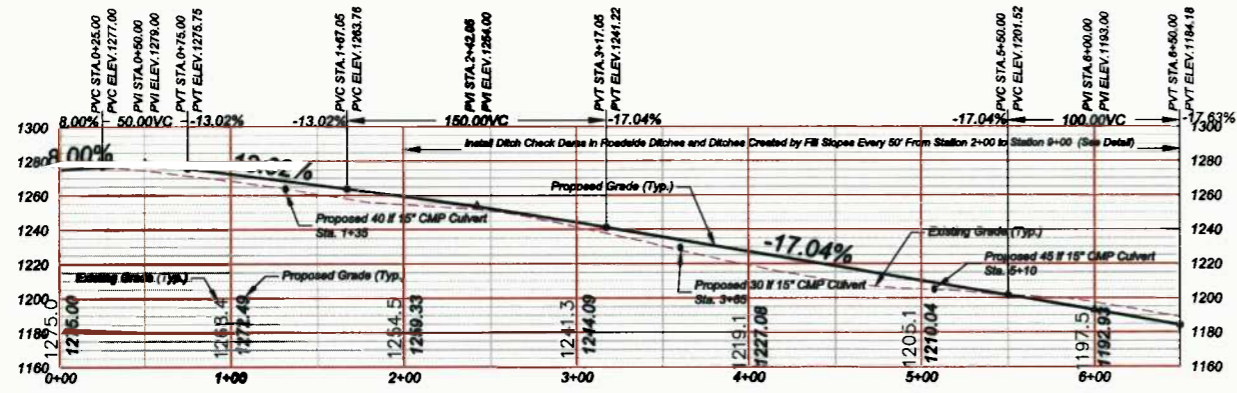
# SITE PLAN (3) - ACCESS ROAD B STA: 0+00 - 6+50



**ACCESS ROAD A PROFILE**  
Horizontal & Vertical Scale: 1" = 50'



**ACCESS ROAD C PROFILE**  
Horizontal & Vertical Scale: 1" = 50'



**ACCESS ROAD B PROFILE**  
Horizontal & Vertical Scale: 1" = 50'

**LINED DITCH TREATMENT vs SLOPE of DITCH**  
Line with Jute Matting if slope is less than 3%  
Line with turf reinforcement matting (TRM) if slope is greater than 3%  
\*Turf reinforcement matting shall be Excelsior Recyclor or Landlok TRM 435 or equal

Legend	
- - - - -	Existing 2' Contour
- - - - -	Existing 10' Contour
- - - - -	Existing Tree Line
- - - - -	Existing Utility Line / Pole
- - - - -	Surface Owner Property Line
- - - - -	Existing Gas Line CL
- - - - -	Limits of Disturbance
- - - - -	Proposed Diversion Ditch
- - - - -	Proposed 2' Contour
- - - - -	Proposed 10' Contour
- - - - -	Proposed Super Silt Fence
- - - - -	Proposed Check Dam
- - - - -	Proposed Culvert W/ Inlet & Outlet Protection
- - - - -	Proposed Straw Wattles
- - - - -	Proposed Silt Sox w/ Diameter
- - - - -	Proposed 2' Contour
- - - - -	Proposed 10' Contour
- - - - -	Proposed Rip-Rap
- - - - -	* Silt Sox Diameter in Inches
- - - - -	* Super Silt Fence Can be Substituted for Silt Sox of any Size

DATE	REVISIONS	DATE
11-15-12	Revised Well Layout Configuration	11/2/12
5-7-13	Updated Per New Antero Standards	Scale: 1" = 50'
5-14-13	Revised Per Antero Comments	Designed By: CKW/CKM
		File No. Antero 136-12
		Page 8 of 18

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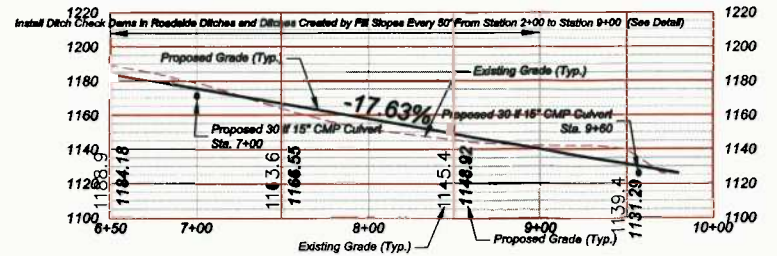
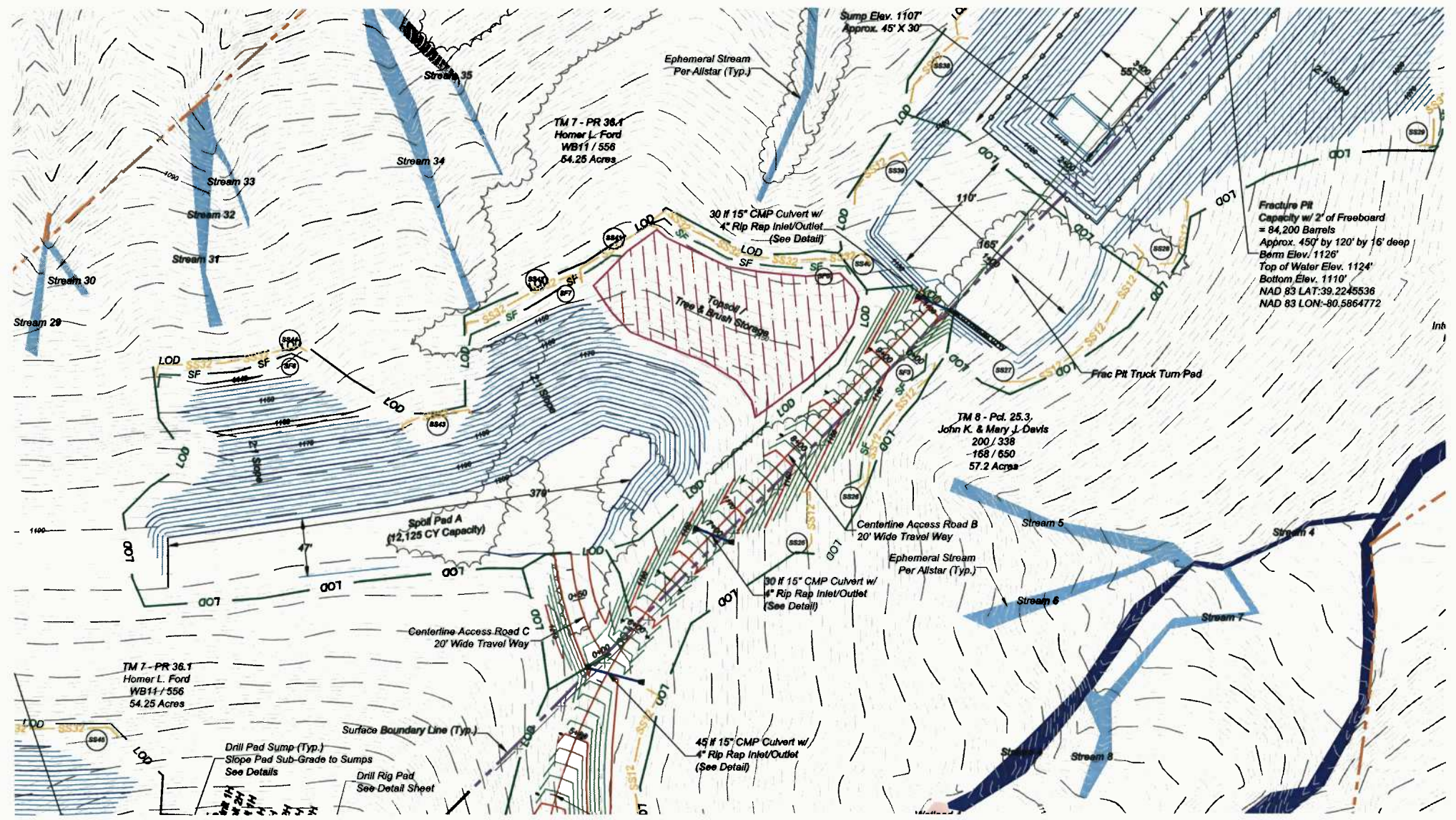
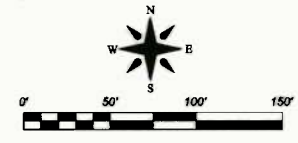
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APPALACHIAN CORP

**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIIDGE COUNTY, WV

SITE PLAN (3) - ACCESS ROAD B STA: 0+00 - 6+50



# SITE PLAN (4) - ACCESS ROAD B STA: 6+50 - 9+70



**ACCESS ROAD B PROFILE**  
Horizontal & Vertical Scale: 1" = 50'

LINED DITCH TREATMENT vs SLOPE OF DITCH  
Line with Jute Matting if slope is less than 3%  
Line with turf reinforcement matting (TRM) if slope is greater than 3%  
\*Turf reinforcement matting shall be Excelsior Reocycles or Landlok TRM 435 or equal

Legend	
Existing 2' Contour	Proposed Check Dam
Existing 10' Contour	Proposed Culvert W/ Inlet & Outlet Protection
Existing Tree Line	Proposed Straw Wattles
Existing Utility Line / Pole	Proposed Silt Soxx w/ Diameter
Surface Owner Property Line	Proposed 2' Contour
GAS Existing Gas Line CL	Proposed 10' Contour
LOD Limits of Disturbance	Proposed Rip-Rap
Proposed Diversion Ditch	Proposed Super Silt Fence
Proposed 2' Contour	
Proposed 10' Contour	
Proposed Super Silt Fence	

DATE	REVISIONS
5-7-13	Updated Per New Antero Standards

Allegheny Surveys, Inc.  
 172 Thompson Drive  
 Bridgeport, WV 26330  
 (304) 648-5035

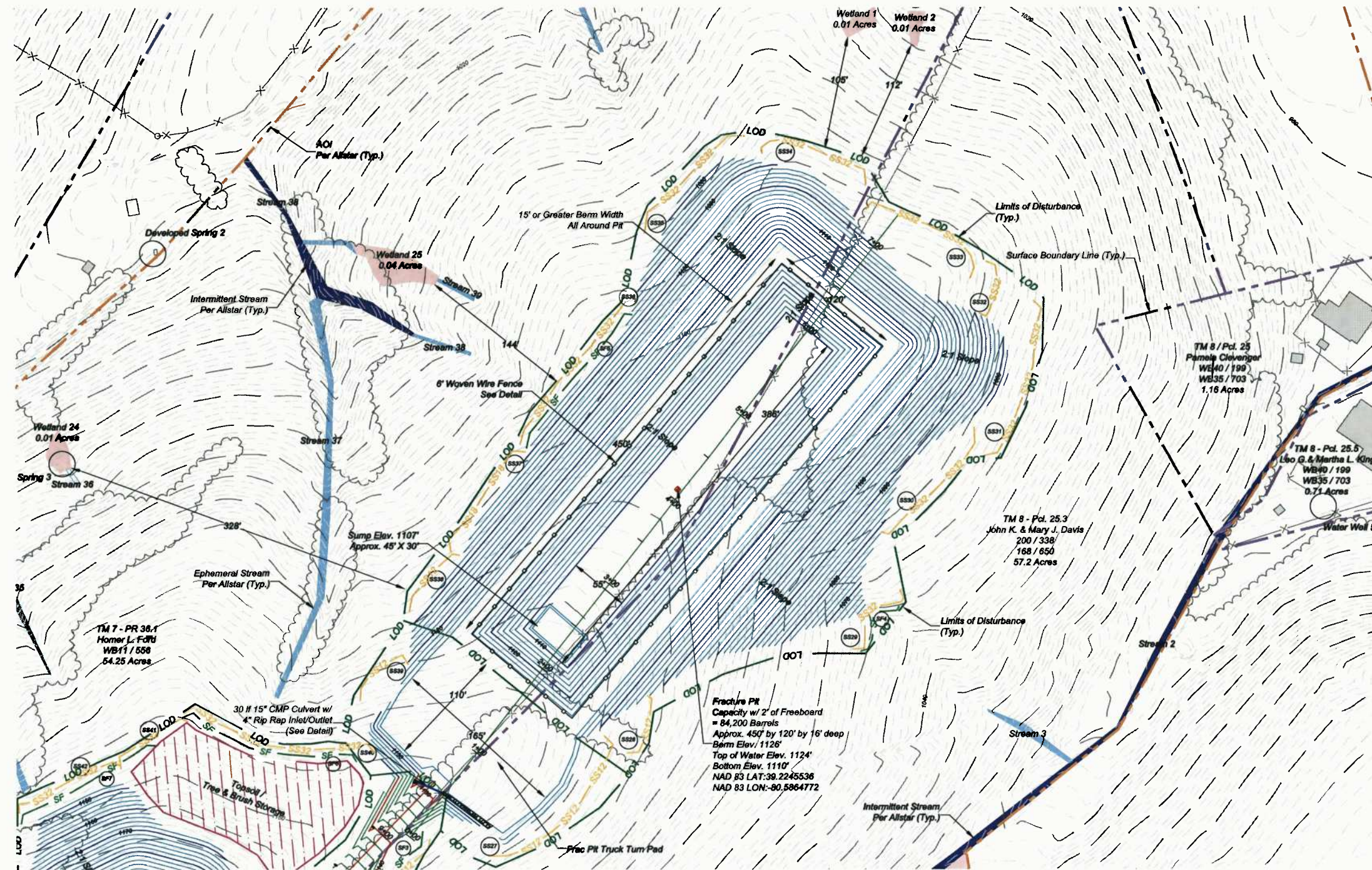
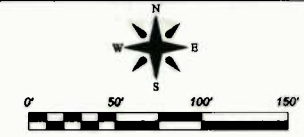
L&W ENTERPRISES, INC.  
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 TEL: 304-257-4818  
 FAX: 304-257-2324  
 EMAIL: LUR@GTTLINK.NET

ANTERO RESOURCES  
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SITE PLAN (4) - ACCESS ROAD B STA: 6+50 - 9+70  
 KIRK PAD  
 GREENBRIER DISTRICT  
 DODDRIDGE COUNTY, WV

Date: 11/2/12  
 Scale: 1" = 50'  
 Designed By: CKW/CKM  
 File No. Antero 136-12  
 Page 9 of 18

# SITE PLAN (5)



**Legend**

Existing 2' Contour	Proposed Check Dam
Existing 10' Contour	Proposed Culvert W/ Inlet & Outlet Protection
Existing Tree Line	Proposed Straw Wattles
Existing Utility Line / Pole	Proposed Silt Soxx w/ Diameter
Surface Owner Property Line	Proposed 2' Contour
GAS - Existing Gas Line CL	Proposed 10' Contour
LOD - Limits of Disturbance	Proposed Rip-Rap
Proposed Diversion Ditch	Proposed Super Silt Fence
Proposed 2' Contour	
Proposed 10' Contour	
SF - Proposed Super Silt Fence	

\* Silt Soxx Diameter in Inches  
\* Super Silt Fence Can be Substituted for Silt Soxx of any Size

DATE	REVISIONS
5-7-13	Updated Per New Antero Standards
5-14-13	Revised Per Antero Comments

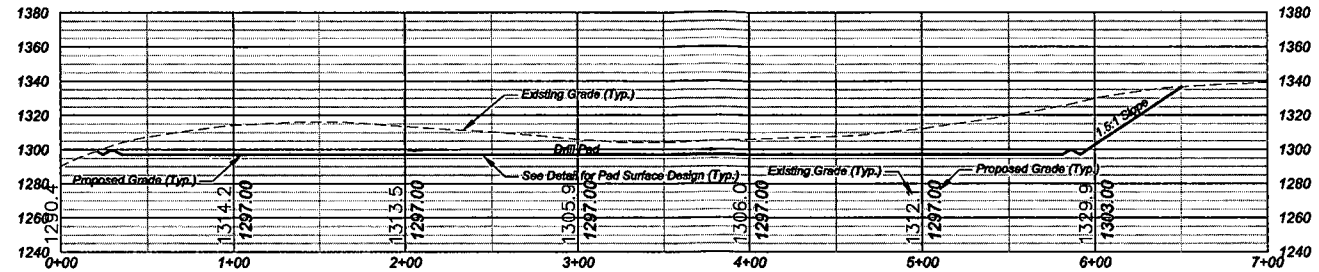
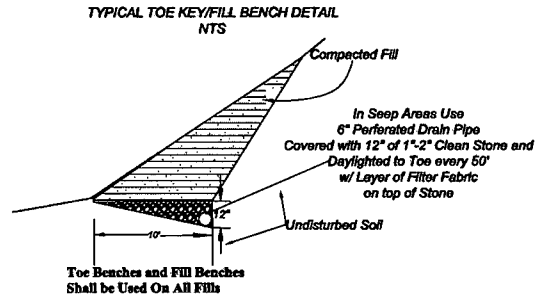
SITE PLAN (5)  
**KIRK PAD**  
 GREENBRIER DISTRICT  
 DODDRIDGE COUNTY, WV

Antero Resources  
 THIS DOCUMENT PREPARED FOR ANTERO RESOURCES APPALACHIAN CORP

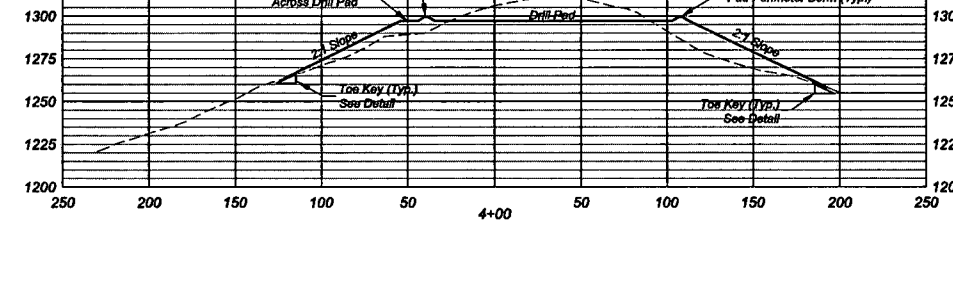
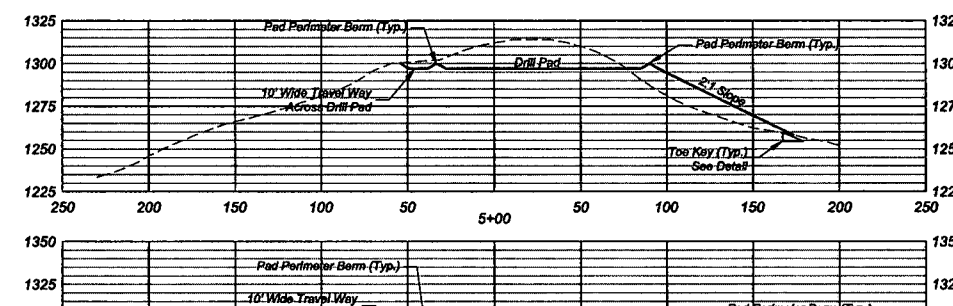
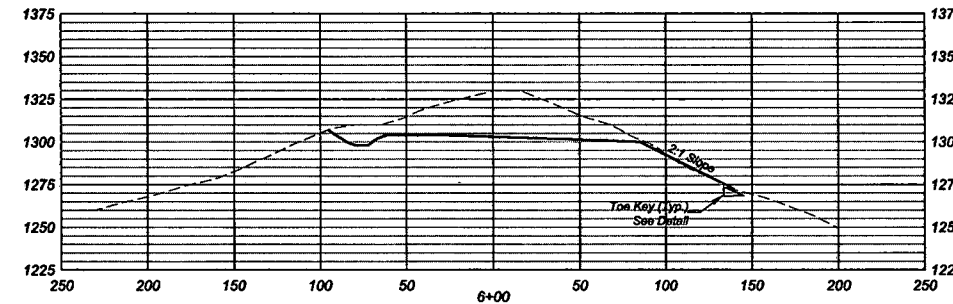
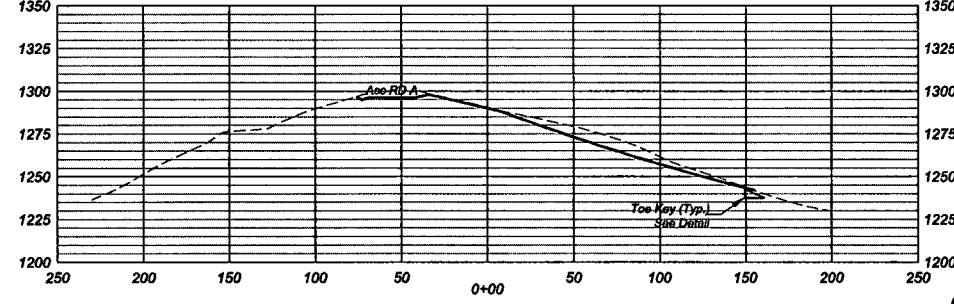
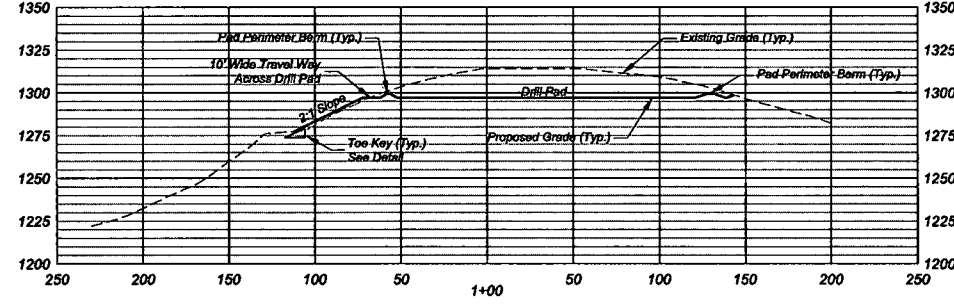
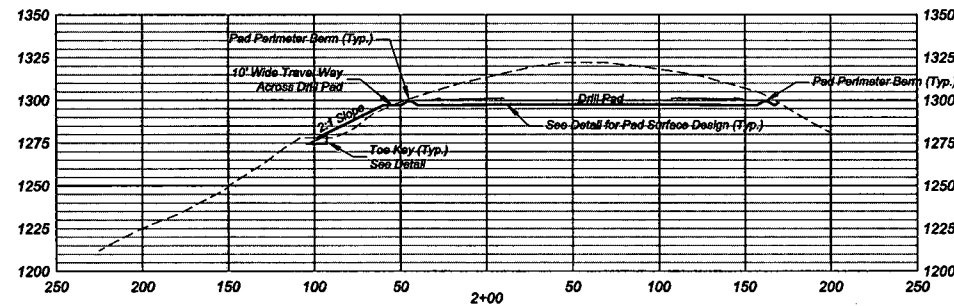
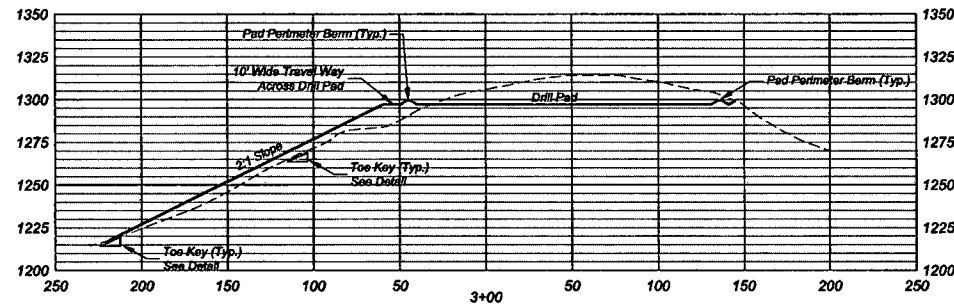
**L&W ENTERPRISES, INC.**  
 P.E. 304-537-4818  
 P.O. BOX 126  
 14 SOUTH GROVE ST.  
 PETERSBURG, WV 26447  
 F.A.C. 304-257-2324  
 EMAIL: KIRK@GTLINK.NET

Allegheny Surveys, Inc.  
 172 Thompson Drive  
 Bridgeport, WV 26330  
 (304) 648-5035

# DRILL PAD BASELINE PROFILE AND CROSS SECTIONS



PROFILE



CROSS SECTIONS  
Horizontal & Vertical Scale: 1" = 50'



DATE	REVISIONS	Date: 11/2/12
5-7-13	Updated Per New Antero Standards	Scale: 1" = 50'
		Designed By: CEW/CKM
		File No. Antero 136-12
		Page 11 of 18



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(304) 648-6035



L&W ENTERPRISES, INC.  
P.O. BOX 226  
14 SOUTH GROVE FT.  
PETESBURG, WV 26867  
TEL: 304-257-4818  
FAX: 304-257-2224  
EMAIL: L&W@GMAIL.COM

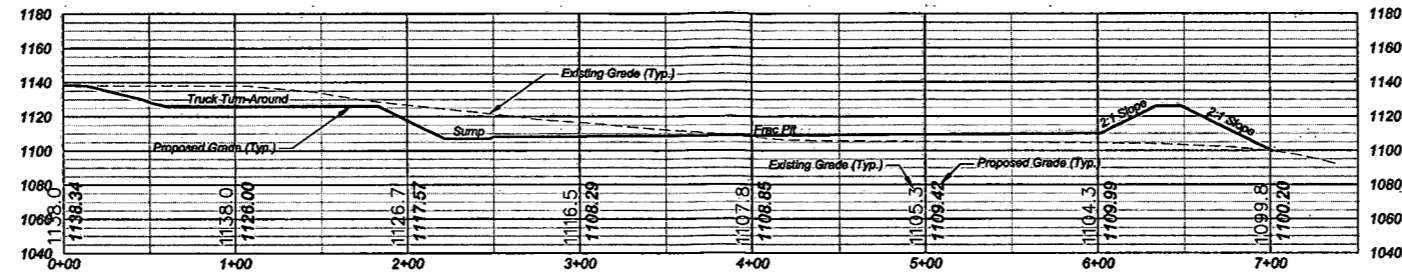
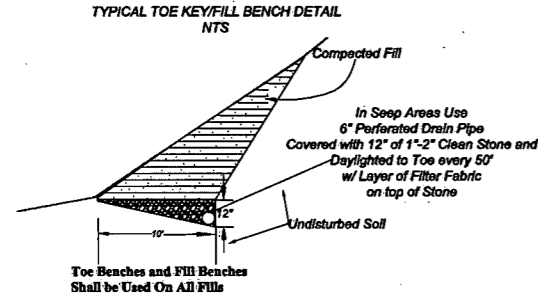


ANTERO  
RESOURCES

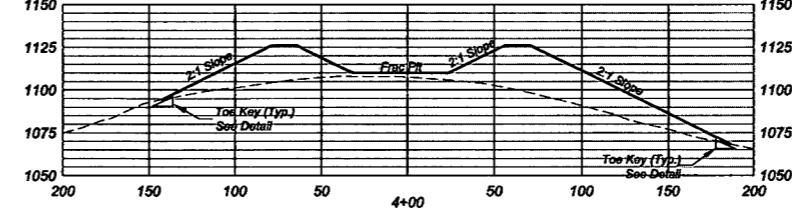
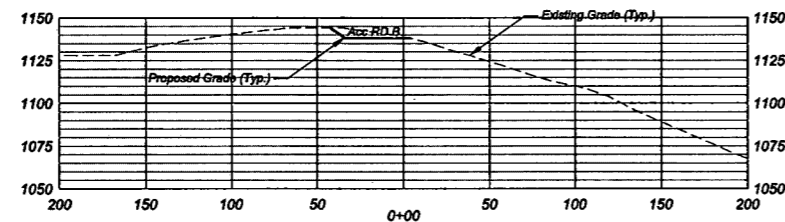
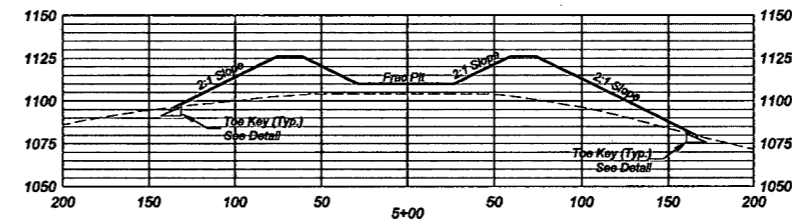
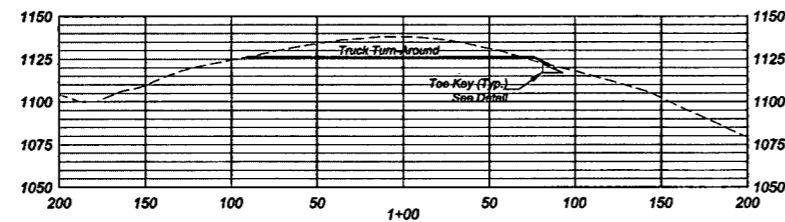
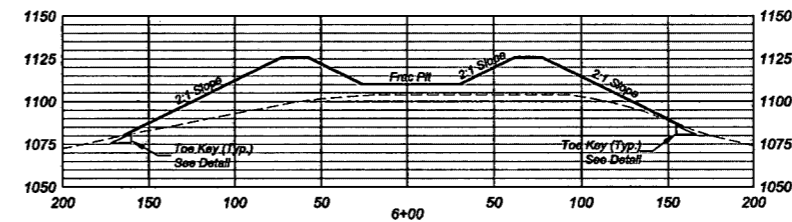
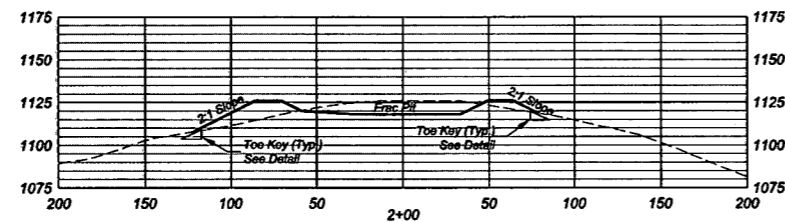
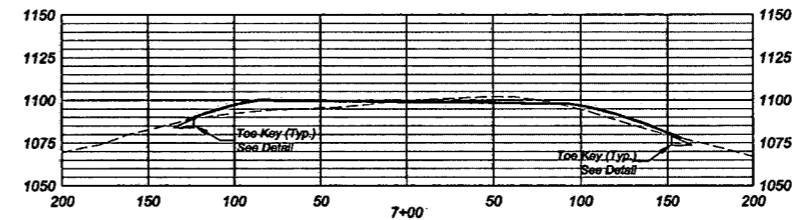
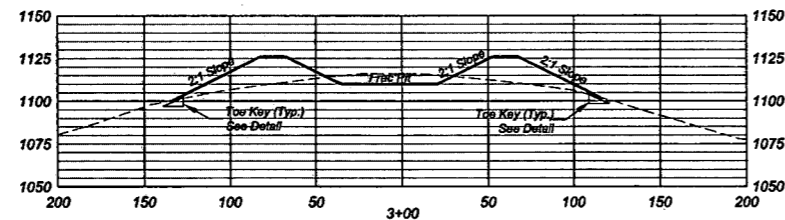
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ANTERO RESOURCES  
APPALACHIAN CORP

DRILL PAD BASELINE  
PROFILE AND CROSS SECTIONS  
**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIDGE COUNTY, WV

# FRACTURE PIT BASELINE PROFILE AND CROSS SECTIONS



PROFILE



CROSS SECTIONS  
Horizontal & Vertical Scale: 1" = 50'



DATE	REVISIONS	Date: 11/2/12
5-7-13	Updated Per New Antero Standards	Scale: 1" = 50'
		Designed By: CK/WCKM
		File No. Antero 136-12
		Page 12 of 18



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L&W ENTERPRISES, INC.  
P.O. BOX 826  
14 SOUTH GROVES ST.  
PETESBURG, WV 25757

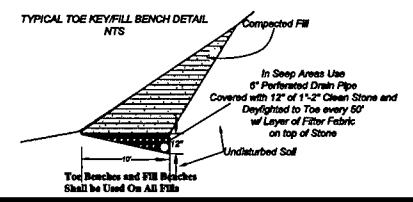
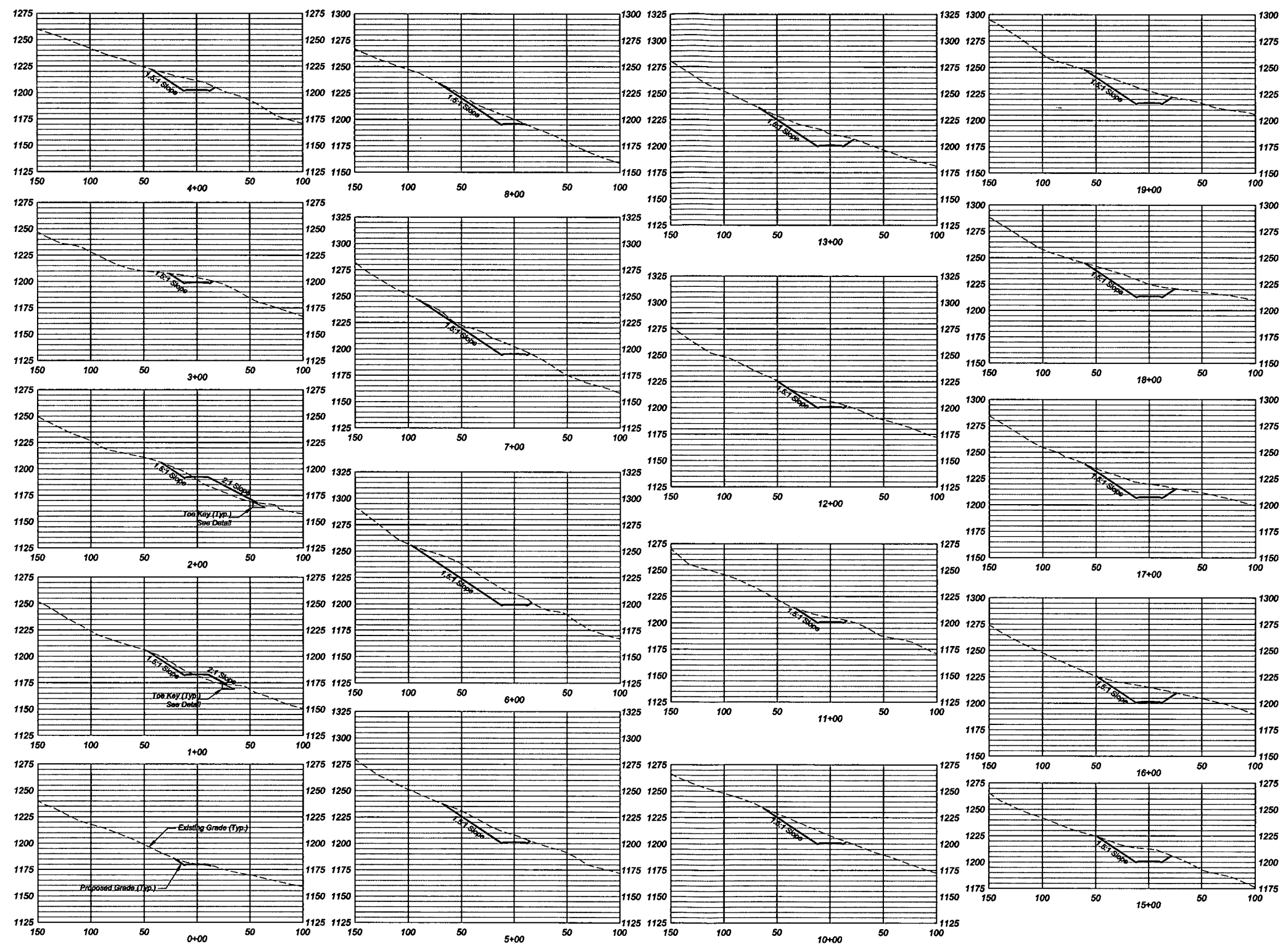
REG. NO. 37-4818  
P.E. 34-257224  
EMAIL: TUN@CTLINK.NET



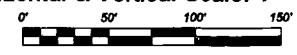
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FRACTURE PIT BASELINE  
PROFILE AND CROSS SECTIONS  
**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIEGE COUNTY, WV

# ACCESS ROAD A CROSS SECTIONS (1)



**CROSS SECTIONS**  
Horizontal & Vertical Scale: 1" = 50'



DATE	REVISIONS
5-7-13	Updated Per New Antero Standards

Date: 11/2/12  
Scale: 1" = 50'  
Designed By: CKW/CEM  
File No. Antero 136-12  
Page 13 of 18



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172 Thompson Drive  
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(304) 848-5035



L&W ENTERPRISES, INC.  
PO BOX 826  
14 SOUTH GROVE ST.  
PETESBURG, WV 26107  
PH: 304-237-4818  
FAX: 304-257-2224  
EMAIL: KIRK@CTLINK.NET



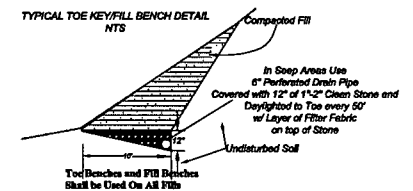
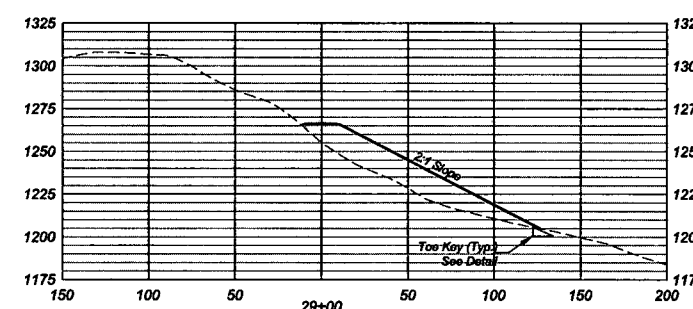
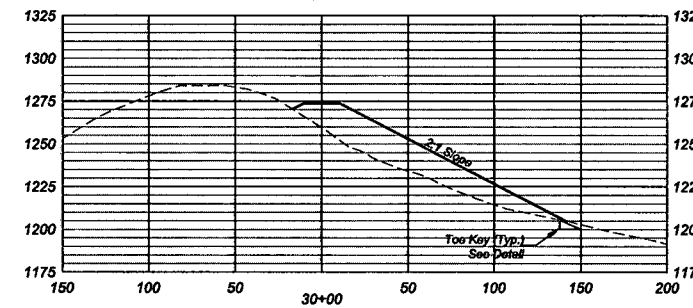
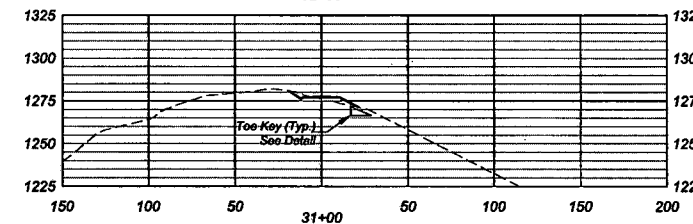
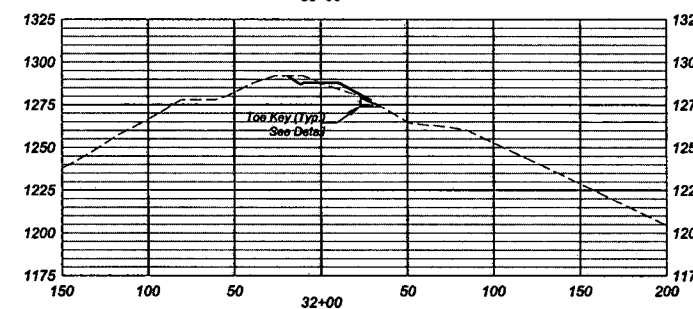
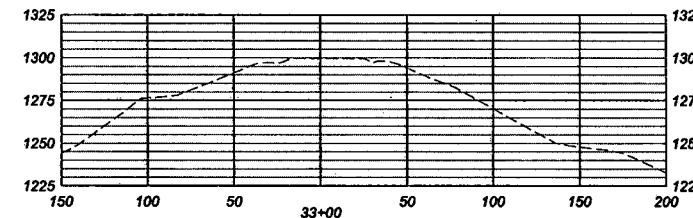
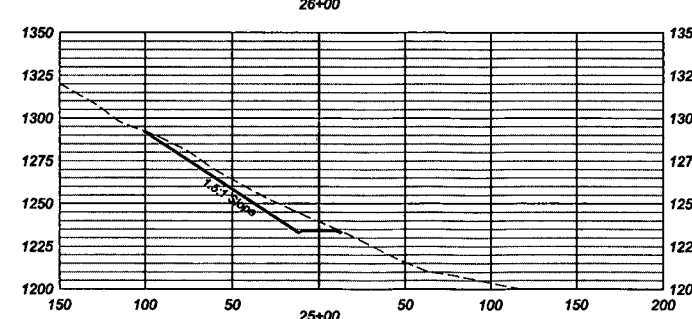
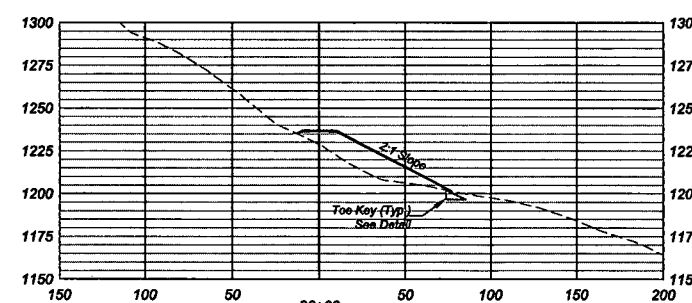
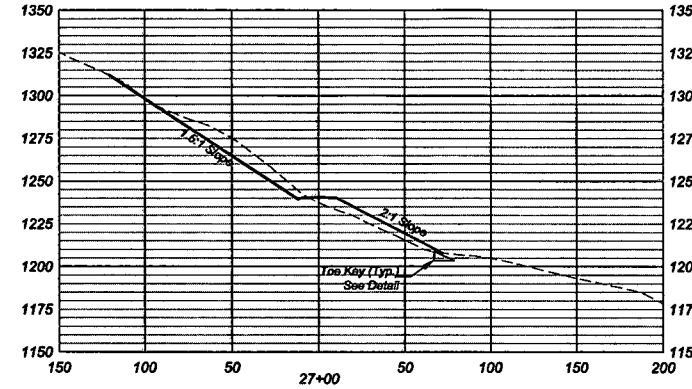
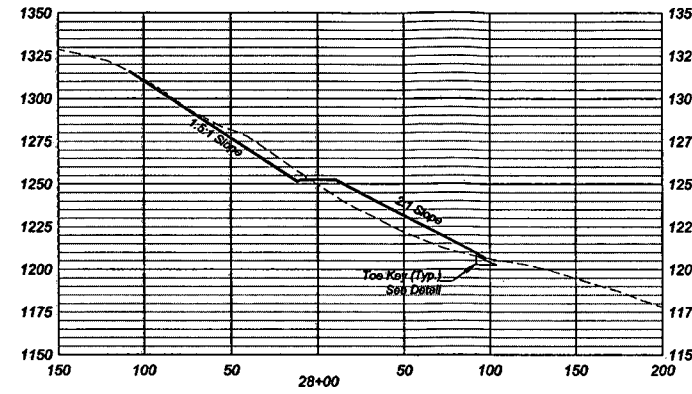
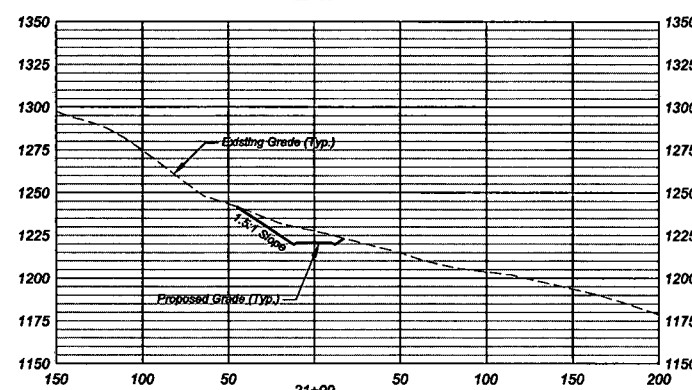
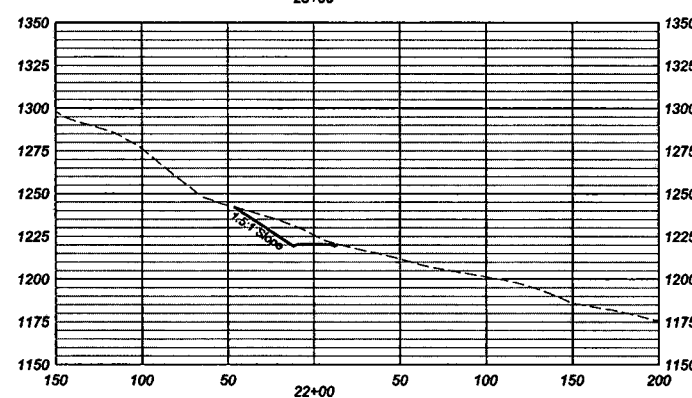
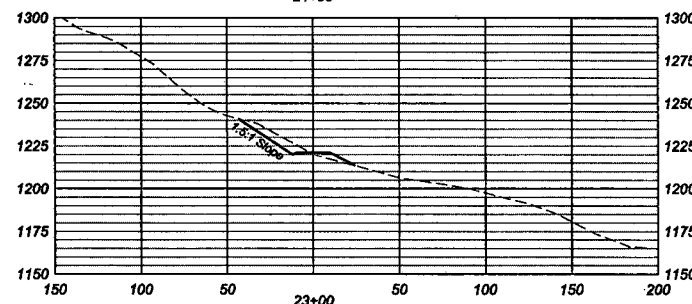
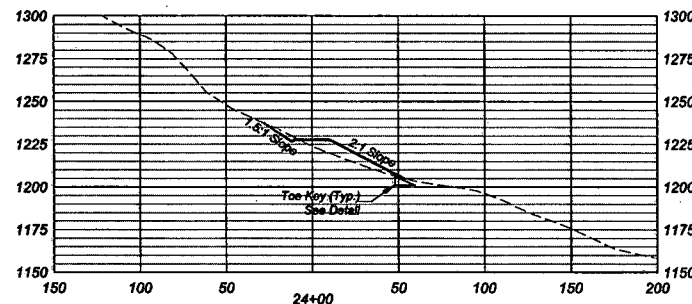
**ANTERO RESOURCES**

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APPALACHIAN CORP

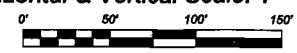
ACCESS ROAD A CROSS SECTIONS (1)

**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIDGE COUNTY, WV

# ACCESS ROAD A CROSS SECTIONS (2)



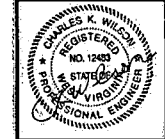
**CROSS SECTIONS**  
Horizontal & Vertical Scale: 1" = 50'



DATE	REVISIONS
5-7-13	Updated Per New Antero Standards



Allegheny Surveys, Inc.  
172 Thompson Drive  
Bridgeport, WV 26330  
(304) 848-5035



L&W ENTERPRISES, INC.  
P.O. BOX 826  
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PETERSBURG, WV 26847  
TEL: 304-257-4818  
FAX: 304-257-2224  
EMAIL: KIRK@CITLINK.NET



ANTERO RESOURCES

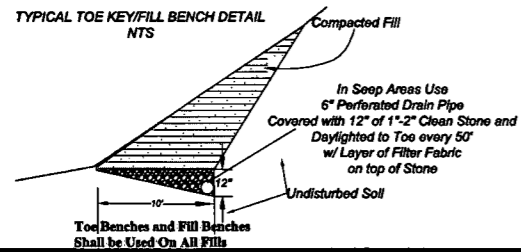
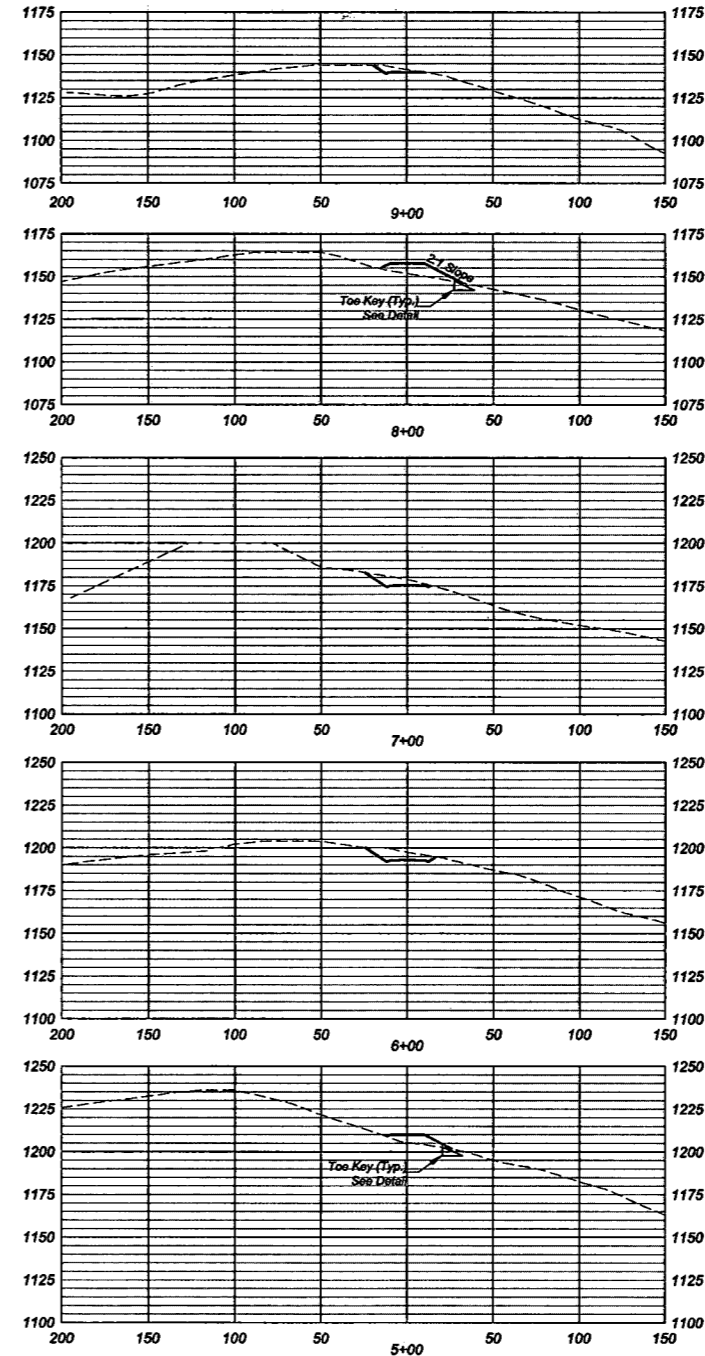
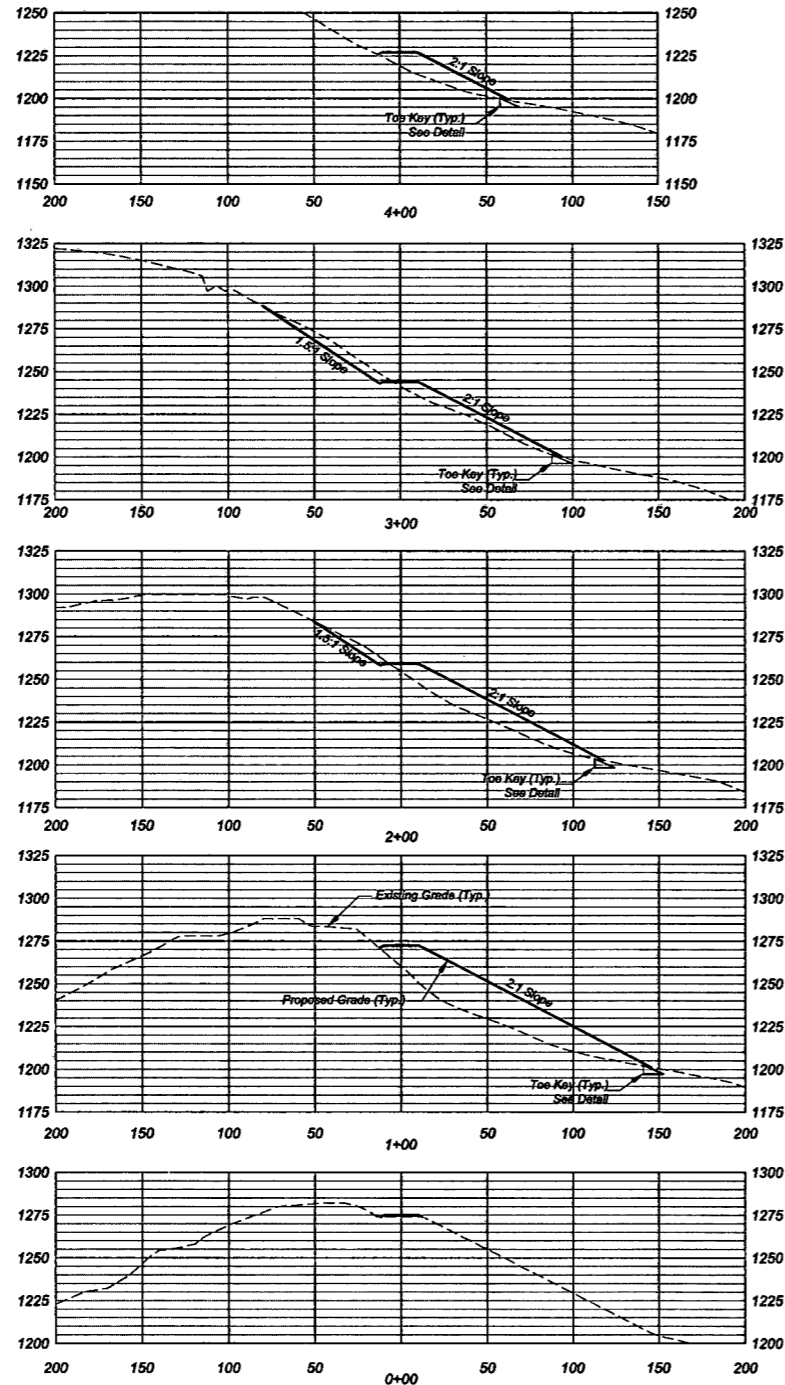
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APPALACHIAN CORP

ACCESS ROAD A CROSS SECTIONS (2)

KIRK PAD  
GREENBRIER DISTRICT  
DODDRIDGE COUNTY, WV

Date: 11/2/12  
Scale: 1" = 50'  
Designed By: CKW/CKM  
File No. Antero 136-12  
Page 14 of 18

# ACCESS ROAD B CROSS SECTIONS



**CROSS SECTIONS**  
Horizontal & Vertical Scale: 1" = 50'



DATE	REVISIONS	Scale: 1" = 50'
5-7-13	Updated Per New Antero Standards	Designed By: CKW/CKM
		File No. Antero 136-12
		Page 15 of 18



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(304) 848-5035



L&W ENTERPRISES, INC.  
P.O. BOX 826  
14 SOUTH GROVE ST.  
PETERSBURG, WV 25847



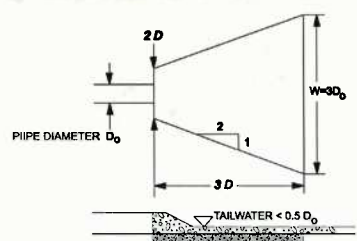
**ANTERO RESOURCES**

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ANTERO RESOURCES  
APPALACHIAN CORP

ACCESS ROAD B CROSS SECTIONS  
**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIDGE COUNTY, WV

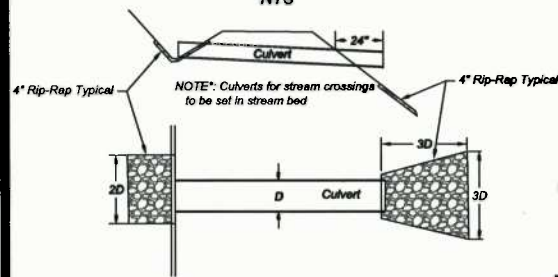
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# DETAILS

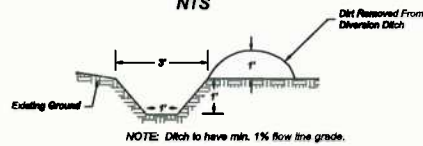


**RIP RAP APRON OUTLET PROTECTION  
MINIMUM TAILWATER CONDITION**

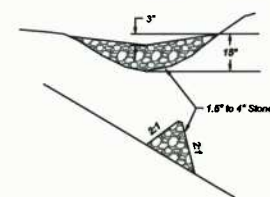
**TYPICAL CULVERT & CULVERT INLET AND  
OUTLET PROTECTION DETAIL  
NTS**



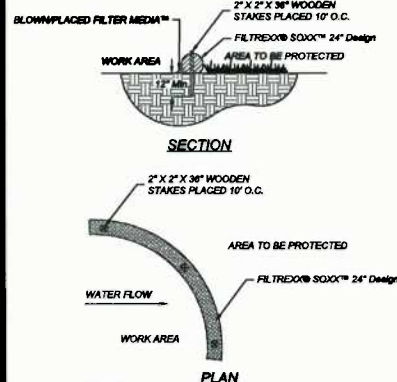
**DIVERSION DITCH DETAIL  
NTS**



**DITCH CHECK DAM DETAIL  
SPACING AS INDICATED ON PROFILES  
NTS**

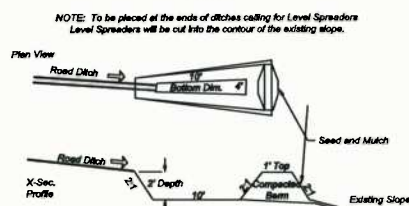


**FILTREXX "SOXX" 24" FILTER SOCK DETAIL  
NTS**



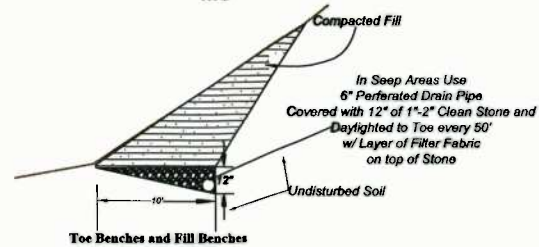
NOTES:  
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.  
2. FILTER MEDIA TO FILL TO MEET APPLICATION REQUIREMENTS.

**LEVEL SPREADER DETAIL  
NTS**



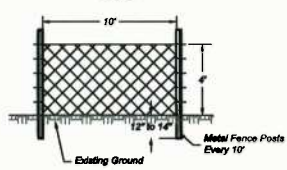
NOTE: To be placed at the ends of ditches calling for Level Spreaders Level Spreaders will be cut into the contour of the existing slope.

**TYPICAL TOE KEY-FILL BENCH DETAIL  
NTS**

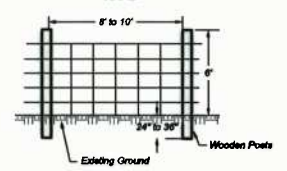


Toe Benches and Fill Benches Shall be Used On All Fills

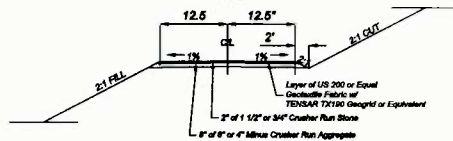
**TYPICAL CONSTRUCTION FENCE DETAIL  
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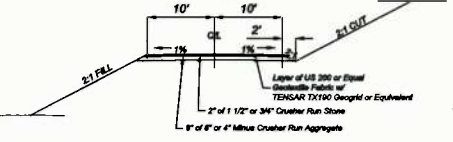
**TYPICAL WOVEN WIRE FENCE DETAIL  
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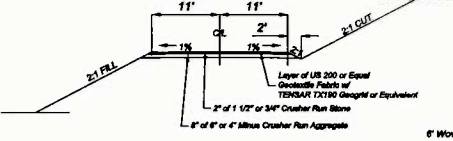
**TYPICAL 25' ROAD CROSS SECTION DETAIL  
NTS**



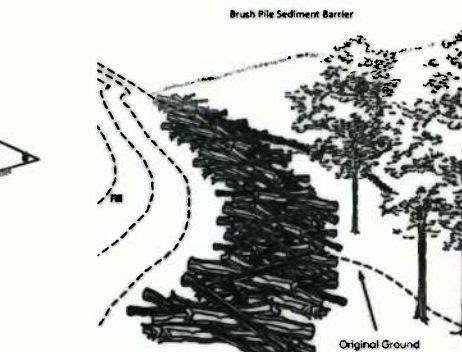
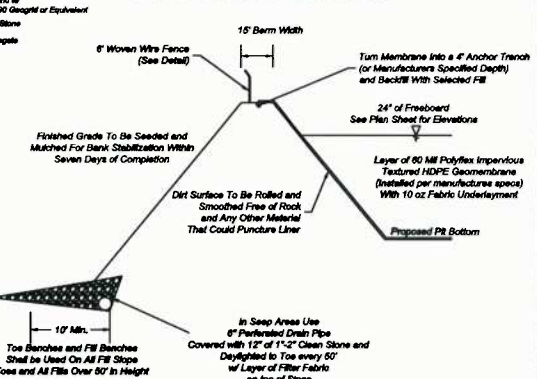
**TYPICAL 20' ROAD CROSS SECTION DETAIL  
NTS**



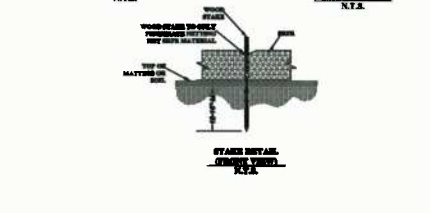
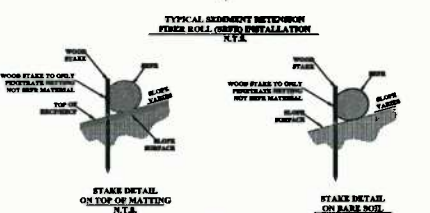
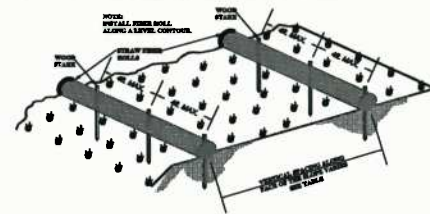
**TYPICAL 22' ROAD CROSS SECTION DETAIL  
NTS**



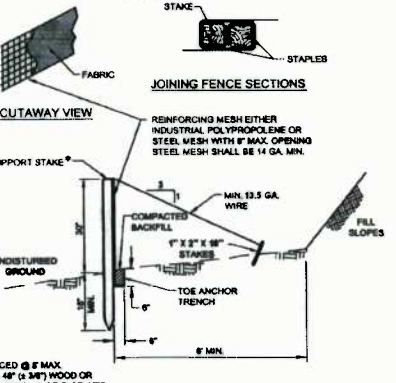
**TYPICAL EMBANKMENT DETAIL**



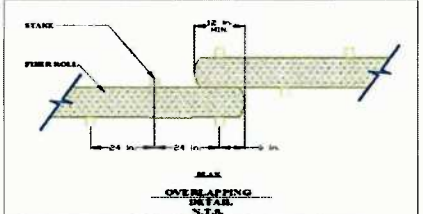
**STRAW WATTLE SEDIMENT RETENTION  
FIBER ROLL (SRFR) INSTALLATION**



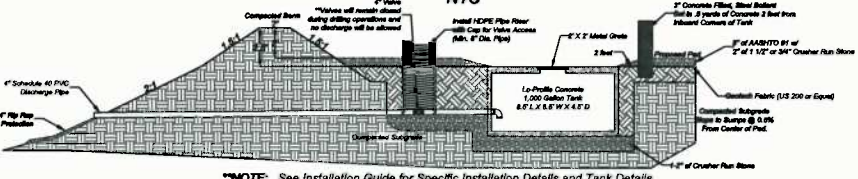
**SUPER SILT FENCE TYPICAL DETAIL  
NTS**



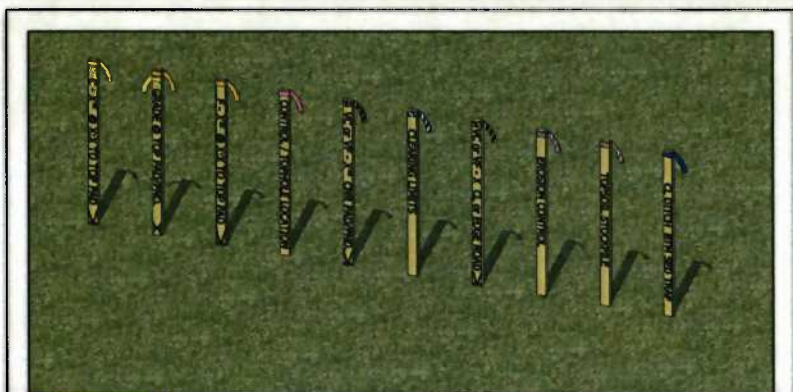
**SILT SOXX STAKE OUT**



**PAD DIVERSION BERM & SUMP DETAIL  
NTS**

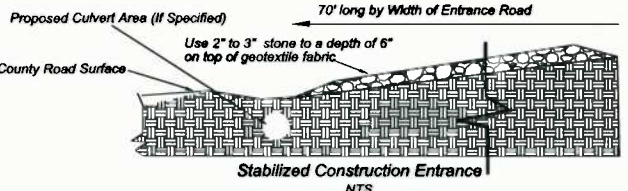


NOTE: See Installation Guide for Specific Installation Details and Tank Details. Installation Guide to be Provided by Antero Resources.

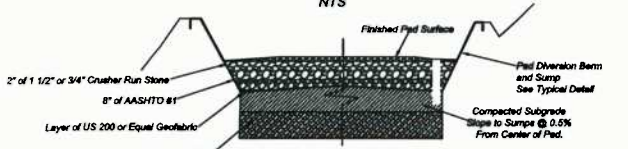


	<b>Yellow Ribbon:</b> Yellow Ribbon used to indicate top of Cuts (C) Cut to be determined at time of stakout Slope determined by site design
	<b>Yellow &amp; Orange Ribbon:</b> Yellow and Orange Ribbon used to indicate Grade at Top of Pad/Pond/Pit
	<b>Orange Ribbon:</b> Orange Ribbon used to indicate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

**ANTERO RESOURCES  
STANDARD RIBBON  
COLOR SCHEME**



**Typical Pad Cross-Section  
NTS**



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Bridgeport, WV 26330  
(304) 648-6035



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**ANTERO RESOURCES**

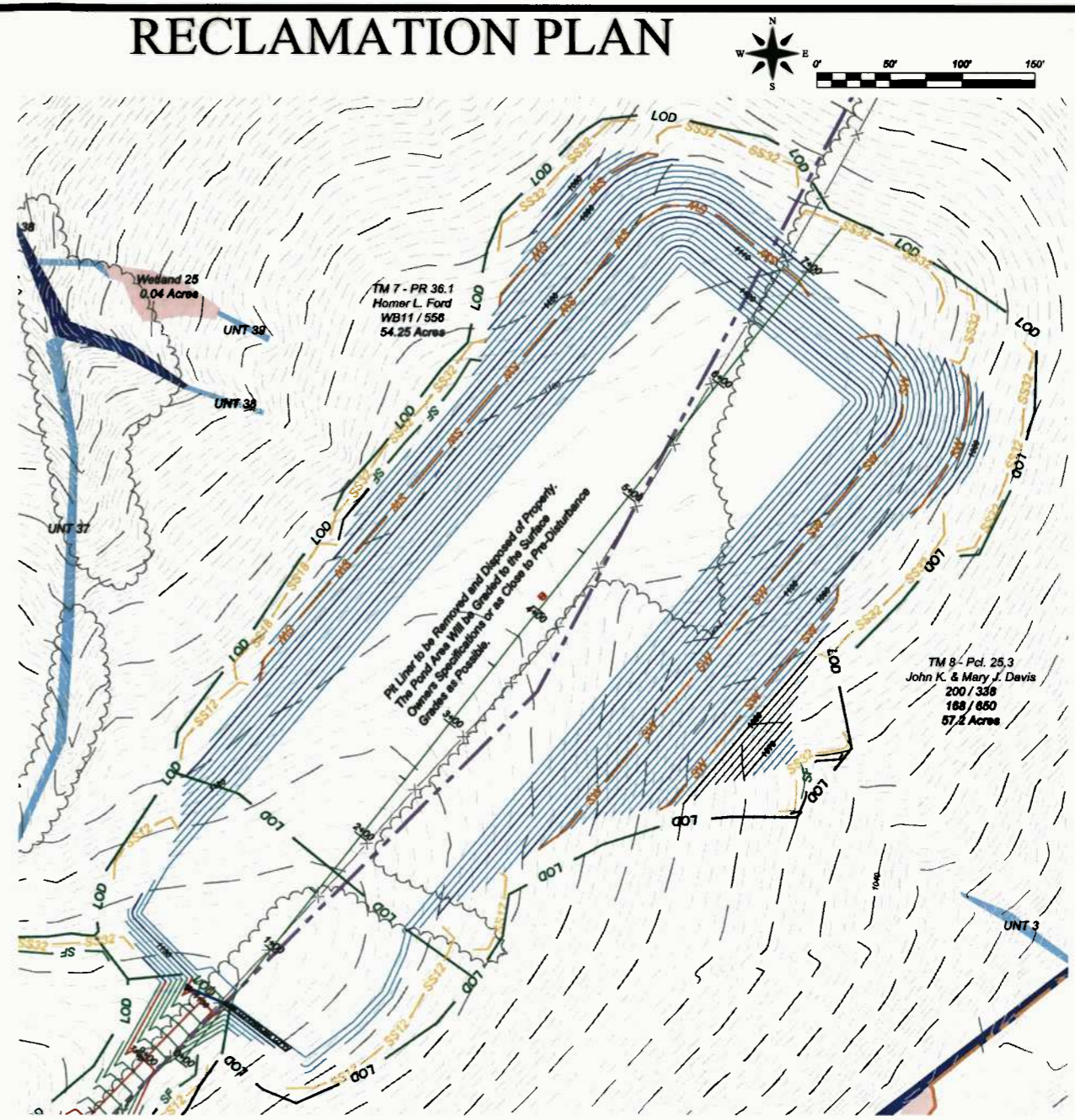
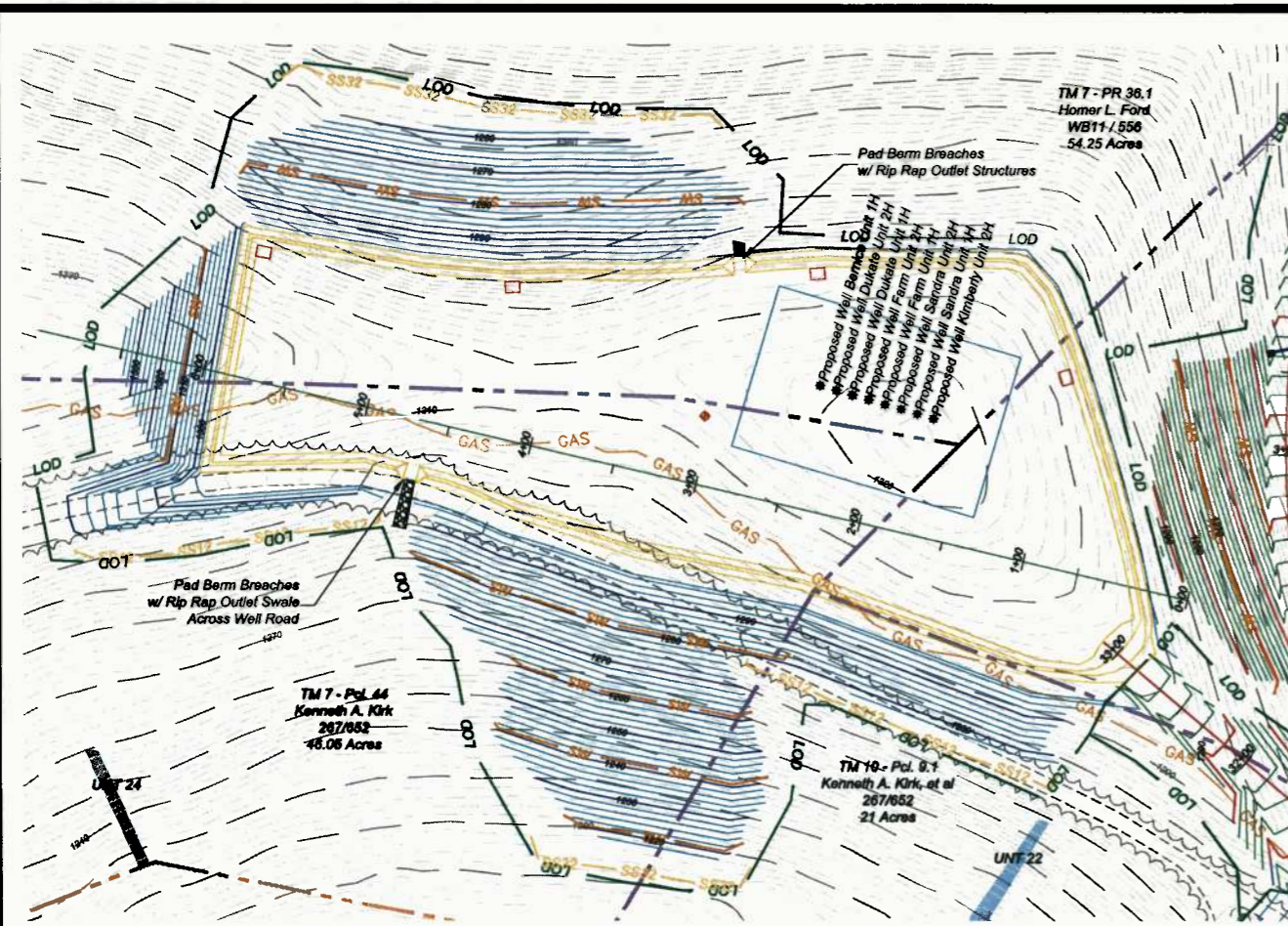
THIS DOCUMENT  
PREPARED FOR  
ANTERO RESOURCES  
APPALACHIAN CORP

**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIEGE COUNTY, WV

DATE	REVISIONS	Date: 11/2/12
2-4-13	Updated Sump Detail	Scale: N/A
5-7-13	Updated Per New Antero Standards	Designed By: CKW/CKM
5-14-13	Revised Per Antero Comments	File No. Antero 136-12
		Page 16 of 18



# RECLAMATION PLAN



### RECLAMATION CONSTRUCTION SPECIFICATIONS:

- THE FRAC PIT SHALL BE RECLAIMED TO LANDOWNERS SPECIFICATIONS OR AS NEAR TO ORIGINAL PRE-DISTURBED GRADES AS POSSIBLE. THE LINER SHALL BE REMOVED AND DISPOSED APPROPRIATELY OR RECYCLED.
- EROSION AND SEDIMENT CONTROLS SHALL BE REPAIRED/RE-ESTABLISHED PRIOR TO RECLAMATION WORK COMMENCEMENT.
- THE CONTRACTOR SHALL HAVE ON SITE AT ALL TIMES WHEN CONSTRUCTION IS IN PROGRESS A COMPETENT SUPERINTENDENT THOROUGHLY FAMILIAR WITH THE CONSTRUCTION OF EARTH BERMS AND EMBANKMENTS, THE COMPACTION OF SOILS AND PLACEMENTS OF LINERS.
- SURFACE WATER SHALL BE DIVERTED AWAY FROM ALL EXCAVATIONS TO PREVENT FLOODING AND SOFTENING OF THE SUB GRADE OR COMPACTED MATERIALS.
- TOP SOIL SHALL BE STRIPPED AND STOCKPILED WITH APPROPRIATE STABILIZATION AND SILT FENCE TO PREVENT EROSION. THE TOP SOIL SHALL BE REUSED DURING THE RECLAMATION PROCESS OR ON THE FACE OF THE FRAC PIT PRIOR TO SEEDING.
- TOE CUTS OF 1/4" MINIMUM WIDE SHALL BE EXCAVATED ON ALL RECEIVING SLOPES TO PROVIDE A BASE FOR THE FRAC PIT BERM. ADDITIONAL TERRACING SHALL BE CONSTRUCTED FOR EACH ADDITIONAL FIFTY (50) VERTICAL FEET OF SLOPE AND SHALL BE A MINIMUM OF TEN (10) FEET WIDE.
- PRIOR TO PLACING ANY FILL, THE EXPOSED SUB GRADE SHALL BE COMPACTED AND PROOF ROLLED TO PRODUCE A STABLE AND UNYIELDING SITE.
- ALL FILL SHALL BE PLACED IN LIFTS OF UP TO 18" AND SHALL BE COMPACTED TO 90% OF THE STANDARD PROCTOR DENSITY OF THE SOIL PER ASTM D-1557. THE MOISTURE CONTENT SHALL BE CONTROLLED WITH PLUS OR MINUS 2% OF THE OPTIMUM TO FACILITATE COMPACTION. THE CONTRACTOR SHALL DO IN-PLACE DENSITY TESTS EVERY LIFT OF SOIL AND SHALL BE DONE IN TWO RANDOM PLACES ON EACH STRAIGHTY SIDE OF THE FRAC PIT BERM. RECORDS SHALL BE MAINTAINED OF TEST LOCATION AND RESULTS AND PROVIDED TO THE ENGINEER ON REQUEST. AREAS THAT FAIL FOR COMPACTION SHALL BE REMOVED, RE-COMPACTED AND RETESTED FOR COMPLIANCE. IN LIEU OF IN-PLACE PROCTOR TESTING, THE CONTRACTOR MAY PROCTOR THE SOIL EVERY 1" OF SOIL LIFT WITH A LOADED 15 TON TANDEM DUMP TRUCK. SOIL THAT DEFLECTS UNDER THE REAR WHEELS GREATER THAN 1/2" SHALL BE REMOVED, RE-COMPACTED AND RETESTED. COMPACTION OF SOIL SHALL BE DONE WITH A 6 TON SHEEPS FOOT, OR VIBRATORY ROLLER.
- TOP SOIL SHALL BE PLACED ON THE FINAL SURFACE AND TRACKED IN WITH DOZERS ONLY AND FERTILIZED, LIMED, SEEDED AND MULCHED AT RATES ESTABLISHED ON SHEET 3 OF THESE PLANS. THE SITE SHALL BE MAINTAINED AND MANAGED TO ESTABLISH A UNIFORM TURF UNTIL 70% OF THE AREA IS ESTABLISHED. AFTER FINAL INSPECTION, ALL EGS CONTROLS SHALL BE REMOVED AND ANY DISTURBED AREAS RESEEDED AND MULCHED.
- MAINTENANCE AND OTHER CONSIDERATIONS AND GROUND WATER PROTECTION: ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH RAINFALL OF 0.8 INCHES OR MORE. THEY WILL BE INSPECTED FOR UNDERMINING, DETERIORATION, EROSION AND EXCESS DEPOSITED MATERIAL. ALL DEFICIENCIES WILL BE CORRECTED IMMEDIATELY. EXCESS MATERIAL WILL BE SPREAD ON THE SITE IN A MANNER WHERE IT IS NOT LIKELY TO ERODE IN THE FUTURE. CLEANING PROCEDURES WILL BE COMPLETED AT REGULAR INTERVALS AND AT LEAST WHEN SEDIMENT REACHES CLEAN OUT LEVELS SHOWN. RECORDS OF CLEANING AND CORRECTIONS WILL BE MAINTAINED BY THE CONTRACTOR. THE "GENERIC GROUNDWATER PROTECTION PLAN FOR CONSTRUCTION SITES" WILL BE USED AND AVAILABLE ON SITE AT ALL TIMES. AN AREA WILL BE PROVIDED FOR VEHICLE AND EQUIPMENT MAINTENANCE. MOBILE FUEL TRUCKS WITH APPROVED TANKS WILL BE USED ON THIS SITE. PORTABLE SANITARY FACILITIES WILL BE AVAILABLE FOR EMPLOYEES. IF CONCRETE IS USED, EXCESS CONCRETE WILL BE DISPOSED OF PROPERLY AND NOT ALLOWED TO REMAIN ON THIS SITE. MACHINERY WILL NOT BE ALLOWED IN LIVE STREAMS. FLUIDS SUCH AS DIESEL FUEL, GAS OIL, OR ANTIFREEZE WILL BE KEPT IN PROPER CONTAINERS AND ANY SPILLAGE WILL BE CLEANED AND TAKEN OFF-SITE TO A PROPER FACILITY. SOLID OR HAZARDOUS WASTES WILL BE DISPOSED IN ACCORDANCE WITH APPROPRIATE STATE AND FEDERAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE CHANGES AND NOTIFY WHOMEVER OF ANY CHANGES TO GPP. A FINAL INSPECTION WILL BE MADE AT THE CONCLUSION OF THE PROJECT AND ALL CORRECTIONS MADE BEFORE SIGN-OFF OF THE PROJECT SITE.
- SEQUENCE OF EVENTS:
  - A PRE-CONSTRUCTION CONFERENCE WILL BE HELD ON SITE WITH CONTRACTOR TO REVIEW THE CONSTRUCTION DRAWINGS AND PROVIDE ANY REQUESTED GUIDANCE.
  - CONSTRUCT THE CONSTRUCTION ENTRANCE.
  - CONSTRUCT ALL PROPOSED SEDIMENT CONTROL DEVICES AS SHOWN.
  - REMOVE TOPSOIL AND PLACE AT AN AREA DETERMINED IN THE FIELD WHERE EROSION WILL NOT TAKE PLACE. SILT SOXX / SUPER SILT FENCE SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES.
  - GRADING OPERATIONS AS REQUIRED. FILL SLOPES SHALL BE TOPSOILED.
  - WHEN FINAL GRADE IS ACHIEVED, TOPSOIL TO BE PLACED ON ALL DISTURBED AREAS NOT LINED. SEED ALL DISTURBED AREAS AS REQUIRED. A SOIL SAMPLE SHOULD BE TAKEN AND TESTED TO DETERMINE RECOMMENDED RATES. IF NO SOIL SAMPLE IS TAKEN THE FOLLOWING RATES SHOULD BE APPLIED AS A MINIMUM LINE AT A RATE OF 4 TONS PER ACRE. FERTILIZE AT A RATE OF 300 LBS. OF 10-30-10 PER ACRE. SEED WITH 4 LBS. PER ACRE OF CULL FESCUE AND 20 LBS. PER ACRE OF PERENNIAL RYE GRASS.
  - LIME, FERTILIZER, AND SEED WILL BE APPLIED BY HAND OR USING A HYDRO-SEEDER. HYDRO-MULCH PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
  - FINAL SEEDING MUST OCCUR WITHIN 7 DAYS OF FINAL GRADING.
  - WHEN SITE IS STABILIZED, ALL EROSION AND SEDIMENT CONTROL MEASURES CAN BE REMOVED AND REPAIR/STABILIZE THOSE AREAS IN ACCORDANCE WITH STATE STANDARDS.
  - MAKE MODIFICATIONS FOR PERMANENT STORM WATER MANAGEMENT.
  - FINAL SITE INSPECTION.
- PERMANENT STABILIZATION: ALL AREAS LEFT UNCOVERED BY EITHER BUILDINGS OR PAVEMENT SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING AND WITHIN 7 DAYS. AT NO TIME SHALL LAND LAY DORMANT FOR LONGER THAN 21 DAYS.

### POST CONSTRUCTION DRILLING/FACTURING REQUIREMENTS:

- EROSION AND SEDIMENT CONTROLS SHALL BE REPAIRED/RE-ESTABLISHED IN AREAS WHERE AT LEAST 70% TURF HAS NOT BEEN ATTAINED OR EROSION HAS OCCURRED SINCE INITIAL CONSTRUCTION. REPAIRS TO CRITICAL EROSION AREAS (PREGRADING, SEEDING AND MULCH AND/OR SLOPE MATTING) SHALL BE DONE BEFORE DRILLING/FACTURING OPERATIONS COMMENCE. WY DOG BMP SHALL BE USED FOR EROSION AND SEDIMENT CONTROLS.
- MAINTENANCE AND OTHER CONSIDERATIONS AND GROUND WATER PROTECTION: ALL EROSION AND SEDIMENT CONTROL AND DRILL PAD CONTAINMENT MEASURES WILL BE CHECKED DAILY AND AFTER EACH RAINFALL OF 0.8 INCHES OR MORE. THEY WILL BE INSPECTED FOR UNDERMINING, DETERIORATION, EROSION AND EXCESS DEPOSITED MATERIAL. ALL DEFICIENCIES WILL BE CORRECTED IMMEDIATELY. EXCESS MATERIAL WILL BE SPREAD ON THE SITE IN A MANNER WHERE IT IS NOT LIKELY TO ERODE IN THE FUTURE. CLEANING PROCEDURES WILL BE COMPLETED AT REGULAR INTERVALS AND AT LEAST WHEN SEDIMENT REACHES CLEAN OUT LEVELS SHOWN. RECORDS OF CLEANING AND CORRECTIONS WILL BE MAINTAINED BY THE CONTRACTOR. THE "GENERIC GROUNDWATER PROTECTION PLAN FOR CONSTRUCTION SITES" WILL BE USED AND AVAILABLE ON SITE AT ALL TIMES. AN AREA WILL BE PROVIDED FOR VEHICLE AND EQUIPMENT MAINTENANCE. MOBILE FUEL TRUCKS WITH APPROVED TANKS WILL BE USED ON THIS SITE. PORTABLE SANITARY FACILITIES WILL BE AVAILABLE FOR EMPLOYEES. IF CONCRETE IS USED, EXCESS CONCRETE WILL BE DISPOSED OF PROPERLY AND NOT ALLOWED TO REMAIN ON THIS SITE. MACHINERY WILL NOT BE ALLOWED IN LIVE STREAMS. FLUIDS SUCH AS DIESEL FUEL, GAS OIL, OR ANTIFREEZE WILL BE KEPT IN PROPER CONTAINERS AND ANY SPILLAGE WILL BE CLEANED AND TAKEN OFF-SITE TO A PROPER FACILITY. SOLID OR HAZARDOUS WASTES WILL BE DISPOSED IN ACCORDANCE WITH APPROPRIATE STATE AND FEDERAL REGULATIONS.

Legend	
— 1330 —	Existing 2' Contour
— 1330 —	Existing 10' Contour
—	Existing Tree Line
— E — E —	Existing Utility Line / Pole
—	Surface Owner Property Line
— GAS —	Existing Gas Line CL
— LOD —	Limits of Disturbance
—	Proposed Diversion Ditch
—	Proposed 2' Contour
—	Proposed 10' Contour
— SF —	Proposed Super Silt Fence
—	Proposed Check Dam
—	Proposed Culvert W/ Inlet & Outlet Protection
— SW —	Proposed Straw Wattles
— SXXX —	Proposed Silt Sox w/ Diameter
— 1330 —	Proposed 10' Contour
—	Proposed Rip-Rap
—	Silt Sox Diameter in Inches
—	Super Silt Fence Can be Substituted for Silt Sox of any Size

**\*NOTE: An additional 15 tons of 4" Rip Rap is required for pad outlet structures.**

DATE	REVISIONS
11-15-12	Revised Well Layout Configuration
5-7-13	Updated Per New Antero Standards / Added Reclamation Note
5-14-13	Revised Per Antero Comments

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**ANTERO RESOURCES**

THIS DOCUMENT PREPARED FOR ANTERO RESOURCES APPALACHIAN CORP

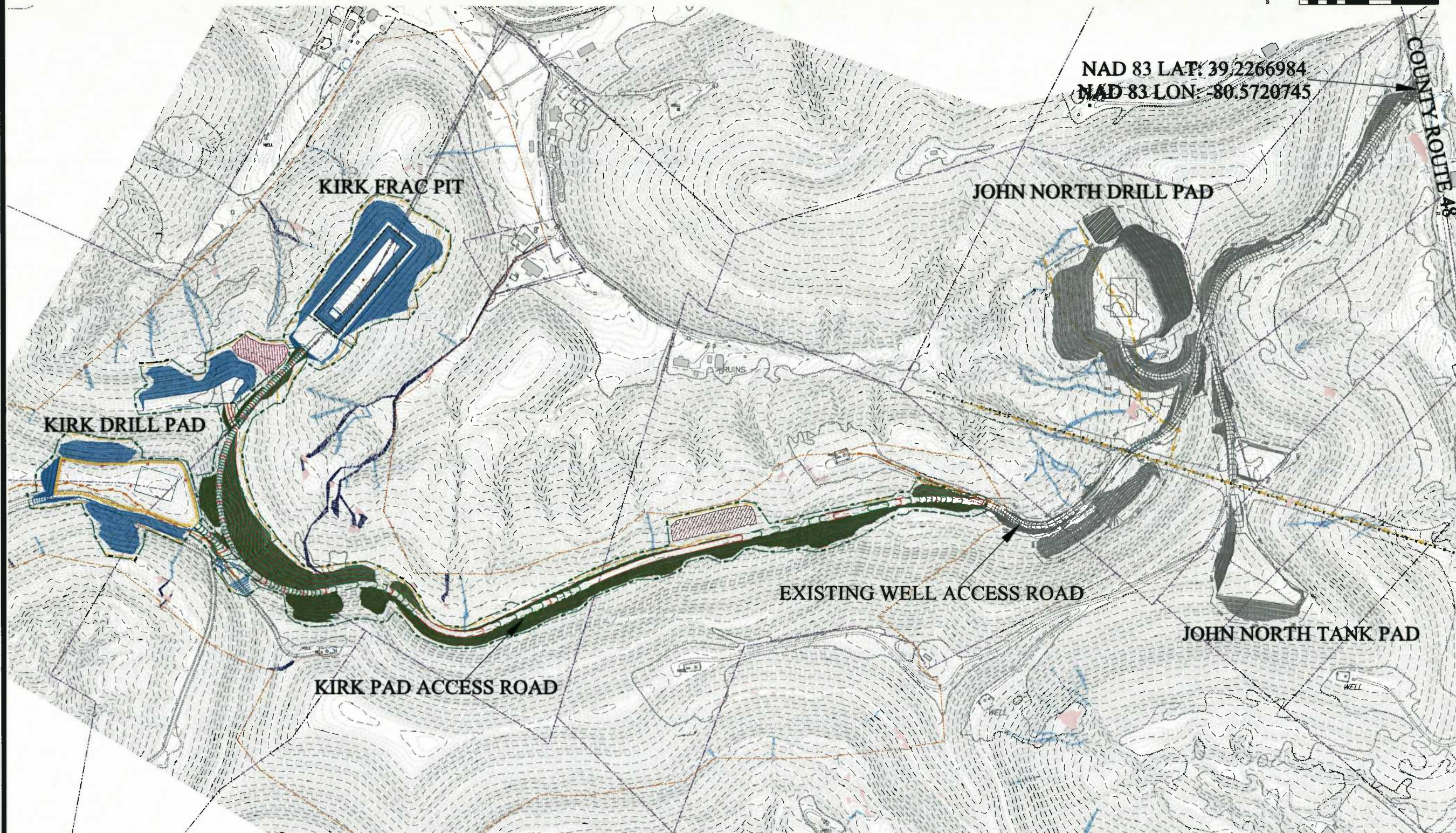
RECLAMATION PLAN  
**KIRK PAD**  
GREENBRIER DISTRICT  
DODDRIEGE COUNTY, WV

Date: 11/2/12  
Scale: 1" = 50'  
Designed By: CKW/CKM  
File No. Antero 136-12  
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# KIRK PAD COUNTY ROAD ACCESS



NAD 83 LAT: 39.2266984  
 NAD 83 LON: -80.5720745



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KIRK PAD COUNTY ROAD ACCESS  
**KIRK PAD**  
 GREENBRIER DISTRICT  
 DODDRIDGE COUNTY, WV

DATE	REVISIONS	
5-7-13	Updated Per New Antero Standards	Date: 2/4/13
5-13-13	Revised Topsoil Area Location	Scale: 1" = 180'
		Designed By: CKW/CKM
		File No. Antero 136-12
		Page 18 of 18