



**west virginia** department of environmental protection

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

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

May 27, 2014

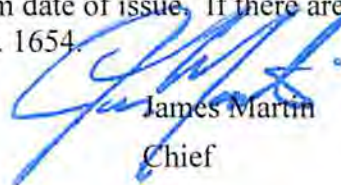
**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-3302132, issued to XTO ENERGY, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalties being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.



James Martin  
Chief

Operator's Well No: 1 A-E-95  
Farm Name: HELDRETH, B. B.  
**API Well Number: 47-3302132**  
**Permit Type: Plugging**  
Date Issued: 05/27/2014

Promoting a healthy environment.

05/30/2014

## PERMIT CONDITIONS

West Virginia Code § 22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

### CONDITIONS

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1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
3. Well work activities shall not constitute a hazard to the safety of persons.
4. This well is under a consent order and must be plugged within two years of the date of issuance of this permit.

1) Date 4/11/14, 2014  
2) Operator's  
Well No. B.B. Heldreth 1 A-E-95  
3) API Well No. 47-033 - 02132

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil      / Gas X / Liquid injection      / Waste disposal      /  
(If "Gas, Production X or Underground storage     ) Deep      / Shallow X

5) Location: Elevation 1299' Watershed Tenmile Creek  
District Eagle County Harrison Quadrangle Wallace 7.5'

6) Well Operator XTO Energy Inc 7) Designated Agent Gary Beall  
Address PO Box 1008 Address PO Box 1008  
Jane Lew, WV 26378 Jane Lew, WV 26378

8) Oil and Gas Inspector to be notified Name Sam Ward  
Address PO Box 2327  
Buckhannon, WV 26201  
9) Plugging Contractor Name       
Address     

Received

APR 22 2014

10) Work Order: The work order for the manner of plugging this well is as follows:  
MORU and pull 1 1/2" tubing out, then RIH with tools and check TD of well at 4775', POOH and run 2" tubing to 4775' and circulate 6% gel back to surface, then pump cement from 4775' up to 4550', perfs are 4760'-4697', pull tubing up to 4340' and wait for cement to set up. RIH with small tools and tag T.O.C., POOH and break circulation then pump cement from 4340' up to 4150', perfs are 4248'-4254', pull tubing up to 3825' and pump cement up to 3275', perfs are 3748'-3736', 3430'-3398', pull tubing out of well and run CBL to find T.O.C. and free pipe, estimated at 2200', cut casing and pump 6% gel until breaking circulation, then pump cement from 2200' up to 2050' at cut, pull casing up to 1380' and pump cement up to 1200' bottom of 8 5/8" casing at 1312' and elevation at 1311', pull casing up to 250' and pump cement up to surface. Install monument.

Cement - 4775'-4550' = 225' in 4 1/2" casing - 9.5#      Cement - 2200' - 2050' = 150' in 7 7/8" hole  
Cement - 4340'-4150' = 190' in 4 1/2"      Cement - 1375' - 1200' = 175' in 8 5/8" casing  
Cement - 3825'-3300' = 525' in 4 1/2"      Cement - 250' - 0' = 250' in 8 5/8" casing

★ IF 8 5/8" casing is not CTS, it must be pulled, or ripped/shot and cemented according to Standards

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector [Signature] Date 4/15/2014





STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
Oil and Gas Division  
WELL RECORD

Rotary  Oil \_\_\_\_\_  
Cable \_\_\_\_\_ Gas   
Recycling \_\_\_\_\_ Comb. \_\_\_\_\_  
Water Flood \_\_\_\_\_ Storage \_\_\_\_\_  
Disposal \_\_\_\_\_ (Kind)

Quadrangle Wallace  
Permit No. 47-033-2132 ✓

Company Appalachian Energy, Inc. d/b/a LDR  
Address 728 Washington Road, Pgh, PA 15228  
Farm B. B. Heldreth Acres 36.1  
Location (waters) Shinn Run  
Well No. 1 A-E-95 Elev. 1311  
District Eagle County Harrison  
The surface of tract is owned in fee by Bethel  
Barnes Heldreth  
Address Lumberport, WV 26386  
Mineral rights are owned by Same as above  
Address \_\_\_\_\_  
Drilling Commenced 7/12/79  
Drilling Completed 7/19/79  
Initial open flow 60 M cu. ft. \_\_\_\_\_ bbls.  
Final production 1250 cu. ft. per day \_\_\_\_\_ bbls.  
Well open 72 hrs. before test 1375 RP.  
Well treatment details:

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16			
Cond. <del>13 1/4</del> 11 3/4	31'	31'	
9 5/8			
8 5/8	1312'	1312'	240 Sks.
7			
5 1/2			
4 1/2	4775'	4775'	330 Sks.
3			
2			
Liners Used			

Attach copy of cementing record.

Date:	Interval Perforated:	From	To	Amt Fluid	Amt Sand
8/3/79		4697'	4700'	438 BBLs.	42,000 #
8/3/79		4254'	4283'	593 BBLs.	46,000 #
8/3/79		3736'	3748'	566 BBLs.	50,000 #
8/3/79		3398'	3430'	524 BBLs.	38,000 #

Coal was encountered at 435, 460, 1231 Feet \_\_\_\_\_ Inches  
Fresh water 150', (1380') SW Feet \_\_\_\_\_ Salt Water \_\_\_\_\_ Feet  
Producing Sand Speechley, 1st Balltown, Sheffield, Benson Depth 3387, 3730, 4242, 4730

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks
Substructure			0	11		
Sandy Shale			11	45		
Sand			45	80		
Sandy Shale, Red Rock			80	220		
Sand			220	345		
Sandy Shale			345	350		
Sand			350	395		
Sandy Shale			395	405		
Sand			405	435		
Coal			435	438		
Sand & Shale			438	460		
Coal			460	470		
Sand			470	525		
Sandy Shale			525	535		
Sand			535	600		
Sandy Shale, Red Rock			600	970		
Sand			970	1231		
Coal			1231	1234		
Sandy Shale			1234	1305		
Sand			1305	1525		
Shale			1525	1710		
Little Lime			1710	1720		
Sandy Shale			1720	1745		
Big Lime			1745	1800		

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Office of Oil and Gas  
WV Dept. of Environmental Protection

05/30/2014

(over)

\* Indicates Electric Log tops in the remarks section.

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	(Oil, Gas or Water)	Remarks
Sand			1800	2010		
Sandy Shale			2010	2025		
Sand			2025	2215		
Sandy Shale			2215	2290		
Sand			2290	2365		
Sandy Shale			2365	2395		
Sand			2395	2435		
Sandy Shale			2435	2475		
Sand			2475	2735		
Sandy Shale			2735	3070	Gas @ 2830'	★
Sand			3070	3120		
Sandy Shale			3120	3320		
Sand			3320	3380		
Sandy Shale			3380	3805		
Sand			3805	3855		
Sandy Shale			3855	4125		
Sand			4125	4160		
Shale			4160	4820		
Drillers T.D.				4820		
5th Sand			2810	2818		
Speechley			3386	3440		
Tiona			3486	3500		
1st Balltown			3728	3760		
2nd Balltown			3856	3890		
Sheffield			4246	4298		
Benson			4730	4770		
Loggers T.D.				4831		

Received

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05/30/2014

Date: Oct 18 1979  
 APPROVED Donald R. Langhlin Owner  
 By President  
 (Title)



3302132P

WW-4A  
Revised 6-07

1) Date: 4/11/14  
2) Operator's Well Number  
B.B. Heldreth 1 A-E-95  
3) API Well No.: 47 - 033 - 02132

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL**

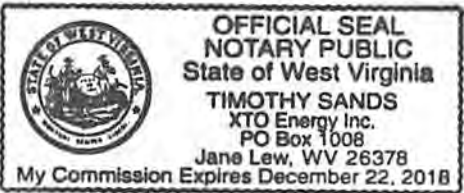
4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Consolidation Coal Company</u> ✓	Name _____
Address <u>1000 Consol Energy Drive</u>	Address _____
<u>Cannonsburg, PA 15317</u>	
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>Guy Corporation</u> ✓
	Address <u>92 16th St.</u>
	<u>Wheeling, WV 26003</u>
(c) Name _____	Name <u>Virginia Tetrack Estate</u> ✓
Address _____	Address <u>92 16th St.</u>
	<u>Wheeling, WV 26003</u>
6) Inspector <u>Sam Ward</u>	(c) Coal Lessee with Declaration
Address <u>PO Box 2327</u>	Name _____
<u>Buckhannon, WV 26201</u>	Address _____
Telephone <u>304-389-7583</u>	

**TO THE PERSONS NAMED ABOVE:** You should have received this Form and the following documents:

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.



Well Operator XTO Energy Inc.  
 By: [Signature]  
 Its: Production Superintendent  
 Address PO Box 1008  
Jane Lew, WV 26378  
 Telephone 304-884-6000

Received

APR 22 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

Subscribed and sworn before me this 11<sup>th</sup> day of April 2014  
[Signature] Notary Public  
My Commission Expires 12/22/18

**Oil and Gas Privacy Notice**

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

05/30/2014

3302132P

**CERTIFIED MAIL™ RECEIPT**

*(Domestic Mail Only; No Insurance Coverage Provided)*

For delivery information visit our website at [www.usps.com](http://www.usps.com)

Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$

Virginia Tetrick Estate  
92 16<sup>th</sup> Street  
Wheeling, WV 26003

BB Helzlsouer  
AE 45  
Plugging Application

Postmark Here

OFFICIAL USE

For Instructions

**U.S. Postal Service™**

**CERTIFIED MAIL™ RECEIPT**

*(Domestic Mail Only; No Insurance Coverage Provided)*

For delivery information visit our website at [www.usps.com](http://www.usps.com)

Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$

Guy Corporation  
92 16<sup>th</sup> Street  
Wheeling, WV 26003

BB Helzlsouer  
AE 45  
Plugging Application

Postmark Here

OFFICIAL USE

For Instructions

**U.S. Postal Service™**

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For delivery information visit our website at [www.usps.com](http://www.usps.com)

Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$

Consolidated Coal Company  
1000 Consol Energy Drive  
Canonsburg, PA 15317-6506

BB Helzlsouer  
AE 45  
Plugging Application

Postmark Here

OFFICIAL USE

For Instructions

Received

APR 23 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

05/30/2014



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WW-9  
Rev. 5/08

Page \_\_\_\_\_ of \_\_\_\_\_  
API Number 47 - 033 - 02132  
Operator's Well No. B.B. Heldreth 1 A-E-95

CK #000749 7006  
\$100.00

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

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

Operator Name XTO Energy Inc. OP Code 494487940

Watershed Tenmile Creek Quadrangle Wallace 7.5'

Elevation 1299' County Harrison District Eagle

Description of anticipated Pit Waste: Fluids from plugging operations.

Will a synthetic liner be used in the pit? Yes 20 m.u.

SDW  
4/15/2014

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number 4707302523, 4708505151, 4708509721 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain Meadowbrook Landfill SWF#1032, RES Water Recycling -WMGR123SW005 (PA))

Proposed Work For Which Pit Will Be Used:

- Drilling
- Workover
- Other (Explain \_\_\_\_\_)
- Swabbing
- Plugging

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

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

Company Official Signature [Signature] **Received**

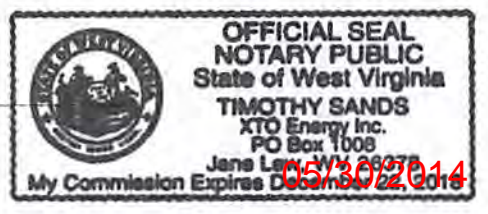
Company Official (Typed Name) Gary Beall

Company Official Title Production Superintendent APR 22 2014

Subscribed and sworn before me this 11<sup>th</sup> day of April Office of Oil and Gas  
WV Dept. of Environmental Protection

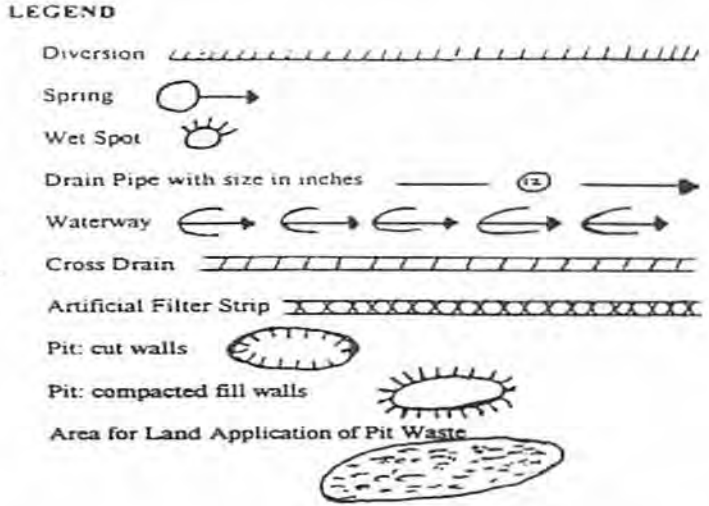
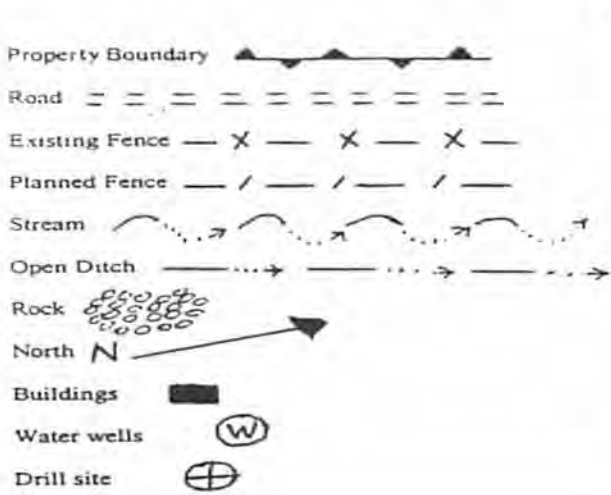
[Signature] Notary Public

My commission expires 12/22/18



05/30/2014





Proposed Revegetation Treatment: Acres Disturbed .85 +/- Prevegetation pH \_\_\_\_\_

Lime 3 Tons/acre or to correct to pH \_\_\_\_\_

Fertilizer (10-20-20 or equivalent) 1000 lbs/acre (500 lbs minimum)

Mulch 3 Tons/acre

Seed Mixtures

Seed Type	Area I	lbs/acre	Seed Type	Area II	lbs/acre
Kentucky Bluegrass		20			
Redtop		3			
Birdsfoot Trefoil		10			

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

Photocopied section of involved 7.5' topographic sheet.

Received

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Plan Approved by: S. D. Warrill

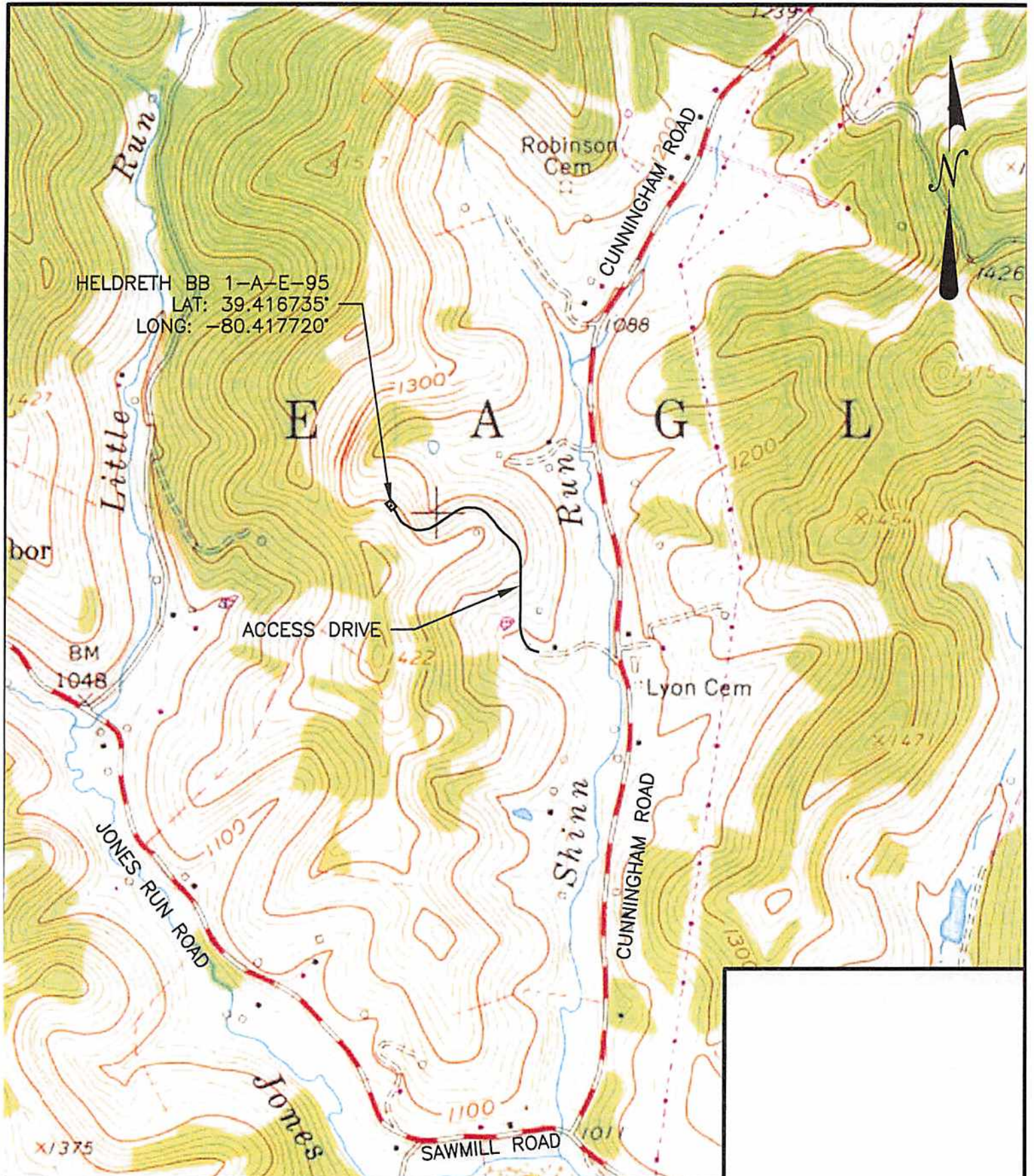
Comments: \_\_\_\_\_

Office of Oil and Gas  
WV Dept. of Environmental Protection

Title: \_\_\_\_\_ Date: 4/15/2014

Field Reviewed? ( ) Yes ( X ) No





HELDRETH BB 1-A-E-95  
 LAT: 39.416735°  
 LONG: -80.417720°

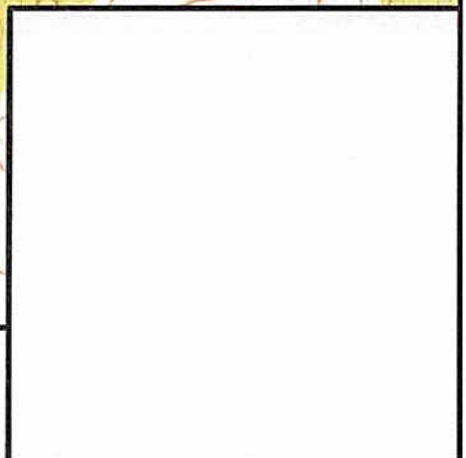
E A G L

ACCESS DRIVE

SCALE:  1:1000	DESIGNED BY: JMH	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
	REVIEWED BY: MMV	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
	DRAWN BY: JMH	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
	DATE: 4/23/14	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
	PROJ. NO.:	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
	DRAWING NO.:	REVISION BY: _____	DATE: _____	DESCRIPTION: _____

DRAWING NO.  
  
SHEET NO.  
1

HELDRETH BB 1-A-E-95  
 prepared for  
**XTO ENERGY, INC.**  
 situated  
 CUNNINGHAM ROAD, HARRISON COUNTY, WEST VIRGINIA  
 USGS MAP - WALLACE QUADRANGLE



**MKA Morris Knowles**  
 & Associates, Inc.  
 Consulting Engineers and Surveyors  
 443 Athens Drive  
 Detroit, PA 15628  
 Telephone: (724) 486-1822  
 Fax: (724) 486-8940

05/30/2014



WW-7  
8-30-06



West Virginia Department of Environmental Protection  
Office of Oil and Gas  
**WELL LOCATION FORM: GPS**

API: 47-033-02132 WELL NO.: 301830 (B. Heldreth 1 AE-95)  
 FARM NAME: B. B. Heldreth  
 RESPONSIBLE PARTY NAME: XTO Energy, Inc.  
 COUNTY: Harrison DISTRICT: Eagle  
 QUADRANGLE: Wallace 7.5'  
 SURFACE OWNER: Consolidation Coal Company  
 ROYALTY OWNER: Aaron and Sherri Zirkle  
 UTM GPS NORTHING: 4363190  
 UTM GPS EASTING: 550125 GPS ELEVATION: 396 m (1299 ft)

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS  : Post Processed Differential   
 Real-Time Differential

Mapping Grade GPS  : Post Processed Differential   
 Real-Time Differential

4. Letter size copy of the topography map showing the well location.

I the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

  
Signature

PS # 2180  
Title

5/23/14  
Date



WVDEP  
Office of Oil & Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304-2345

Re: Application to Plug and Abandon  
BB Heldreth 1 A-E-95  
Eagle District  
Harrison County, WV

To Whom It May Concern:

In accordance with Article 22-6-23 of the West Virginia State Code regarding oil and gas operations, please find the attached application for the plugging and abandonment of the subject well. Notices of our intention to plug this wellbore have been sent to the surface owner, coal owners with declarations recorded, and coal operators associated with this well. Copies of the certified mail receipts are attached for your records. If you have any questions or need additional information, please feel free to contact me at 304-884-6000.

Sincerely,

Gary Beall  
PO Box 1008  
Jane Lew, WV 26378

GB/tps

Received

APR 22 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

05/30/2014



3302132P



WVDEP  
Office of Oil & Gas  
Attn: Inspector Sam Ward  
601 57th Street, SE  
Charleston, WV 25304-2345

Re: Application to Plug and Abandon  
BB Heldreth 1 A-E-95  
Eagle District  
Harrison County, WV

Mr. Ward:

In accordance with Article 22-6-23 of the West Virginia State Code regarding oil and gas operations, please find the attached application for the plugging and abandonment of the subject well. Notices of our intention to plug this wellbore have been sent to the surface owner, coal owners with declarations recorded, and coal operators associated with this well. Copies of the certified mail receipts are attached for your records. If you have any questions or need additional information, please feel free to contact me at 304-884-6000.

Sincerely,

A handwritten signature in blue ink, appearing to be 'GB' or similar initials.

Gary Beall  
PO Box 1008  
Jane Lew, WV 26378

GB/tps

Received

APR 22 2014

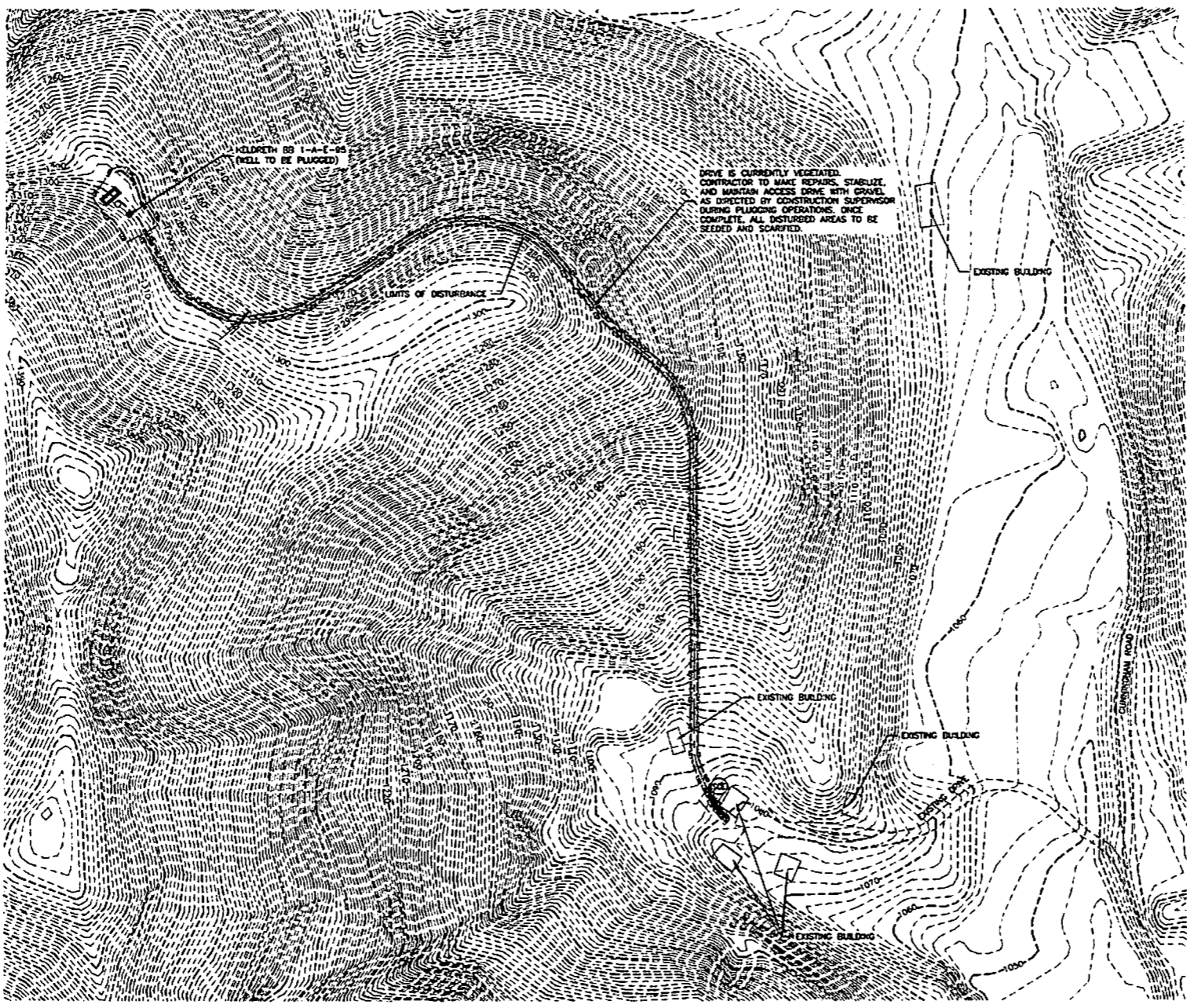
Office of Oil and Gas  
WV Dept. of Environmental Protection

05/30/2014





3302132P



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Office of Oil and Gas  
Dept. of Environmental Protection

**ZONING:**  
NO ZONING

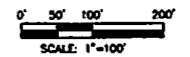
**WETLANDS:**  
NO WETLANDS ON SITE

**FLOOD ZONE:**

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP, MAP NUMBER 58333C002D, EFFECTIVE DATE, OCTOBER 2, 2012, THE SUBJECT PROPERTIES LIES WITHIN ZONE X WHICH IS DEFINED ON SAID MAP AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN".

- NOTES:**
1. EROSION CONTROL BLANKETS OR FLEXITERRA TO BE INSTALLED ON ALL OUT AND FILL SLOPES OF 3:1 OR STEEPER.
  2. WHEREVER SEED AND MULCH IS APPLIED BY HYDROSEEDING METHODS, THE SEED AND MULCH SHOULD BE APPLIED IN SEPARATE APPLICATIONS WITH THE SEED BEING APPLIED FIRST AND THE MULCH SPRAYED ON TOP OF THE SEED. THIS IS TO ENSURE THAT THE SEED MAKES CONTACT WITH THE UNDERLYING SOIL. SOIL PREPARATION SHOULD BE COMPLETED PRIOR TO ADDING SEED TO THE HYDROSEEDING EQUIPMENT. RUNNING SEED THROUGH THE PUMPING SYSTEM CAN RESULT IN EXCESSIVE ABRASION OF THE SEED AND REDUCE THE PERCENTAGE OF PURE LIVE SEED IN THE APPLICATION. THEREFORE, SITE PREPARATION SHOULD BE COMPLETED PRIOR TO THE ARRIVAL OF THE HYDROSEEDER.

- LEGEND**
- (Symbol) INLET PROTECTION
  - (Symbol) STONE CONSTRUCTION ENTRANCE
  - (Symbol) ROCK FILTER
  - (Symbol) ROCK CHANNEL OUTLET PROTECTION
  - (Symbol) PERMANENT CHANNEL
  - (Symbol) TEMPORARY CHANNEL
  - (Symbol) 12" COMPOST FILTER SOCK
  - (Symbol) 18" COMPOST FILTER SOCK
  - (Symbol) 24" COMPOST FILTER SOCK
  - (Symbol) 32" COMPOST FILTER SOCK
  - (Symbol) COMPOST FILTER SOCK PYRAMID  
(3) 18" OR (2) 24" W/ (1) 18"



**MORRIS KNOWLES & ASSOCIATES, INC.**  
A HARRISONVILLE COMPANY  
ENGINEERS, PLANNERS, SURVEYORS  
441 ALEXANDRIA DRIVE SUITE 201A  
HARRISONVILLE, MISSOURI 64583  
PHONE (781) 866-4322 FAX (781) 866-8940  
www.morrisknowles.com

DESIGN BY:	DATE:	REVISION BY:	DATE:	REVISION BY:	DATE:
JMB	JUN 05	JMB	JUN 05	JMB	JUN 05
DRWN BY:	JMB	RVSD BY:	JMB	FLD BY:	
				BK PG:	
DATE:	01/01/13	DATE:	01/01/13	DATE:	01/01/13

EROSION & SEDIMENT CONTROL PLAN - OVERALL VIEW  
HELDRECH BB 1-A-E-95  
MTO ENERGY, INC.  
CUMMINGS ROAD  
HARRISON COUNTY, WEST VIRGINIA

330213 2-P

**CONSTRUCTION SEQUENCE, HELDRECH BB 1-A-E-95**

**STAGE 1: INSTALL ROCK CONSTRUCTION ENTRANCE AT EXISTING DRIVE TO CUMBERNAH ROAD.**

- A. EXCAVATE FOR, AND FORM ENTRANCE.
- B. IMMEDIATELY STABILIZE ENTRANCE WITH ROCK.

**STAGE 2: INSTALL 18" COMPOST FILTER SOCKS.**

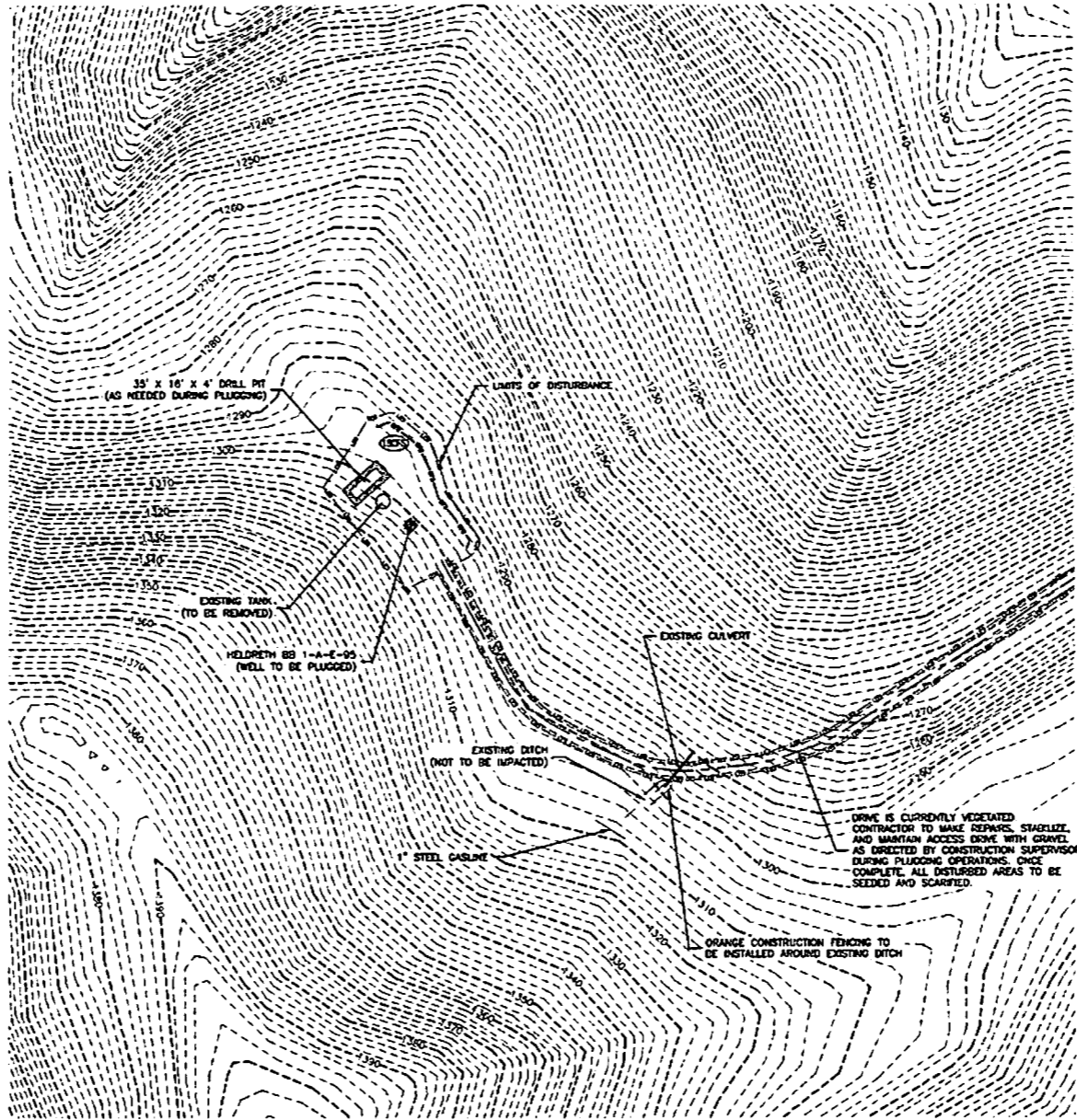
**STAGE 3: INSTALL DRILL PIT (AS NEEDED)**

**STAGE 4: STABILIZE, REPAIR, AND MAINTAIN ACCESS DRIVE WITH GRAVEL AS NEEDED.**

**STAGE 5: DRILL PIT TO BE RECLAIMED WHEN DONE.**

**STAGE 6: SEED AND MULCH**

- A. SCARIFY AND SEED/MULCH EXISTING ACCESS DRIVE AREA WITH SPECIFIED SEEDING MIXTURE. ALL E & S CONTROL FACILITIES SHALL BE MAINTAINED AND KEPT FUNCTIONAL UNTIL SITE STABILIZATION IS COMPLETE.



**ZONING:**  
NO ZONING

**WETLANDS:**  
NO WETLANDS ON SITE

**FLOOD ZONE:**

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP, MAP REVISION NUMBER: EFFECTIVE DATE: OCTOBER 2, 2012, THE SUBJECT PROPERTIES LIES WITHIN ZONE X WHICH IS DEFINED ON SAID MAP AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN".

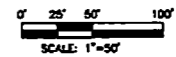
- NOTES:**
1. EROSION CONTROL BLANKETS OR FLEXITERRA TO BE INSTALLED ON ALL CUT AND FILL SLOPES OF 3:1 OR STEEPER.
  2. WHEREVER SEED AND MULCH IS APPLIED BY HYDROSEEDING METHODS, THE SEED AND MULCH SHOULD BE APPLIED IN SEPARATE APPLICATIONS WITH THE SEED BEING APPLIED FIRST AND THE MULCH SPRAYED ON TOP OF THE SEED. THIS IS TO ENSURE THAT THE SEED MAKES CONTACT WITH THE UNDERLYING SOIL. SOIL PREPARATION SHOULD BE COMPLETED PRIOR TO ADDING SEED TO THE HYDROSEEDING EQUIPMENT. PUMPING SEED THROUGH THE PUMPING SYSTEM CAN RESULT IN EXCESSIVE ABRASION OF THE SEED AND REDUCE THE PERCENTAGE OF PURE LIVE SEED IN THE APPLICATION. THEREFORE ALL SITE PREPARATION SHOULD BE COMPLETED PRIOR TO THE ARRIVAL OF THE HYDROSEEDER.

Received

APR 27 2014

Office of Oil and Gas  
Dept. of Environmental Protection

- LEGEND**
- (1) INLET PROTECTION
  - (2) STONE CONSTRUCTION ENTRANCE
  - (3) ROCK FILTER
  - (4) ROCK CHANNEL OUTLET PROTECTION
  - (5) PERMANENT CHANNEL
  - (6) TEMPORARY CHANNEL
  - (7) 12" COMPOST FILTER SOCK
  - (8) 18" COMPOST FILTER SOCK
  - (9) 24" COMPOST FILTER SOCK
  - (10) 32" COMPOST FILTER SOCK
  - (11) COMPOST FILTER SOCK PYRAMID
  - (12) (3) 18" OR (2) 24" w/ (1) 18"



**MORRIS KNOXLES & ASSOCIATES, INC.**  
A HANNOVER COMPANY  
ENGINEERS, PLANNERS, SURVEYORS  
143 ANCONA BOULEVARD, SUITE 101  
FARMINGTON, VIRGINIA 22643  
PHONE: (703) 465-1432 FAX: (703) 465-4740  
WWW.MORRISKNOXLES.COM

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1"=50'	1"=50'	1"=50'	1"=50'	1"=50'	1"=50'
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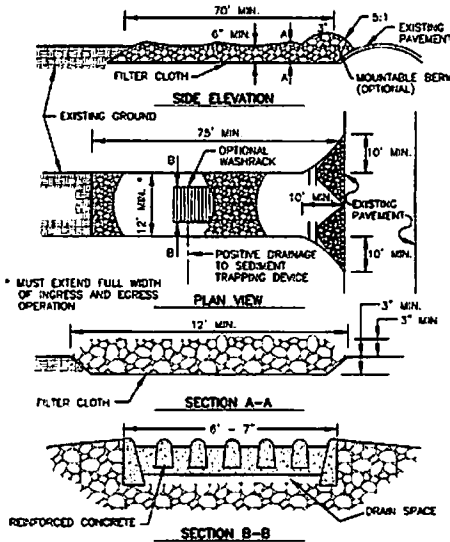
EROSION & SEDIMENT CONTROL PLAN - ENLARGED VIEW  
HELDRECH BB 1-A-E-95  
KTD ENERGY, INC.  
CUMBERNAH ROAD  
HARRISON COUNTY, WEST VIRGINIA



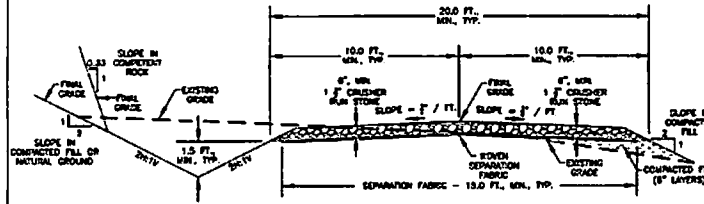


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**STANDARD CONSTRUCTION DETAIL  
STONE CONSTRUCTION ENTRANCE**  
NOT TO SCALE

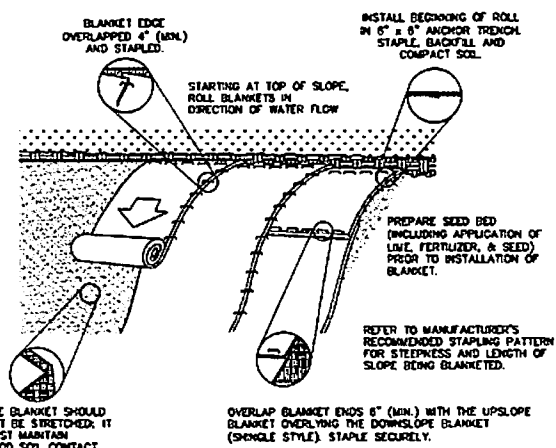


**STANDARD CONSTRUCTION DETAIL  
CROWNED ROADWAY**  
NOT TO SCALE



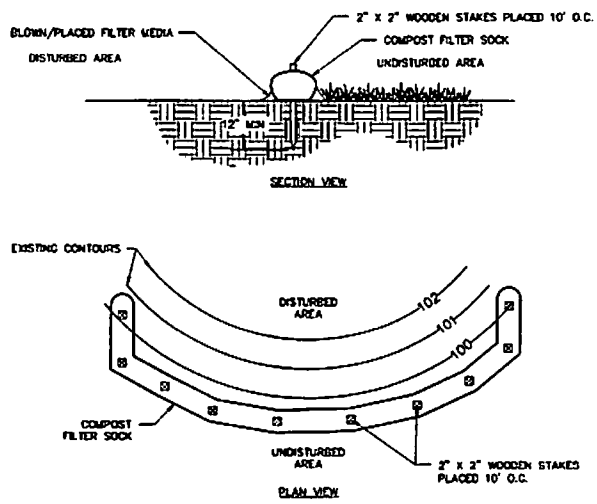
- NOTES:
1. IN CUT THROUGH SECTIONS, CONSTRUCT DITCHES ON BOTH SIDES OF ROAD OR SLOPE THE ROADWAY TOWARD THE SOLITARY CONSTRUCTED DITCH.
  2. CRUSHER RUN STONE SHALL BE ROLLER COMPACTED.
  3. 1.5" CRUSHER RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WIDOM STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.

**STANDARD CONSTRUCTION DETAIL  
EROSION CONTROL BLANKET**  
NOT TO SCALE



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
  2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART ON THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REARWARD 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
  3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
  4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
  5. CONSECUTIVE BLANKETS SPACED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.
- \* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

**STANDARD CONSTRUCTION DETAIL  
COMPOST FILTER SOCK**  
NOT TO SCALE

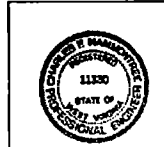


- NOTES:
1. ALL MATERIAL TO MEET DEP SPECIFICATIONS.
  2. FILTER SOCK/COMPOST/SOIL/ROCK/SEED FILL TO MEET DEP REQUIREMENTS.
  3. FILTER SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
  4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

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APR 22 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection



**WILSON KNOWLES & ASSOCIATES, INC.**  
A HANCOCK COMPANY  
ENGINEERS, PLANNERS, SURVEYORS  
443 AVONDA DRIVE DELAWARE, PA 19830  
PH: (717) 463-4922 FAX: (717) 468-4240  
www.wilsonknowles.com

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EROSION & SEDIMENT CONTROL DETAILS  
HELDRECH BB 1-A-E-95  
XTO ENERGY, INC.  
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HARRISON COUNTY, WEST VIRGINIA