



west virginia department of environmental protection

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

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Monday, January 23, 2017
WELL WORK PERMIT
Horizontal / Drilling Deeper

HARD ROCK EXPLORATION, INC. (A)
2034 MARTINS BRANCH ROAD

CHARLESTON, WV 25312

Re: Permit approval for HR-502A
47-087-04742-00-00

This well work permit 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 any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

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

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.



James A. Martin
Chief

Operator's Well Number: HR-502A
Farm Name: JARVIS, DAVID
U.S. WELL NUMBER: 47-087-04742-00-00
Horizontal / Drilling Deeper
Date Issued: 1/23/2017

Promoting a healthy environment.

01/27/2017

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

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. 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.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours
7. Well work activities shall not constitute a hazard to the safety of persons.
8. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced, drilling ceased, completion of any other permitted well work and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

47087047420
 CK-321
 1300

WW - 2B
 (Rev. 8/10)

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

1) Well Operator: Hard Rock Exploration, Inc. 494464205 Roane Reedy Reedy, WV 7.5'
 _____ Operator ID County District Quadrangle

2) Operator's Well Number: HR-502 3) Elevation: 981'

4) Well Type: (a) Oil _____ or Gas X
 (b) If Gas: Production X / Underground Storage _____
 Deep _____ / Shallow _____

5) Proposed Target Formation(s): Lower Huron Proposed Target Depth: 4500'
 6) Proposed Total Depth: 8440' Feet Formation at Proposed Total Depth: Lower Huron
 7) Approximate fresh water strata depths: Pittsburgh anticipated at 715'-770'
 8) Approximate salt water depths: 1950'-2200'

9) Approximate coal seam depths: None noted in offset wells

10) Approximate void depths,(coal, Karst, other): None

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)
Drill 12 3/8" hole on air/ Freshwater foam; Drill 8 3/4" hole on Air/Freshwater foam/Fluid; Drill Bottom hole on Air.
KOP-3900' Land curve-4840'MD/ 4500'TVD , 4200'VS, 8440' TMD
Run 4.5" casing with open hole packer completion (Depths noted at bottom) -Set packers, cement above top packer, Fracture with Nitrogen gas

13) CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	<u>13 3/8"</u>	<u>LS</u>	<u>37</u>	<u>30'</u>	<u>30'</u>	<u>NA</u>
Fresh Water	<u>9 5/8"</u>	<u>LS</u>	<u>26</u>	<u>870'</u>	<u>870'</u>	<u>430cuft CTS</u>
Coal						
Intermediate	<u>7"</u>	<u>MC50</u>	<u>19</u>	<u>2330'</u>	<u>2330'</u>	<u>505cuft CTS</u>
Production	<u>4 1/2"</u>	<u>M80</u>	<u>11.6</u>	<u>8440'</u>	<u>8440'</u>	<u>130cuft</u>
Tubing						
Liners						

COMPLETE
 COMPLETE

Packers: Kind: Hydraulic set open hole packers
 Sizes: 4.5" X 6 5/8" 10k diff Seal

01/27/2017

8704742

WR-35
Rev (5-01)

DATE: 6-22-16
API #: 47-08704742

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: David Jarvis Operator Well No.: HR 502
LOCATION: Elevation: 981' Quadrangle: Reedy WV 7.5'
District: Reedy County: Roane
Latitude: 4815' Feet South of 38 Deg. 55 Min. 00 Sec.
Longitude 4936' Feet West of 82 Deg. 25 Min. 00 Sec.

Company: Hard Rock Exploration

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: <u>1244 Martins Branch Road</u> <u>Charleston WV, 25312</u>				
Agent: <u>Marc Scholl</u>	<u>13 3/8"</u>	<u>30'</u>	<u>30'</u>	<u>NA</u>
Inspector: <u>Joe Taylor</u>	<u>9 5/8"</u>	<u>882'</u>	<u>882'</u>	<u>438 cuft CTS</u>
Date Permit Issued: <u>9/29/14</u>				
Date Well Work Commenced: <u>10/23/15</u>				
Date Well Work Completed: <u>11/5/15</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary x Cable Rig				
Total Depth (feet): <u>915'</u>				
Fresh Water Depth (ft.): <u>250'</u>				
Salt Water Depth (ft.):				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>N/A</u>				

OPEN FLOW DATA

Producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MMCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure no test _____ psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Signed: _____
By: James Stephens President
Date: 7/1/2016

RECEIVED
Office of Oil and Gas

DEC 5 2016

WV Department of
Environmental Protection

01/27/2017

Formation: Top: Bottom:

Soil/Sand/Shale 0 915'

RECEIVED
Office of Oil and Gas

DEC 5 2016

WV Department of
Environmental Protection

WW-2A
(Rev. 6-14)

1.) Date: June 29, 2016
2.) Operator's Well Number HR-502
State County Permit
3.) API Well No.: 47-087 -

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

4) Surface Owner(s) to be served:
(a) Name Toney Rhodes & Dawanna Romine
Address 378 Liverpool Road
Reedv. WV 25270
(b) Name David Jarvis *W/*
Address 1685 Ripley Road
Spencer. WV 25276
(c) Name _____
Address _____
6) Inspector Joe Taylor
Address 1478 claylick Rd
Ripley WV 25271
Telephone 304-380-7469
5) (a) Coal Operator
Name None
Address _____
(b) Coal Owner(s) with Declaration
Name Toney Rhodes & Dawanna Romine
Address 378 Liverpool Road
Reedv. WV 25270
Name David Jarvis *W/*
Address 1685 Ripley Road
Spencer. WV 25276
(c) Coal Lessee with Declaration
Name None
Address _____

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas

OR

X Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)

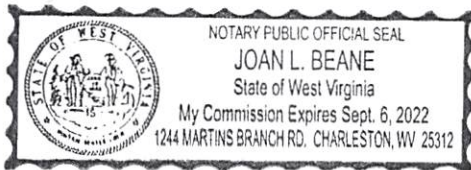
I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through ___ on the above named parties by:

- _____ Personal Service (Affidavit attached)
- X _____ Certified Mail (Postmarked postal receipt attached)
- _____ Publication (Notice of Publication attached)

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

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, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Well Operator Hard Rock Exploration, Inc.
By: monica
Its: Executive Vice President
Address: 1244 Martins Branch Road
Charleston, WV 25312
Telephone: 304-984-9004
Email: monica@hardrockexploration.com

Subscribed and sworn before me this 30th day of September, 2016

Joan L. Beane Notary Public
My Commission Expires Sept. 6, 2022

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

RECEIVED
Office of Oil and Gas
OCT 04 2016
WV Department of Environmental Protection

WW-2A Surface Waiver

SURFACE OWNER WAIVER

County

Roane

Operator

Operator well number

Hard Rock Exploration, Inc
HR 502 + HR 503

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A

The well operator named on page WW2A is applying for a permit from the State to do oil or gas well work. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:

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

Time Limits and methods for filing comments. The law requires these materials to be served on or before the date the operator files his Application. You have **FIFTEEN (15) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

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

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons;
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation...

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A, and attachments consisting of pages 1 through ___ including a work order on Form WW2-B, a survey plat, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Dianne L. Roane
Signature

Date 11-3-16

Company

Name

By

Its

Date

Toney E Rhoads
Signature

Signature

Date

RECEIVED
Office of Oil and Gas

01/27/2017

NOV 03 2016

WV Department of
ENVIRONMENTAL PROTECTION

WW-2A Surface Waiver
(4/16)

SURFACE OWNER WAIVER

County 087

Operator _____

Operator well number HR-502

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A

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NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

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

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- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

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List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A, and attachments consisting of pages 1 through ___ including a work order on Form WW2-B, a survey plat, WW-9, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.


Signature

Date 9/3/16

Company Name None
By _____
Its _____

David P. Jarvis
Print Name

RECEIVED
Office of Oil and Gas
Date
OCT 04 2016
Signature _____
Date 01/27/2017
WV Department of Environmental Protection

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Roane
Operator Hard Rock Exploration, Inc Operator's Well Number HR 502+HR 503

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office.

WAIVER

The undersigned coal operator _____ / owner _____ / lessee _____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

Dawna L. Roman _____ Date _____
Signature
Toney E Rhoads

FOR EXECUTION BY A CORPORATION, ETC.

Company Name _____
By _____
Its _____ Date _____
Signature _____ Date _____

RECEIVED
Office of Oil and Gas
NOV 03 2016 01/27/2017

WV Department of
Environmental Protection

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Roane
Operator Hard Rock Exploration, Inc. Operator's Well Number HR-502

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by WV Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office. Mail objections to:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0499 extension 1654

WAIVER

The undersigned coal operator _____ / owner _____ / lessee _____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

[Signature] Date 9/3/16
Signature

Company Name _____
By _____ Date _____
Its _____
Signature _____ Date _____

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Office of Oil and Gas
OCT 04 2016
WV Department of
Environmental Protection
01/27/2017

WW-2A1
(Rev. 1/11)

Operator's Well Number HR-502

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6, Section 8(d)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

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

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

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Roy B. and Jacqueline Gutherie	Reserve Oil and Gas, Inc.	% of 1/8	491/740
James and Margaret Slingerland	Reserve Oil and Gas, Inc.	% of 1/8	247/671
Lester G. Cottle II	Hard Rock Exploration, Inc.	% of 1/8	251/748
James Slingerland	Hard Rock Exploration, Inc.	% of 1/8	252/82
Reserve Oil and Gas, Inc.	J & M Resources	Assignment	504/459
J & M Resources	Hard Rock Exploration, Inc.	Assignment	252/87

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

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

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

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

Well Operator:
By: Its:

Hard Rock Exploration, Inc.

Monica
Executive Vice President

RECEIVED
Office of Oil and Gas
OCT 04 2016
WV Department of
Environmental Protection
01/27/2017

WW-9
(5/16)

API Number 47 - 087
Operator's Well No. HR-502

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Hard Rock Exploration, Inc. OP Code 494464205

Watershed (HUC 10) Fork of Reedy Creek Quadrangle Reedy, WV 7.5'

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

Will a pit be used? Yes No

If so, please describe anticipated pit waste: Drill Cuttings

Will a synthetic liner be used in the pit? Yes No If so, what ml? 10 or greater 2.0 MIL

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection (UIC Permit Number UIC2D0190460, 3416729685)
- Reuse (at API Number Well will be noted in DMR)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Will closed loop system be used? If so, describe: No

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air

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

Additives to be used in drilling medium? Soap, KCl, or Clay Stay

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Leave in pit

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) Cement or Lime

-Landfill or offsite name/permit number? _____

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, 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.

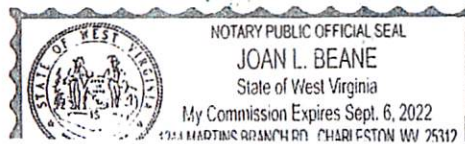
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is 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 Monica Francisco

Company Official (Typed Name) Monica Francisco

Company Official Title Executive Vice President

Subscribed and sworn before me this 4th day of October, 2016
Joan L. Beane Notary Public



01/27/2017

Form WW-9

Operator's Well No. HR-502

Proposed Revegetation Treatment: Acres Disturbed 0.96 Prevegetation pH 5.5

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type _____

Fertilizer amount 500 lbs/acre

Mulch Hay/Straw/Paper (Paper at 1600 lbs/acre) Tons/acre

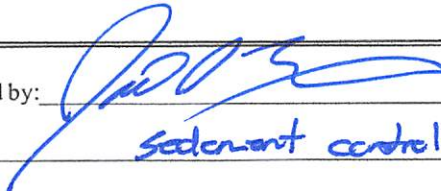
Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Red Top	15	Red Top	15
Orchard Grass	25	Orchard Grass	25
Perennial Rye/Crimson Red Clover 25 Each		Perennial Rye/Crimson Red Clover 25 Each	
Annual Rye	40	Annual Rye	40

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

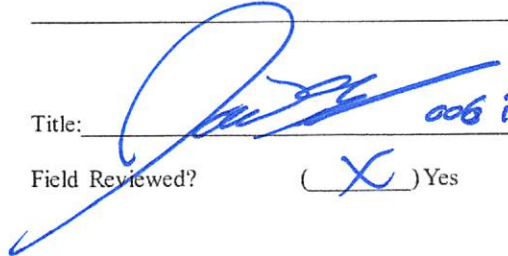
Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: 

Comments:

sediment control in place at all times

Title:

 *oob inspector.*

Date:

10-3-16

Field Reviewed?

Yes

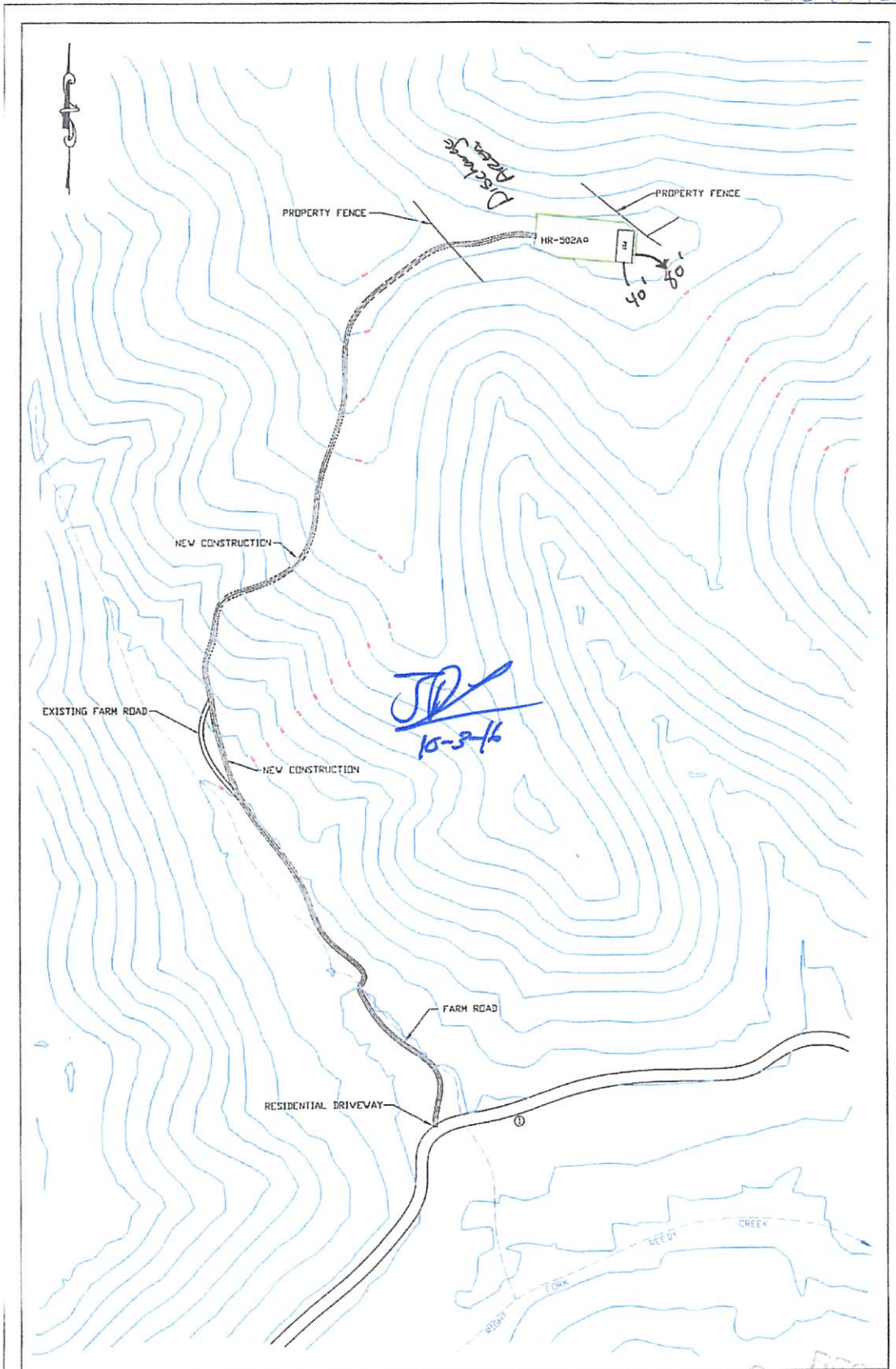
No

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WV Department of Environmental Protection
01/27/2017

D 104142M

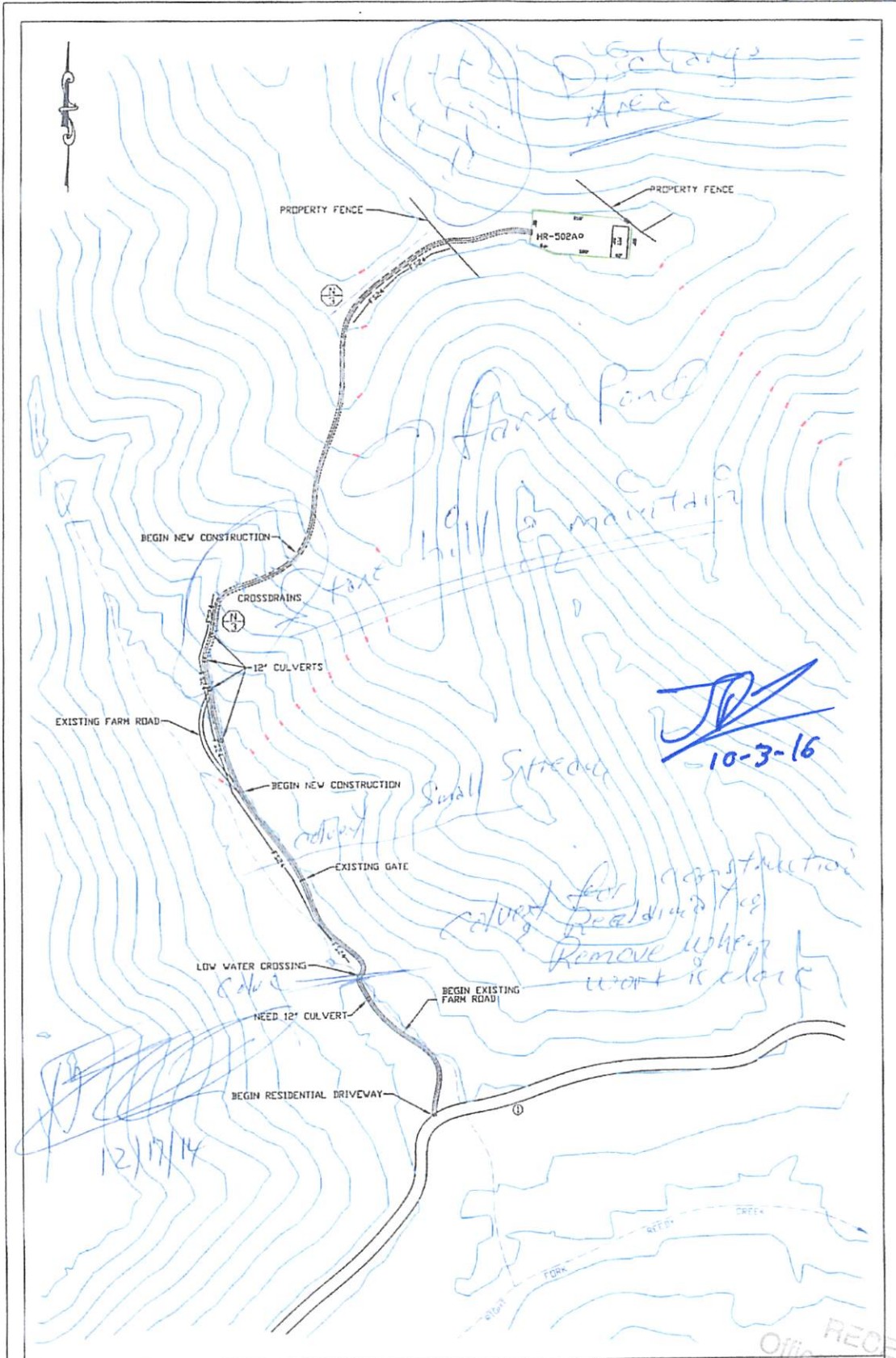


DISTURBED AREAS	
WELL PAD CONSTRUCTION	0.58 AC.
NEW ACCESS ROAD CONSTRUCTION	0.74 AC.
ADDITIONAL CLEARING	

LEGEND	
	STREAM
	PROPERTY LINE
	SLOPE AREA
	WETLAND

SITE PLAN	
HARD ROCK EXPLORATION	
PROPOSED WELL # HR-502A	
REEDY DISTRICT, ROANE COUNTY	
REEDY QUAD, VV 7.5'	
DECEMBER 11, 2014	
TRUE LINE SURVEYING	
6211 FAIRVIEW DR.	

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	PROVIDE FLEXTEERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES
	LEVEL SPREADER
	DIVERSION DITCH

	STREAM
	PROPERTY LINE
	SLOPE AREA
	WETLAND

EROSION AND SEDIMENT CONTROL PLAN

HARD ROCK EXPLORATION
 PROPOSED WELL # HR-502A
 REEDY DISTRICT, ROANE COUNTY
 REEDY QUAD, WV 7.5'
 DECEMBER 11, 2014
 TRUE LINE SURVEYING
 6211 FAIRVIEW DR.

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01/27/2017

WW-9- GPP
Rev. 5/16

Page _____ of _____
API Number 47 - 087 - _____
Operator's Well No. HR-502 _____

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

Operator Name: Hard Rock Exploration, Inc.
Watershed (HUC 10): Fork of Reedy Creek Quad: Reedy, WV 7.5'
Farm Name: Jarvis, David

- 1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

All pit fluids will be tested and if necessary it will be treated with additives or dilution to bring parameters to acceptable limits for discharge according to the WV DEP. Discharge area is to be closely monitored during the discharge operation. While drilling through groundwater intervals only freshwater fluids or air is to be used as a drilling medium. Fresh water intervals are to be cased and cemented according to WV DEP cementing and casing standards.

- 2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

While drilling through groundwater intervals only freshwater fluids or air is to be used as a drilling medium. Freshwater intervals are to be cased and cemented according to WV DEP cementing and casing standards. All materials are to be properly transported and stored.

- 3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

Reedy Creek is approximately 3000' from the wellsite. Discharge area is noted on topo map. Coordinates to wellsite are : (SEE PLAT

- 4. Summarize all activities at your facility that are already regulated for groundwater protection.

[Empty box for activity summary]

- 5. Discuss any existing groundwater quality data for your facility or an adjacent property.

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01/27/2017

WW-9- GPP
Rev. 5/16

Page _____ of _____
API Number 47 - 087 - _____
Operator's Well No. HR-502 _____

Analysis on water wells within 2000' of the well site has been conducted

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

No waste material is to be used for deicing or fill material on the property.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

Ground water protection is to be emphasized to all employees and contract workers involved in the operations at this site. Wellbore construction will be in accordance with the WV DEP cementing and casing standards. Materials used during drilling and completion of the well are to be transported and stored properly so as to minimize the risk of an unintentional event.

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

Site is to be inspected each day of operations by Company Representatives or Supervisor on location.

Signature: _____

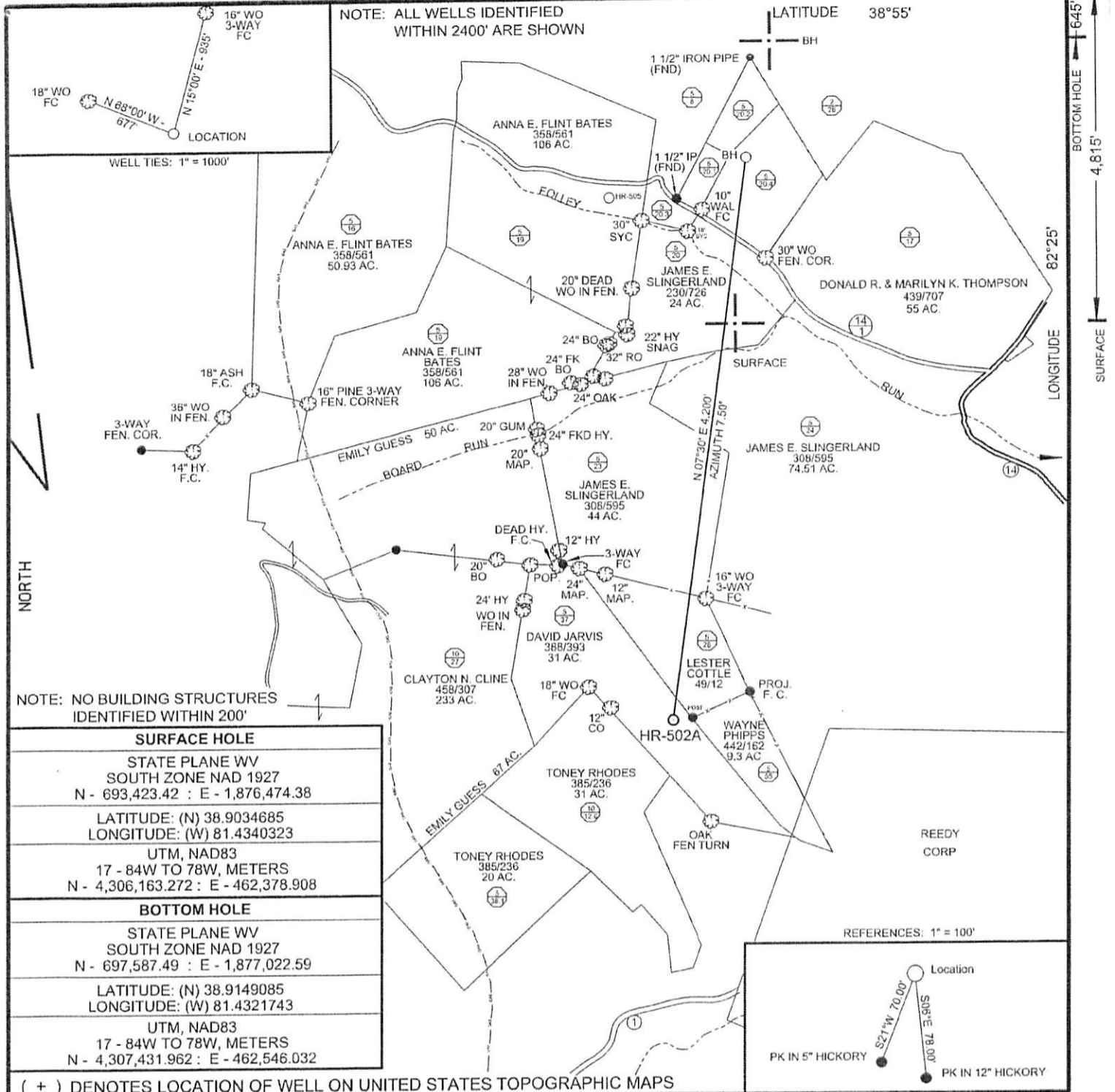
Date: _____

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OCT 04 2016
WV Department of
Environmental Protection
01/27/2017

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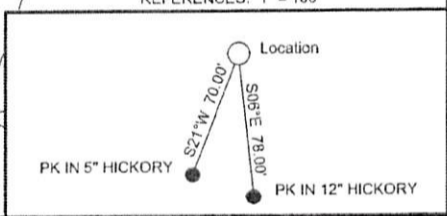
SURFACE 4,936'
BOTTOM HOLE 4,409'

NOTE: ALL WELLS IDENTIFIED WITHIN 2400' ARE SHOWN



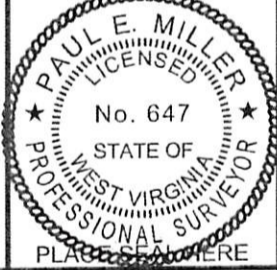
NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

SURFACE HOLE	
STATE PLANE WV SOUTH ZONE NAD 1927 N - 693,423.42 : E - 1,876,474.38	
LATITUDE: (N) 38.9034685 LONGITUDE: (W) 81.4340323	
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,306,163.272 : E - 462,378.908	
BOTTOM HOLE	
STATE PLANE WV SOUTH ZONE NAD 1927 N - 697,587.49 : E - 1,877,022.59	
LATITUDE: (N) 38.9149085 LONGITUDE: (W) 81.4321743	
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,307,431.962 : E - 462,546.032	



FILE NO. HR-502A.DGN
 DRAWING NO. HR-502A
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION MAPPING GRADE GPS

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
 (SIGNED) Paul E. Miller
 R.P.E. _____ L.L.S. 647



STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OIL AND GAS DIVISION



DATE JULY 22, 20 14
 OPERATOR'S WELL NO. HR-502A
 API WELL NO. _____

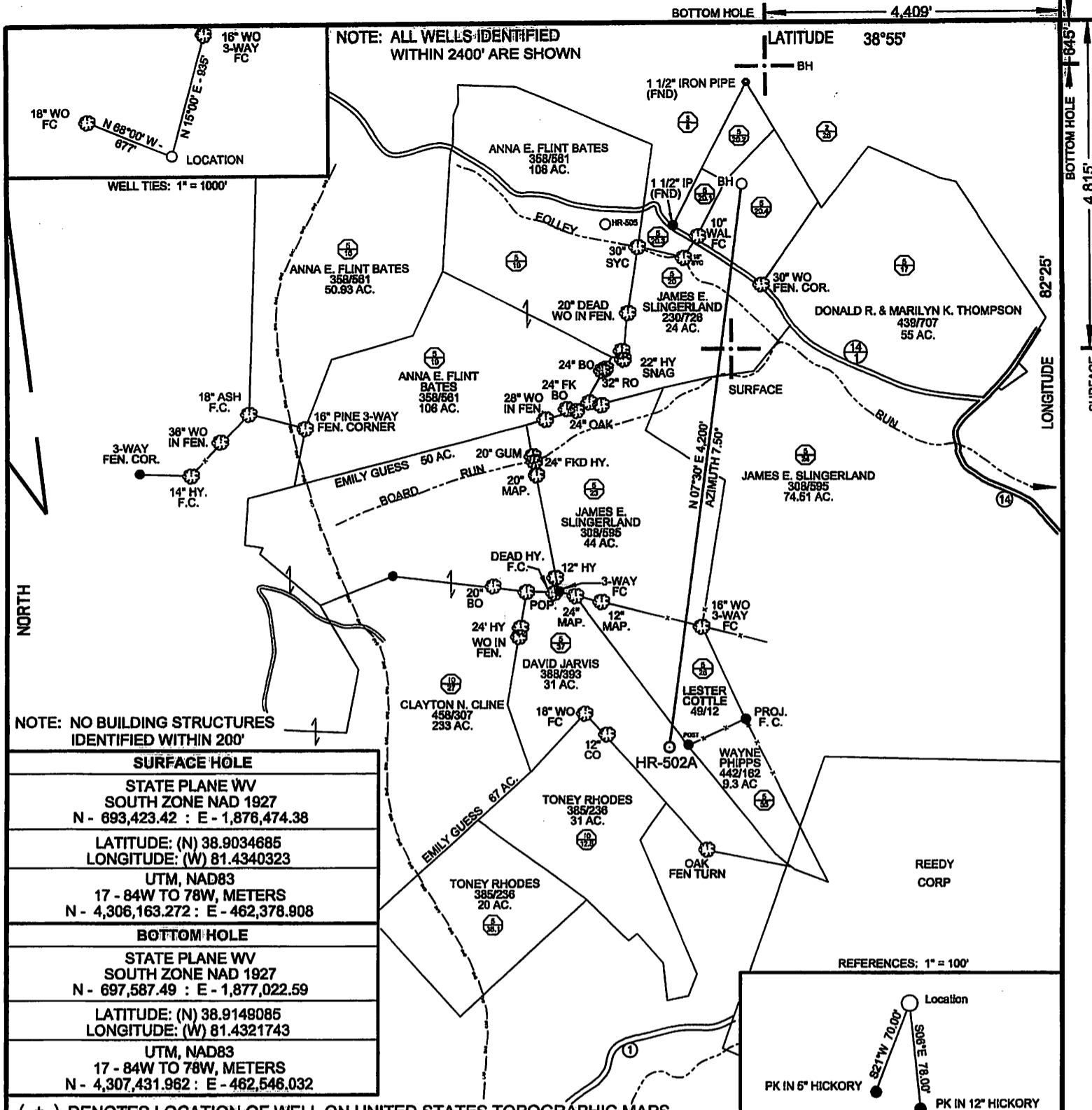
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS,") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 981' WATER SHED _____ FORK OF REEDY CREEK
 DISTRICT REEDY COUNTY ROANE
 QUADRANGLE REEDY, WV 7.5'
 SURFACE OWNER DAVID JARVIS ACREAGE 31
 OIL & GAS ROYALTY OWNER _____ LEASE ACREAGE _____

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____
 PLUG AND ABANDON CLEAN OUT AND REPLUG
 TARGET FORMATION LOWER HURON ESTIMATED DEPTH _____
 WELL OPERATOR HARD ROCK EXPLORATION, INC. DESIGNATED AGENT JAMES L. STEPHENS
 ADDRESS 1244 MARTINS BR. RD., CHARLESTON, WV 25312 ADDRESS _____ SAME

FORM WW-6

COUNTY NAME PERMIT

01/27/2017



SURFACE HOLE	
STATE PLANE WV SOUTH ZONE NAD 1927 N - 693,423.42 : E - 1,876,474.38	
LATITUDE: (N) 38.9034685 LONGITUDE: (W) 81.4340323	
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,306,163.272 : E - 462,378.908	
BOTTOM HOLE	
STATE PLANE WV SOUTH ZONE NAD 1927 N - 697,587.49 : E - 1,877,022.59	
LATITUDE: (N) 38.9149085 LONGITUDE: (W) 81.4321743	
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,307,431.962 : E - 462,546.032	

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE NO. HR-502A.DGN
 DRAWING NO. HR-502A
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION MAPPING GRADE GPS

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

(SIGNED) Paul E. Miller
 R.P.E. _____ L.L.S. 647



STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OIL AND GAS DIVISION

DATE JULY 22, 20 14
 OPERATOR'S WELL NO. HR-502A
 API WELL NO. 47 087 04742 D

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

LOCATION: ELEVATION 981' WATER SHED FORK OF REEDY CREEK
 DISTRICT REEDY COUNTY ROANE
 QUADRANGLE REEDY, WV 7.5'

SURFACE OWNER DAVID JARVIS ACREAGE 31
 OIL & GAS ROYALTY OWNER _____ LEASE ACREAGE _____
 LEASE NO. _____

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

PLUG AND ABANDON CLEAN OUT AND REPLUG

TARGET FORMATION LOWER HURON ESTIMATED DEPTH _____
 WELL OPERATOR HARD ROCK EXPLORATION, INC. DESIGNATED AGENT JAMES L. STEPHENS
 ADDRESS 1244 MARTINS BR. RD., CHARLESTON, WV 25312 ADDRESS SAME

01/27/2017

FURMAN

COUNTY NAME PERMIT

ADDRESS 1544 MARTINS BR RD, CHARLESTON, WV 25315 ADDRESS 2456
WELL OPERATOR HARD ROCK EXPLORATION, INC DESIGNATED AGENT JAMES L STEPHENS
TARGET FORMATION GOMER HUBON ESTIMATED DEPTH _____
FLUID AND ABANDON CLEAN OUT AND BEGUNE _____

FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____
STIMULATE X FLUID OFF OLD FORMATION _____ REFORMATE NEM _____
PROPOSED WORK: DRILL X COMPLET _____ DRILL DEEPER _____ REDRILL _____ FRACTURE OR
LEASE NO. _____

OIL & GAS ROYALTY OWNER _____ LEASE ACREAGE _____
SURFACE OWNER DAVID TAYLOR ACREAGE 31
QUADRANGLE REEDY, WVA 2, COUNTY BOVINE
DISTRICT REEDY
LOCATION: ELEVATION 887, WATER SHED FORD OF REEDY CREEK
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
STATE COUNTY PERMIT
47 080 0455 D
OIL AND GAS DIVISION
DIVISION OF ENVIRONMENTAL PROTECTION
STATE OF WEST VIRGINIA
WV WELL NO. _____
OPERATOR'S WELL NO. HB-202A
DATE 05 JUL 05

0-11111 11111

TEMPERATURE COUNTY NAME

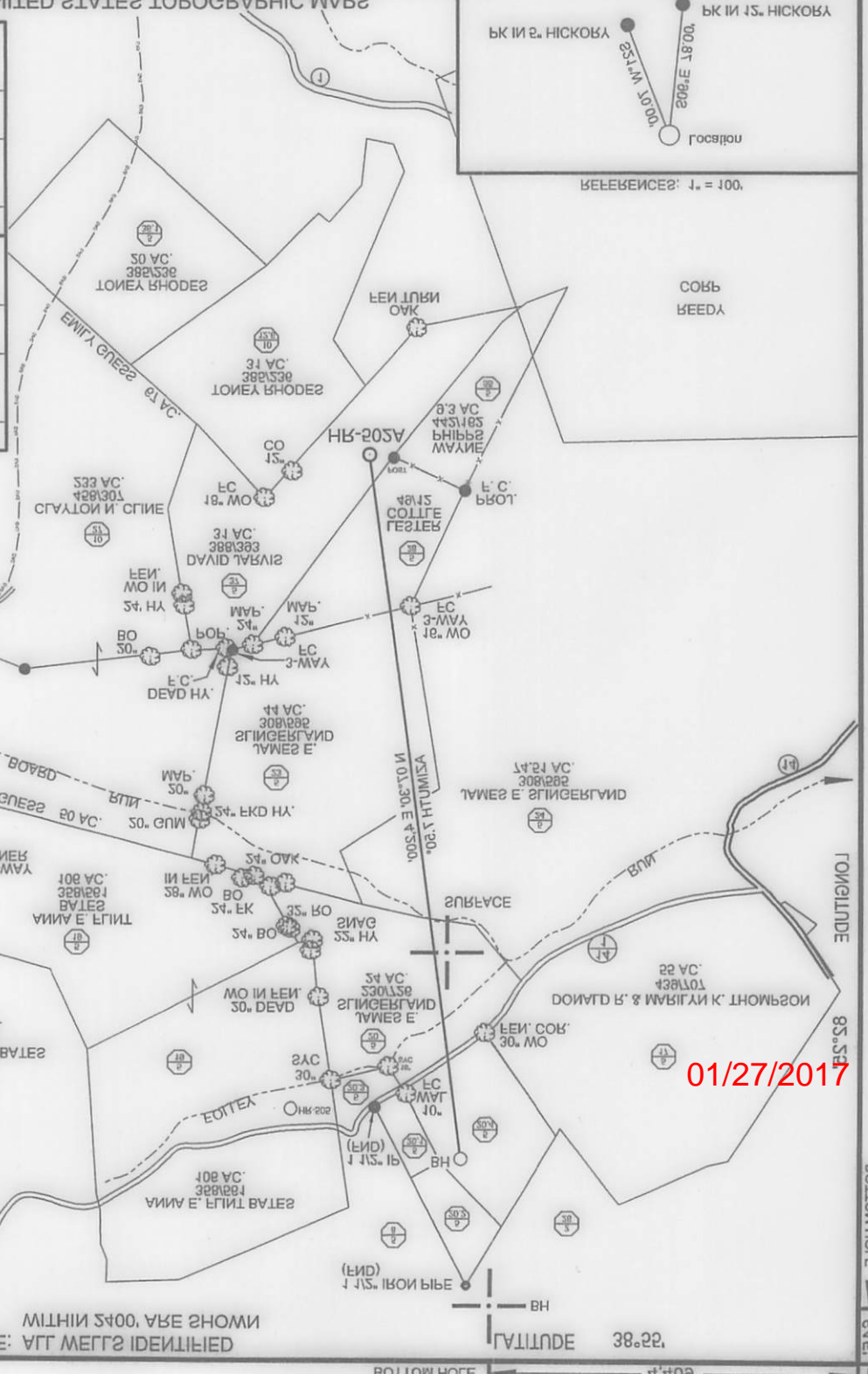
ELEVATION _____
PROVEN SOURCE OF _____
ACCURACY 1:500
MINIMUM DEGREE OF _____
SCALE 1" = 1000'
DRAWING NO. HB-202A
FILE NO. HB-202A DCN

(SIGNED) _____
AGENT OF ENVIRONMENTAL PROTECTION
REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT
INFORMATION RECEIVED BY LAW AND THE BEST
KNOWLEDGE AND BELIEF AND SHOWS ALL THE
THIS THAT IS CORRECT TO THE BEST OF MY
I THE UNDERSIGNED, HEREBY CERTIFY THAT



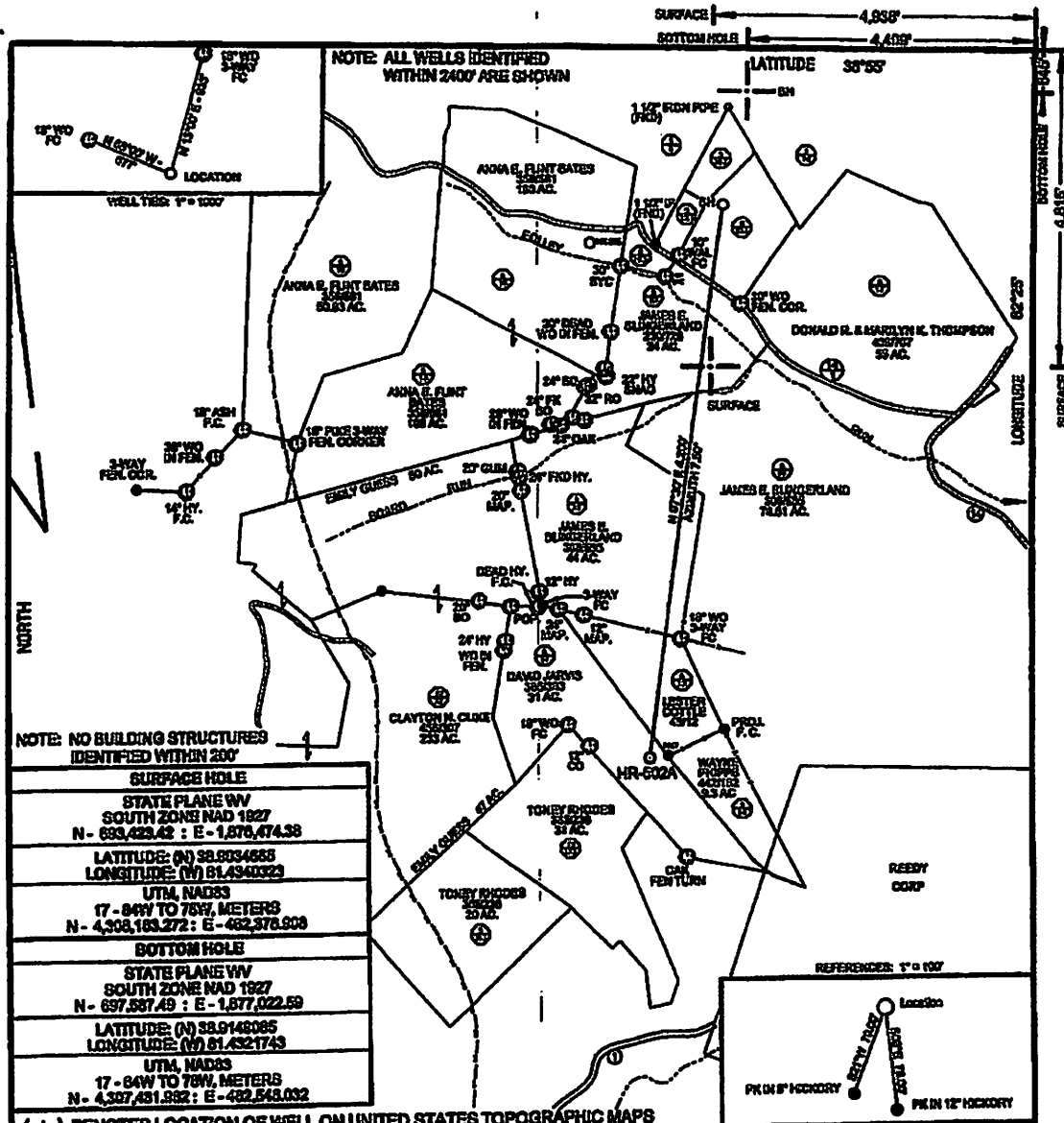
(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

UTM, NAD83 Easting: 184875 Northing: 4319014 UTM, NAD83 Longitude: (W) 81° 43' 43.882 Latitude: (N) 38° 00' 49.882
UTM, NAD83 Easting: 184875 Northing: 4319014 UTM, NAD83 Longitude: (W) 81° 43' 43.882 Latitude: (N) 38° 00' 49.882
UTM, NAD83 Easting: 184875 Northing: 4319014 UTM, NAD83 Longitude: (W) 81° 43' 43.882 Latitude: (N) 38° 00' 49.882



01/27/2017

842. 4812. BOTTOM HOLE

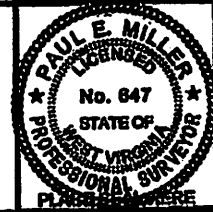


SURFACE HOLE	
STATE PLANE WV SOUTH ZONE NAD 1927 N - 693,423.42 : E - 1,576,474.38	
LATITUDE: (N) 38.9034653 LONGITUDE: (W) 81.4340323	
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,308,183.272 : E - 482,376.908	
BOTTOM HOLE	
STATE PLANE WV SOUTH ZONE NAD 1927 N - 697,587.49 : E - 1,577,022.59	
LATITUDE: (N) 38.9148085 LONGITUDE: (W) 81.4321743	
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,307,481.992 : E - 482,548.032	

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE NO. HR-602A.DGN
 DRAWING NO. HR-602A
 SCALE 1" = 100'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION MAPPING GRADE GPS

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
 (SIGNED) [Signature]
 R.P.E. LLS 647



STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OIL AND GAS DIVISION

DATE JUNE 29, 2016
 OPERATOR'S WELL NO. HR-602A
 API WELL NO. 47 087 047424
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION 881 WATER SHED FORK OF REEDY CREEK
 DISTRICT REEDY COUNTY ROANE

QUADRANGLE REEDY, WV 7.8 ACRES 51

SURFACE OWNER DAVID JARVIS LEASE ACREAGE 51

OIL & GAS ROYALTY OWNER _____ LEASE NO. _____

PROPOSED WORK: DRILL X CONVERT X DRILL DEEPER X REDRILL X FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION X PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

PLUG AND ABANDON X CLEAN OUT AND REPLUG _____

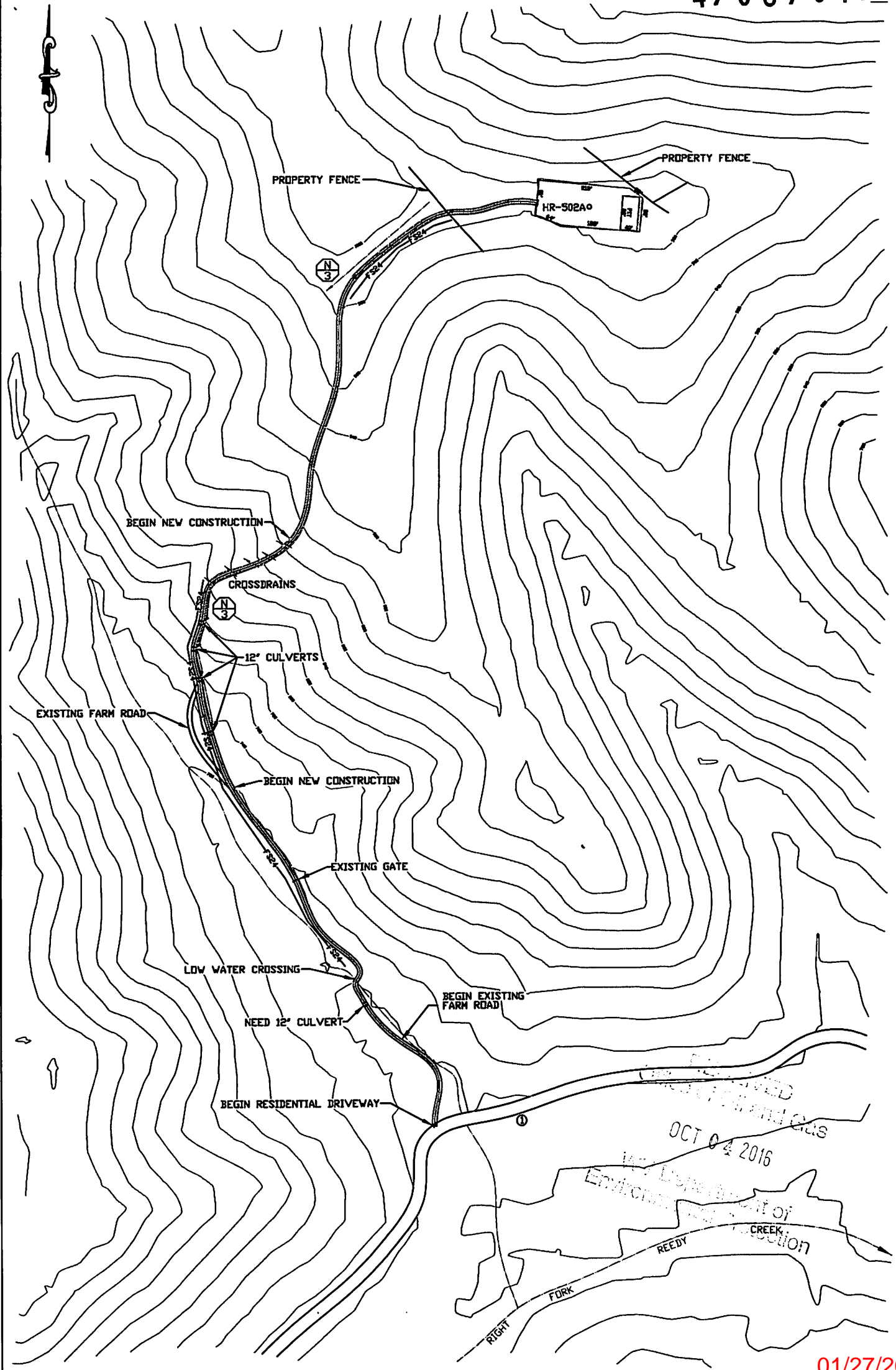
TARGET FORMATION LOWER HURON ESTIMATED DEPTH _____

WELL OPERATOR HARD ROCK EXPLORATION, INC. DESIGNATED AGENT JAMES L. STEPHENS

FORM WVS-6

COUNTY NAME PERMIT

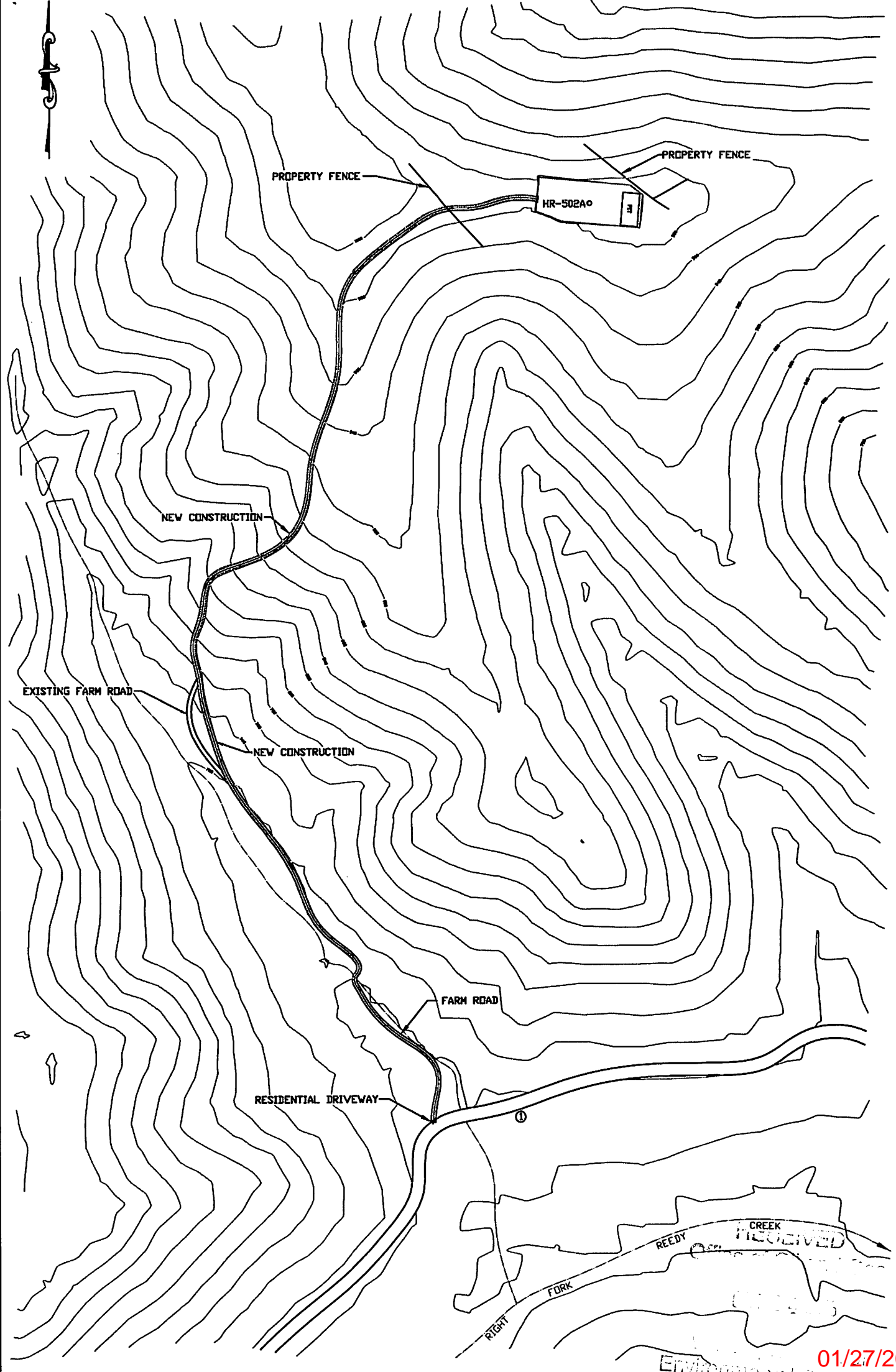
Office of Oil and Gas
 OCT 04 2016
 Department of Environmental Protection
 01/27/2017



APPROVED
 OCT 04 2016
 Mr. Department of
 Environmental Protection
 REEDY CREEK
 FORK
 RIGHT

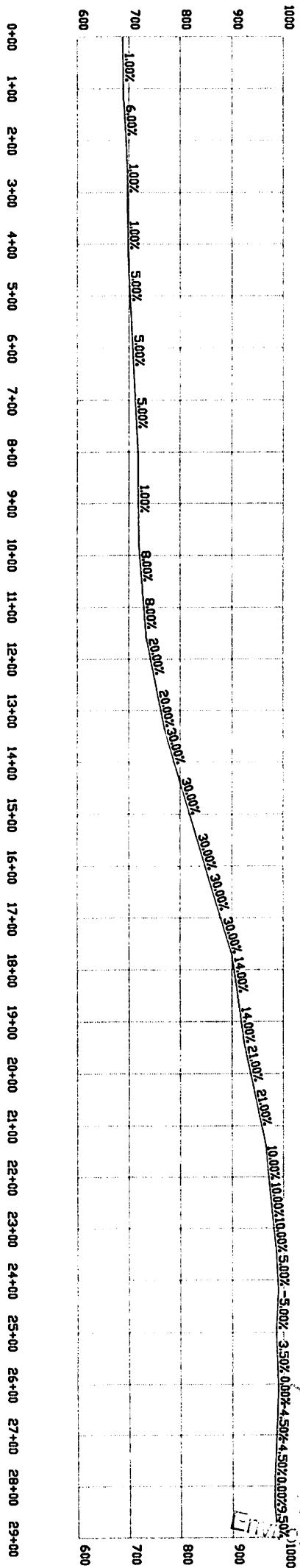
01/27/2017

LEGEND		EROSION AND SEDIMENT CONTROL PLAN	
	PROVIDE FLEXTERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES		STREAM
	LEVEL SPREADER		PROPERTY LINE
	DIVERSION DITCH		SLOPE AREA
	BERM OUTLET		WETLAND
			24" COMPOST FILTER SOCK AS REQUIRED
		HARD ROCK EXPLORATION PROPOSED WELL # HR-502A REEDY DISTRICT, ROANE COUNTY REEDY QUAD, WV 7.5' DECEMBER 11, 2014 TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705	
		PAGE 1 OF 1	



Environmental Protection 01/27/2017

DISTURBED AREAS		LEGEND		SITE PLAN	
WELL PAD CONSTRUCTION	0.58 AC.		STREAM	HARD ROCK EXPLORATION PROPOSED WELL # HR-502A	
NEW ACCESS ROAD CONSTRUCTION	0.74 AC.		PROPERTY LINE	REEDY DISTRICT, ROANE COUNTY REEDY QUAD, WV 7.5'	
ADDITIONAL CLEARING			SLOPE AREA	DECEMBER 11, 2014	
			WETLAND	TRUE LINE SURVEYING	
TOTAL DISTURBED AREA	1.32 AC		BUFFER AREA	6211 FAIRVIEW DR. HUNTINGTON, WV 25705	
				PAGE 1 OF 1	



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 DECEMBER 12, 2014
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 Environmental Protection

01/27/2017

ROAD PROFILE

HARD ROCK EXPLORATION
 PROPOSED WELL # HR-502A
 REEDY DISTRICT, ROANE COUNTY
 REEDY QUAD, VV 75'

DECEMBER 12, 2014

TRUE LINE SURVEYING
 624 FAIRVIEW DR.
 HUNTINGTON, WV 25705

