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**west virginia** department of environmental protection

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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](http://www.dep.wv.gov)

February 26, 2015

**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-3902908, issued to CABOT OIL & GAS CORPORATION, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

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: 23-646  
Farm Name: BOWERS, WILLIAM  
**API Well Number: 47-3902908**  
**Permit Type: Plugging**  
Date Issued: 02/26/2015

## 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.

1) Date January 7, 20 15  
2) Operator's  
Well No. William Bowers #23 (S-646)  
3) API Well No. 47-039 -02908

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 \_\_\_ or Underground storage \_\_\_) Deep \_\_\_ / Shallow X

5) Location: Elevation 1,400' Watershed Kanawha River  
District Cabin Creek County Kanawha Quadrangle Julian

6) Well Operator Cabot Oil & Gas Corporation 7) Designated Agent Whitney Johnson  
Address Five Penn Center West, Ste. 401 Address P.O. Box 450  
Pittsburgh, PA 15276 Glasgow, WV 25086

8) Oil and Gas Inspector to be notified 9) Plugging Contractor  
Name Terry Urban Name Shreve's Well Service  
Address P.O. Box 1207 Address 3473 Triplett Road  
Clendenin, WV 25045 Spencer, WV 25275

10) Work Order: The work order for the manner of plugging this well is as follows:  
See Attached Sheet

*All plugs & procedures maybe changed  
AS plugging process is put in place*

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

Work order approved by Inspector *Terry Urban*

RECEIVED  
Office of Oil and Gas  
JAN 12 2015  
WV Department of  
Environmental Protection  
02/27/2015

# Bowers #23 API # 47 - 039 - 02908 PLUGGING PROCEDURE

## Current Configuration

- DTD @ 2558'
- 13" conductor @ 20'
- 10" casing @ 400'
- 8-1/4" casing @ 1700'
- 6-5/8" casing @ 2130'
- 2" tubing @ 2558' with anchor packer set @ 2257'
- Water @ 1560' & 1920'
- Coal @ 90' - 95' & 690' - 695'
- Weir @ 2375' to 2550' with gas show @ 2400' & 2455'
- Injun @ 2305' - 2365'
- Big Lime @ 2125' - 2305'

## PROCEDURE

1. Contact Glasgow Office a minimum of 48 hours prior to starting work.
2. Contact State Inspector a minimum of 24 hours prior to starting work.
3. Lay 2" line from wellhead to pit/tank and stake down securely.
4. MIRU service rig and blow down well. Have vacuum truck available to catch any fluids circulated from well.
5. Unpack wellhead.
6. Pull 2" tubing.
7. If unable to pull tubing, run freepoint, cut above freepoint, and POOH.
8. TIH with 2-3/8" work string to TD.
9. MIRU Cement Company and pump 20 bbls 6% Gel followed by 60 sks of Class A cement for plug 1 from TD to 2200'.
10. Displace w/ 8 1/2 bbls of 6% Gel.
11. TOOH with work string.
12. Pull 6-5/8" casing string.
13. TIH with work string to 1950' and pump 20 bbls 6% Gel followed by 55 sks of Class A cement for plug 2 from 1950' to 1750'.
14. Displace w/ 7 1/2 bbls of 6% Gel.
15. TOOH with work string.
16. Pull 8-1/4" casing, 10" casing, and 13" conductor.
17. TIH with work string to 1600' and pump 30 bbls 6% Gel followed by 85 sks of Class A cement for plug 3 from 1600' to 1400'. *BEW*
18. Displace w/ 5 1/2 bbls of 6% Gel.
19. Pull work string up to 735' and pump 50 bbls 6% Gel followed 50 cubic feet of expanding cement (45 sacks Class A cement with 10 % salt added) for plug 4 from 735' to 635'. *COAL*
20. Displace w/ 2 1/2 bbl of 6% Gel.
21. Pull work string up to 150' and pump 130 cubic feet of expanding cement (110 sacks Class A cement with 10 % salt added) for plug 5 from 150' to surface. *COAL*
22. TOOH with work string and lay down.
23. RDMO Cementing Company.
24. Place monument as required by law on top of wellhead.
25. Reclaim well site.

*All plug shall be changed*

RECEIVED  
Office of Oil and Gas

JAN 12 2015

WV Department of Environmental Protection

*Operator to make any attempt to pull all casing & tubulars*  
*1-13-15*

*OK*

3902908P

**BOWERS #23**  
API 47-039-02908  
CURRENT CONFIGURATION

13" Conductor @ 20'  
10" Casing @ 400'  
Coal @ 90' - 95'

Coal @ 690' - 695'

Salt Sand @ 1225' - 1640'  
with water @ 1560'

Maxton @ 1915' - 2005'  
with water @ 1920'

Big Lime @ 2125' - 2305'

Injun @ 2305' 2365'

Weir @ 2375' - 2550'

DTD @ 2558'

2" X 6-5/8" packer set @ 2257'

6-5/8" Casing @ 2130'

8-1/4" Casing @ 1700'

2" tubing @ 2558'

Schematic is not to scale

*Handwritten:* Plug

*Handwritten:* Plug

*Handwritten:* Plug

*Handwritten:* 1400 Elevator  
as per plan

WV Department of Environmental Protection  
Office of Oil and Gas  
RECEIVED  
JAN 12 2015  
T. On 03/27/14  
JAN 12 2015  
WV Department of Environmental Protection

0392908

-2-

5.646

Formation	Top	Bottom	Remarks
Big Line	2125	2305 ✓	
Lime Gas	2275		
Injun Sand	2305	2365	
Lime Shell	2365	2375	
Weir Sand	2375		
Gas	2400		
Gas	2455		
Bottom Sand	2550		
Total Depth	2558		

Am't Conductor-13 In. 20 ft.

Am't 10" Casing 400 Ft.  
 " 8-1/4" " 1700 "  
 " 6-5/8" " 2130 "

Packer set at 2257  
 Top of perforation 2455

2558 ft. 2 in. tubing

Received  
 Office of Oil & Gas  
 JAN 13 2015

02/27/2015

WW-4A  
Revised 6-07

1) Date: January 7, 2015  
2) Operator's Well Number  
William Bowers #23 (S-646)  
3) API Well No.: 47 - 039 - 02908

**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>Robin Land Company</u>	Name <u>See Attached Sheet</u>
Address <u>500 Lee St. E., Suite 900</u>	Address _____
<u>Charleston, WV 25301</u>	_____
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>Robin Land Company</u>
_____	Address <u>500 Lee St. E., Suite 900</u>
_____	<u>Charleston, WV 25301</u>
(c) Name _____	Name _____
Address _____	Address _____
_____	_____
6) Inspector <u>Terry Urban</u>	(c) Coal Lessee with Declaration
Address <u>P.O. Box 1207</u>	Name <u>None of Record</u>
<u>Clendenin, WV 25045</u>	Address _____
Telephone <u>(304) 389-7583</u>	_____

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

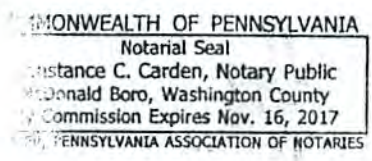
- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

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.

Office of Oil & Gas

JAN 13 2015



Well Operator Cabot Oil & Gas Corporation  
 By: Kenneth L. Marcum  
 Its: Regulatory Supervisor  
 Address Five Penn Center West, Suite 401  
Pittsburgh, PA 15276  
 Telephone (412) 249-3850

Subscribed and sworn before me this 7th day of January, 2015  
Constance C. Carden Notary Public  
 My Commission Expires November 16, 2017

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 [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

02/27/2015

COAL OPERATORS  
WILLIAM BOWERS #23 (S-646)  
47-039-02908

Coyote Coal Company, LLC ✓  
P.O. Box 43  
Dawes, WV 25054

Midland Trail Energy, LLC ✓  
P.O. Box 336  
Tad, WV 25201

Spartan Mining Company ✓  
Dba/Mammoth Coal Company  
P.O. Box 150  
Cannelton, WV 25036

Catenary Coal Company, LLC ✓  
63 Corporate Centre Drive  
Scott Depot, WV 25560

Upper Kanawha Valley Development Corp ✓  
400 Patterson Ln. #200  
Charleston, WV 25311

Received  
Office of Oil & Gas  
JAN 13 2015



3902908P

7014 2120 0003 6926 4012

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Sent To: Robin Land Company  
500 Lee St. E., Suite 900  
Charleston, WV 25301

Street & Apt. No. or PO Box No.  
City, State, ZIP

Bowers #23 P&A

PS Form 3800

7014 2120 0003 6926 4209

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Total Postage & Fees	\$

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Sent To: Coyote Coal Company, LLC  
P.O. Box 43  
Dawes, WV 25054

Street & Apt. No. or PO Box No.  
City, State, ZIP

Bowers #23 P&A

PS Form 3800

7014 2120 0003 6926 4043

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Sent To: Spartan Mining Company  
Dba/Mammoth Coal Company  
P.O. Box 150  
Cannelton, WV 25036

Street & Apt. No. or PO Box No.  
City, State, ZIP

Bowers #23 P&A

PS Form 3800

7014 2120 0003 6926 4107

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Restricted Delivery Fee (Endorsement Required)	
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Sent To: Midland Trail Energy, LLC  
P.O. Box 336  
Tad, WV 25201

Street & Apt. No. or PO Box No.  
City, State, ZIP

Bowers #23 P&A

PS Form 3800

7014 2120 0003 6926 4067

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

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Sent To: Upper Kanawha Valley Development Corp  
400 Patterson Ln. #200  
Charleston, WV 25311

Street & Apt. No. or PO Box No.  
City, State, ZIP

Bowers #23 P&A

PS Form 3800

7014 2120 0003 6926 4207

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

Postmark Here

Sent To: Catenary Coal Company, LLC  
63 Corporate Centre Drive  
Scott Depot, WV 25560

Street & Apt. No. or PO Box No.  
City, State, ZIP

Bowers #23 P&A

PS Form 3800

Received  
Office of Oil & Gas

JAN 13 2015

02/27/2015

3902908P

70J4 2120 0003 6926 4050

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Total Postage	



Sent To  
 Street & A  
 or PO Box  
 City, State

Terry Urban  
 P.O. Box 1207  
 Clendenin, WV 25045

Bowers #23 P&A

PS Form 3800, July 2014

Received  
 Office of Oil & Gas  
 JAN 13 2015

02/27/2015

WW-9  
(5/13)

Page \_\_\_\_\_ of \_\_\_\_\_  
API Number 47 - 039 - 02908  
Operator's Well No. \_\_\_\_\_

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Cabot Oil & Gas Corporation OP Code 08145

Watershed (HUC 10) Kanawha River Quadrangle Julian

Elevation 1,400' County Kanawha District Cabin Creek

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

Will a pit be used for drill cuttings? Yes \_\_\_\_\_ No X

If so, please describe anticipated pit waste: \_\_\_\_\_

Will a synthetic liner be used in the pit? Yes \_\_\_\_\_ No X If so, what ml.? \_\_\_\_\_

Proposed Disposal Method For Treated Pit Wastes:

- \_\_\_\_\_ Land Application
- \_\_\_\_\_ Underground Injection ( UIC Permit Number \_\_\_\_\_ )
- \_\_\_\_\_ Reuse (at API Number \_\_\_\_\_ )
- \_\_\_\_\_ Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain No treated pit wastes will be produced)

Will closed loop system be used? N/A

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. no drilling proposed

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

Additives to be used in drilling medium? N/A

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. No cuttings produced during plugging operation

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

-Landfill or offsite name/permit number? \_\_\_\_\_

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 Kenneth L. Marcum

Company Official (Typed Name) Kenneth L. Marcum

Company Official Title Regulatory Supervisor

Subscribed and sworn before me this 7th day of January, 20 ~~14~~ 2015

Constance C. Carden

COMMONWEALTH OF PENNSYLVANIA  
Notary Seal  
Constance C. Carden, Notary Public  
McDonald Boro, Washington County  
My Commission Expires Nov. 16, 2017  
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

My commission expires 11/16/2017

Form WW-9

Operator's Well No. Bowers #23

Proposed Revegetation Treatment: Acres Disturbed 0.18 Prevegetation pH 6.5

Lime 2 Tons/acre or to correct to pH 6.5

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

Mulch Pulp Fiber at 1000 to 1500 Tons/acre

Seed Mixtures

Area I			Area II		
Seed Type		lbs/acre	Seed Type		lbs/acre
Grain Rye - 100	Red Clover - 5	Fescue - 40	Grain Rye - 100	Red Clover - 5	Fescue - 40
Annual Rye - 20	White Clover - 5		Annual Rye - 20	White Clover - 5	
Perennial Rye - 10	Alta Sweet Clover - 5		Perennial Rye - 1	Alta Sweet Clover - 5	
Yellow Clover - 5	Birdsfoot Trefoil - 10		Yellow Clover - 5	Birdsfoot Trefoil	

Attach:  
 Drawing(s) of road, location, pit and proposed area for land application.  
 Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: \_\_\_\_\_

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

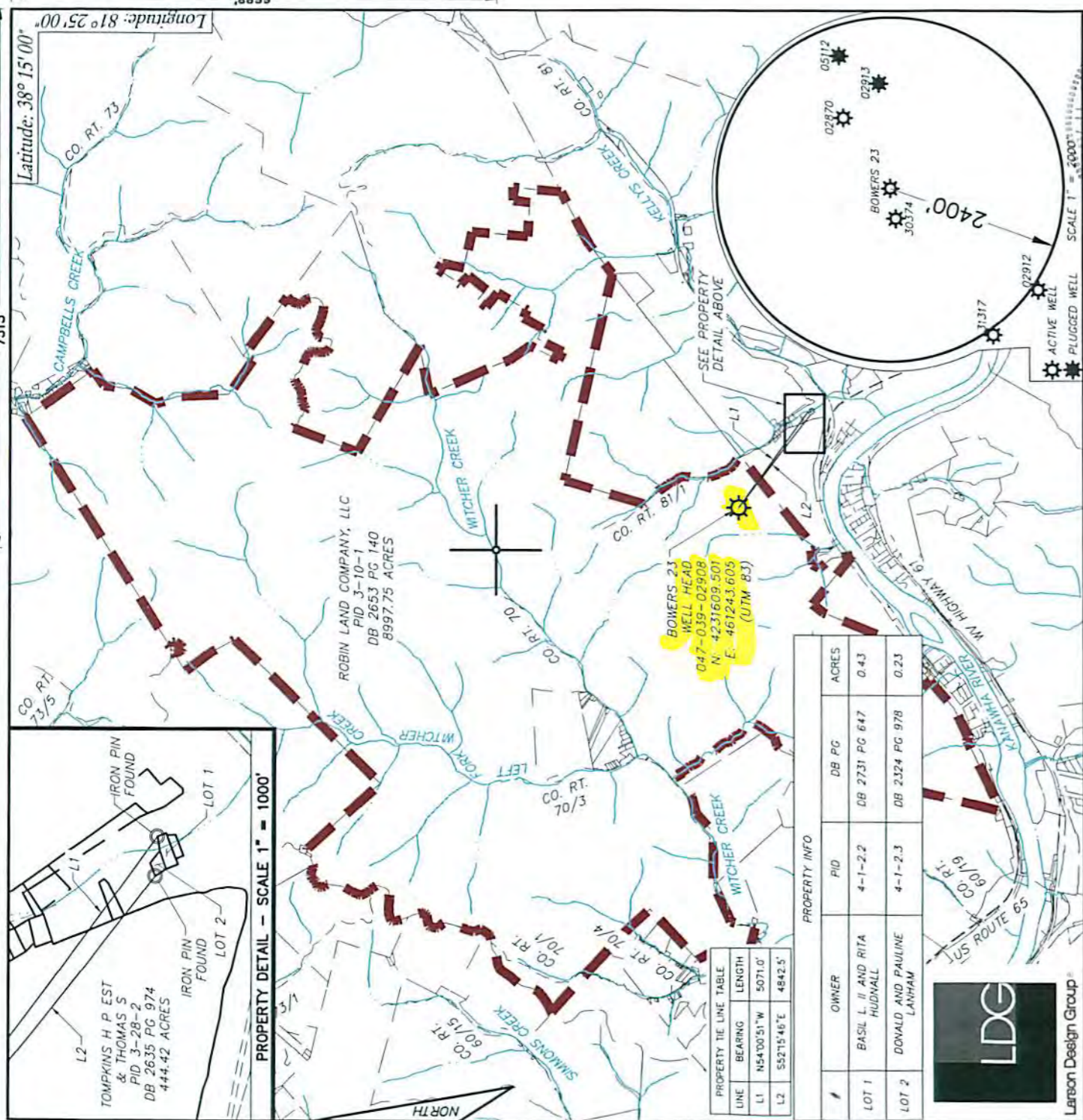
\_\_\_\_\_

Title: Inspect DeleGas Date: 1-13-15

Field Reviewed?  Yes  No



3902908P



Latitude: 38° 15' 00"

Longitude: 81° 25' 00"

PROPERTY DETAIL - SCALE 1" = 1000'

TOMPKINS H P EST  
& THOMAS S  
PID 3-28-2  
DB 2635 PG 974  
444.42 ACRES

IRON PIN FOUND

LOT 2

LOT 1

PROPERTY DETAIL - SCALE 1" = 1000'

ROBIN LAND COMPANY, LLC  
PID 3-10-1  
DB 2653 PG 140  
8997.75 ACRES

LINE	BEARING	LENGTH
L1	N54°00'51"W	5071.0'
L2	S52°15'46"E	4842.5'

PROPERTY INFO			
#	OWNER	PID	DB PG ACRES
LOT 1	BASIL L II AND RITA HUDNALL	4-1-2.2	DB 2731 PG 647 0.43
LOT 2	DONALD AND PAULINE LANHAM	4-1-2.3	DB 2324 PG 978 0.23



BOWERS 23  
WELL HEAD  
N- 4231609.501  
E- 461243.605  
(UTM 85)

SEE PROPERTY DETAIL ABOVE

L1

L2

02912

02913

02970

05112

30374

31317

2400'

ACTIVE WELL

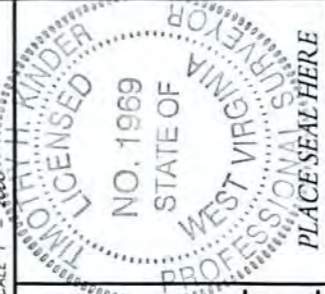
PLUGGED WELL

SCALE 1" = 5000'

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: *Shelby H. Lee*

R.P.E.: L.L.S.:1969



FILE #: 8744-013  
DRAWING #: 1  
SCALE: 1" = 5000'  
MINIMUM DEGREE OF ACCURACY: 1" in 2500'  
PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
WVDEP  
OFFICE OF OIL & GAS  
601 57TH STREET  
CHARLESTON, WV 25304



DATE: JUNE 19, 2014

OPERATOR'S WELL #: BOWERS 23 S-646

API WELL #: 47 039 02908

STATE COUNTY Receiver PERMIT  
Office of Oil & Gas

JAN 13 2015

ELEVATION: 1400'

QUADRANGLE: JULIAN

ACREAGE: 8,997.75

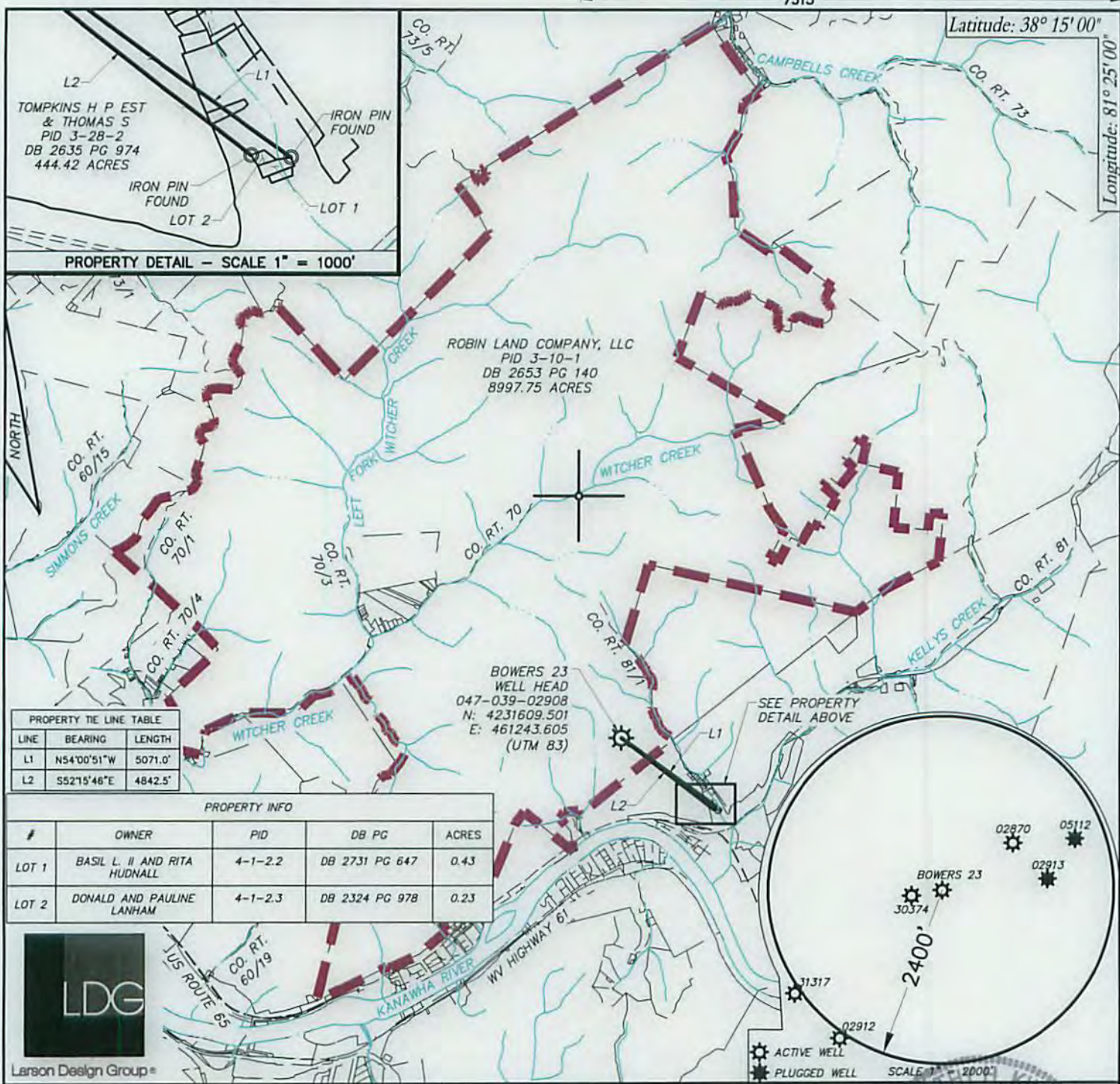
ACREAGE: 1,532

OIL & GAS ROYALTY OWNER: WILLIAM BOWERS ESTATE (47-0618)  
 DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
 CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY):

TARGET FORMATION: WEIR  
ESTIMATED DEPTH: 2375' - 2550'

WELL OPERATOR CABOT OIL & GAS CORPORATION  
Address FIVE PENN CENTER WEST, SUITE 401  
City PITTSBURGH State PA Zip Code 15276

DESIGNATED AGENT WHITNEY JOHNSON  
Address CABOT OIL & GAS CORPORATION, P.O. BOX 450  
City GLASGOW State WV Zip Code 25086



PROPERTY TIE LINE TABLE

LINE	BEARING	LENGTH
L1	N54°00'51"W	5071.0'
L2	S52°15'46"E	4842.5'

PROPERTY INFO

#	OWNER	PID	DB PG	ACRES
LOT 1	BASIL L. II AND RITA HUDNALL	4-1-2.2	DB 2731 PG 647	0.43
LOT 2	DONALD AND PAULINE LANHAM	4-1-2.3	DB 2324 PG 978	0.23



FILE #: 8744-013  
 DRAWING #: 1  
 SCALE: 1" = 5000'  
 MINIMUM DEGREE OF ACCURACY: 1" in 2500'  
 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS

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.: \_\_\_\_\_ L.L.S.: 1969



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP  
 OFFICE OF OIL & GAS  
 601 57TH STREET  
 CHARLESTON, WV 25304



DATE: JUNE 19, 2014  
 OPERATOR'S WELL #: BOWERS 23 S-646  
 API WELL #: 47 039 02908 P  
 STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: KANAWHA RIVER ELEVATION: 1400'  
 COUNTY/DISTRICT: KANAWHA / CABIN CREEK QUADRANGLE: JULIAN

SURFACE OWNER: ROBIN LAND COMPANY, LLC ACREAGE: 8,997.75  
 OIL & GAS ROYALTY OWNER: WILLIAM BOWERS ESTATE (47-0618) ACREAGE: 1,532 **02/27/2015**

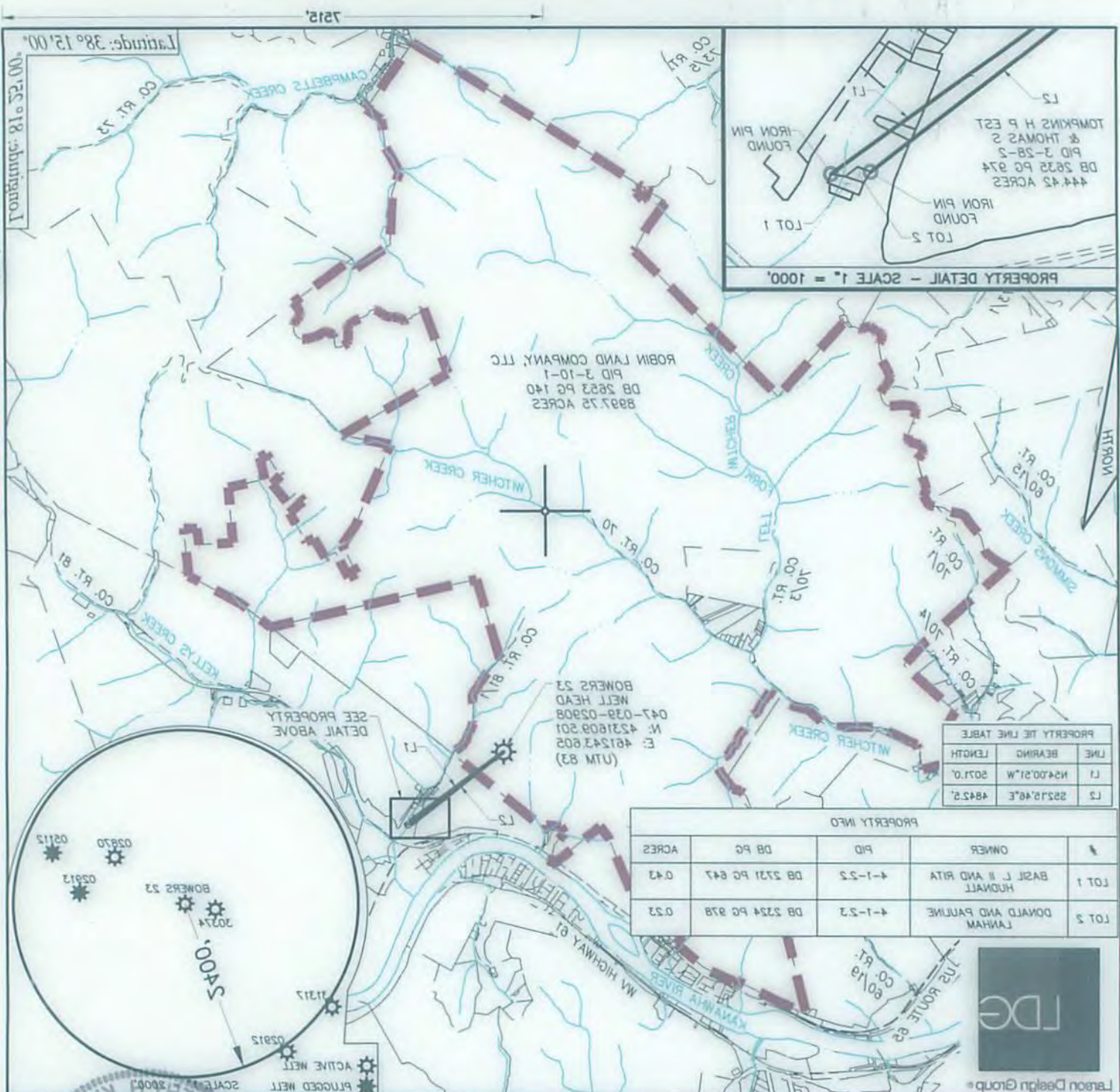
DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
 CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_

TARGET FORMATION: WEIR ESTIMATED DEPTH: 2375' - 2550'

WELL OPERATOR CABOT OIL & GAS CORPORATION  
 Address FIVE PENN CENTER WEST, SUITE 401  
 City PITTSBURGH State PA Zip Code 15276

DESIGNATED AGENT WHITNEY JOHNSON  
 Address CABOT OIL & GAS CORPORATION, P.O. BOX 450  
 City GLASGOW State WV Zip Code 25086

FORM WV-6



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

STATE OF WEST VIRGINIA  
 LICENSED SURVEYOR  
 NO. 1988  
 PROFESSIONAL SURVEYOR

PLATE SEAL HERE

R.P.E.: \_\_\_\_\_  
 L.L.S.: \_\_\_\_\_

OF ELEVATION: SURVEY GRADE GPS  
 PROVEN SOURCE  
 OF ACCURACY: 1" in 2500'  
 MINIMUM DEGREE  
 SCALE: 1" = 5000'  
 DRAWING #: 1  
 FILE #: 8744-013

DATE: JUNE 19, 2014  
 OPERATOR'S WELL #: BOWERS 23 2-646  
 API WELL #: 47 039 02908 4  
 STATE COUNTY PERMIT

WELL OPERATOR CABOT OIL & GAS CORPORATION  
 Address FIVE PENN CENTER WEST, SUITE 401  
 City PITTSBURGH State PA Zip Code 15278

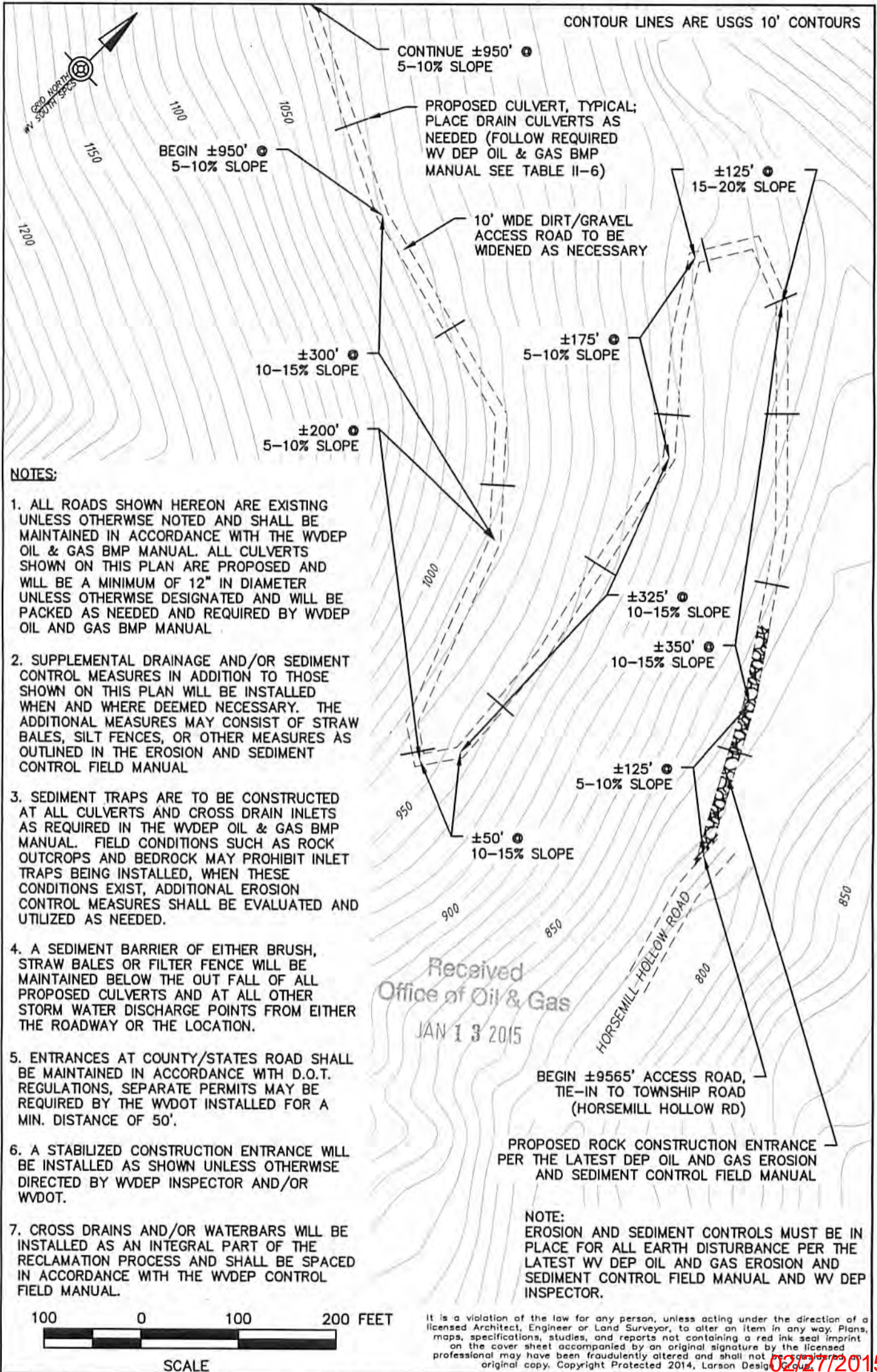
DESIGNATED AGENT WHITNEY JOHNSON  
 Address CABOT OIL & GAS CORPORATION, P.O. BOX 450  
 City GLASGOW State WV Zip Code 25086

TARGET FORMATION: WEIR  
 ESTIMATED DEPTH: 2375' - 2550'  
 CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_  
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
 DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 OIL & GAS ROYALTY OWNER: WILLIAM BOWERS ESTATE (47-0618) ACREAGE: 1.232  
 SURFACE OWNER: ROBIN LAND COMPANY, LLC ACREAGE: 8.9275  
 COUNTY/DISTRICT: KANAWHA \ CABIN CREEK  
 WATERSHED: KANAWHA RIVER  
 ELEVATION: 1400'

WELL TYPE:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

CHARLESTON, WV 25304  
 601 57TH STREET  
 OFFICE OF OIL & GAS  
 WADSWORTH  
 UNITED STATES TOPOGRAPHIC MAPS  
 (+) DENOTES LOCATION OF WELL ON



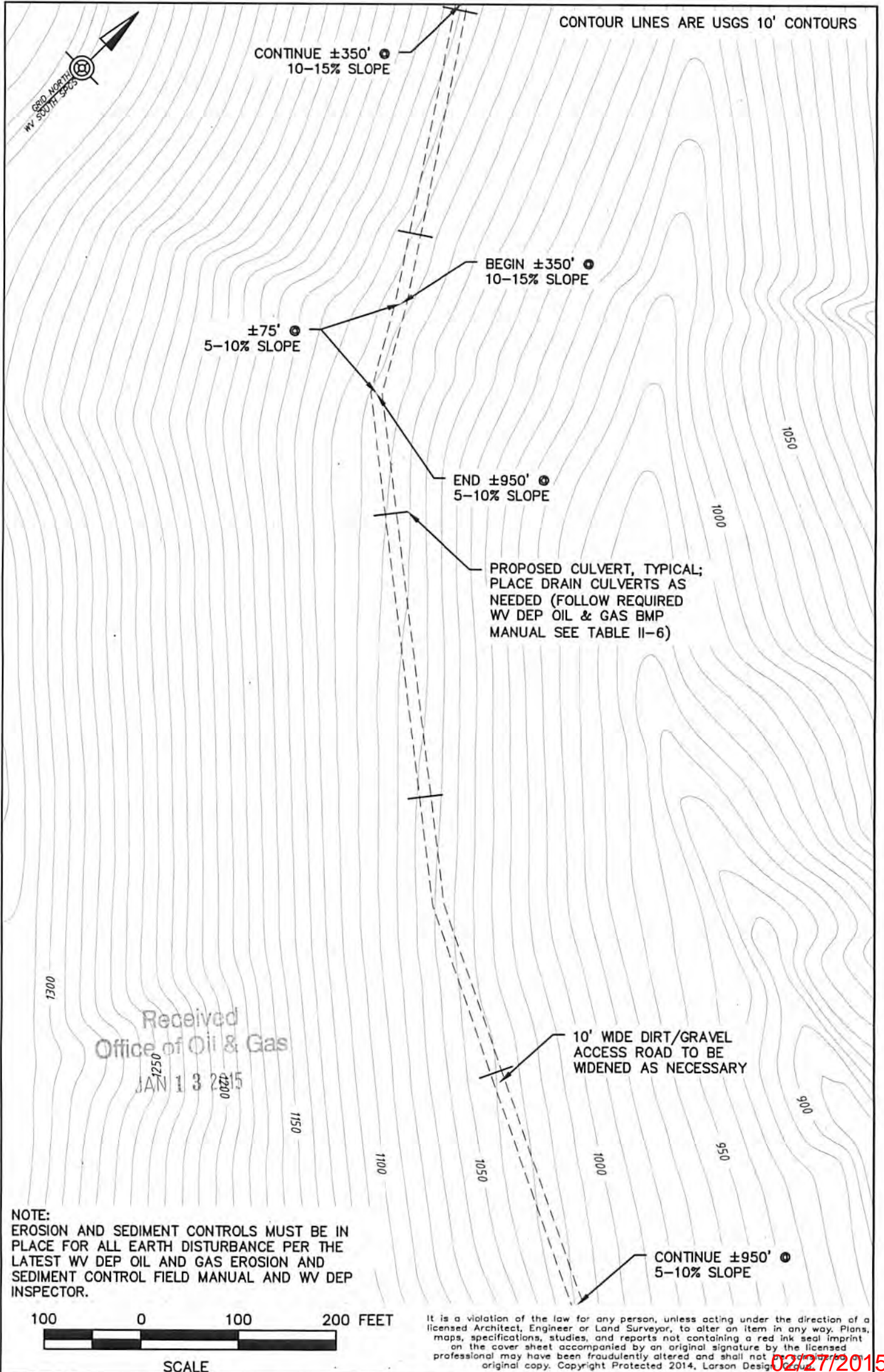


**NOTES:**

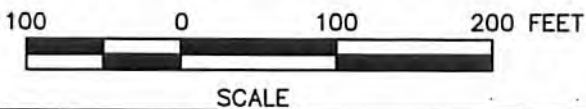
1. ALL ROADS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH THE WVDEP OIL & GAS BMP MANUAL. ALL CULVERTS SHOWN ON THIS PLAN ARE PROPOSED AND WILL BE A MINIMUM OF 12" IN DIAMETER UNLESS OTHERWISE DESIGNATED AND WILL BE PACKED AS NEEDED AND REQUIRED BY WVDEP OIL AND GAS BMP MANUAL.
2. SUPPLEMENTAL DRAINAGE AND/OR SEDIMENT CONTROL MEASURES IN ADDITION TO THOSE SHOWN ON THIS PLAN WILL BE INSTALLED WHEN AND WHERE DEEMED NECESSARY. THE ADDITIONAL MEASURES MAY CONSIST OF STRAW BALES, SILT FENCES, OR OTHER MEASURES AS OUTLINED IN THE EROSION AND SEDIMENT CONTROL FIELD MANUAL.
3. SEDIMENT TRAPS ARE TO BE CONSTRUCTED AT ALL CULVERTS AND CROSS DRAIN INLETS AS REQUIRED IN THE WVDEP OIL & GAS BMP MANUAL. FIELD CONDITIONS SUCH AS ROCK OUTCROPS AND BEDROCK MAY PROHIBIT INLET TRAPS BEING INSTALLED, WHEN THESE CONDITIONS EXIST, ADDITIONAL EROSION CONTROL MEASURES SHALL BE EVALUATED AND UTILIZED AS NEEDED.
4. A SEDIMENT BARRIER OF EITHER BRUSH, STRAW BALES OR FILTER FENCE WILL BE MAINTAINED BELOW THE OUT FALL OF ALL PROPOSED CULVERTS AND AT ALL OTHER STORM WATER DISCHARGE POINTS FROM EITHER THE ROADWAY OR THE LOCATION.
5. ENTRANCES AT COUNTY/STATES ROAD SHALL BE MAINTAINED IN ACCORDANCE WITH D.O.T. REGULATIONS, SEPARATE PERMITS MAY BE REQUIRED BY THE WVDOT INSTALLED FOR A MIN. DISTANCE OF 50'.
6. A STABILIZED CONSTRUCTION ENTRANCE WILL BE INSTALLED AS SHOWN UNLESS OTHERWISE DIRECTED BY WVDEP INSPECTOR AND/OR WVDOT.
7. CROSS DRAINS AND/OR WATERBARS WILL BE INSTALLED AS AN INTEGRAL PART OF THE RECLAMATION PROCESS AND SHALL BE SPACED IN ACCORDANCE WITH THE WVDEP CONTROL FIELD MANUAL.

PROJECT NO.: 8744-014	SHEET NO.: 1 of 8	<h3 style="margin: 0;">RECLAMATION PLAN</h3> <h3 style="margin: 0;">BOWERS 23</h3> <p style="margin: 0;">CABIN CREEK DISTRICT, KANAWHA COUNTY, WEST VIRGINIA</p>	<p style="font-size: small;">Larson Design Group</p>
CABOT OIL & GAS CORPORATION FIVE PENN CENTER WEST, SUITE 401 PITTSBURGH, PA 15276-0130 PHONE (304) 595-5015 DATE: 4/3/14 DRAWN BY: JCW CHECKED BY: THK		Larson Design Group • Architects Engineers Surveyors 2502 Cranberry Square Morgantown, WV 26508 PHONE 304.777.2940 TOLL FREE 877.323.6603 FAX 570.323.9902 • www.larsondesigngroup.com	

02/27/2015



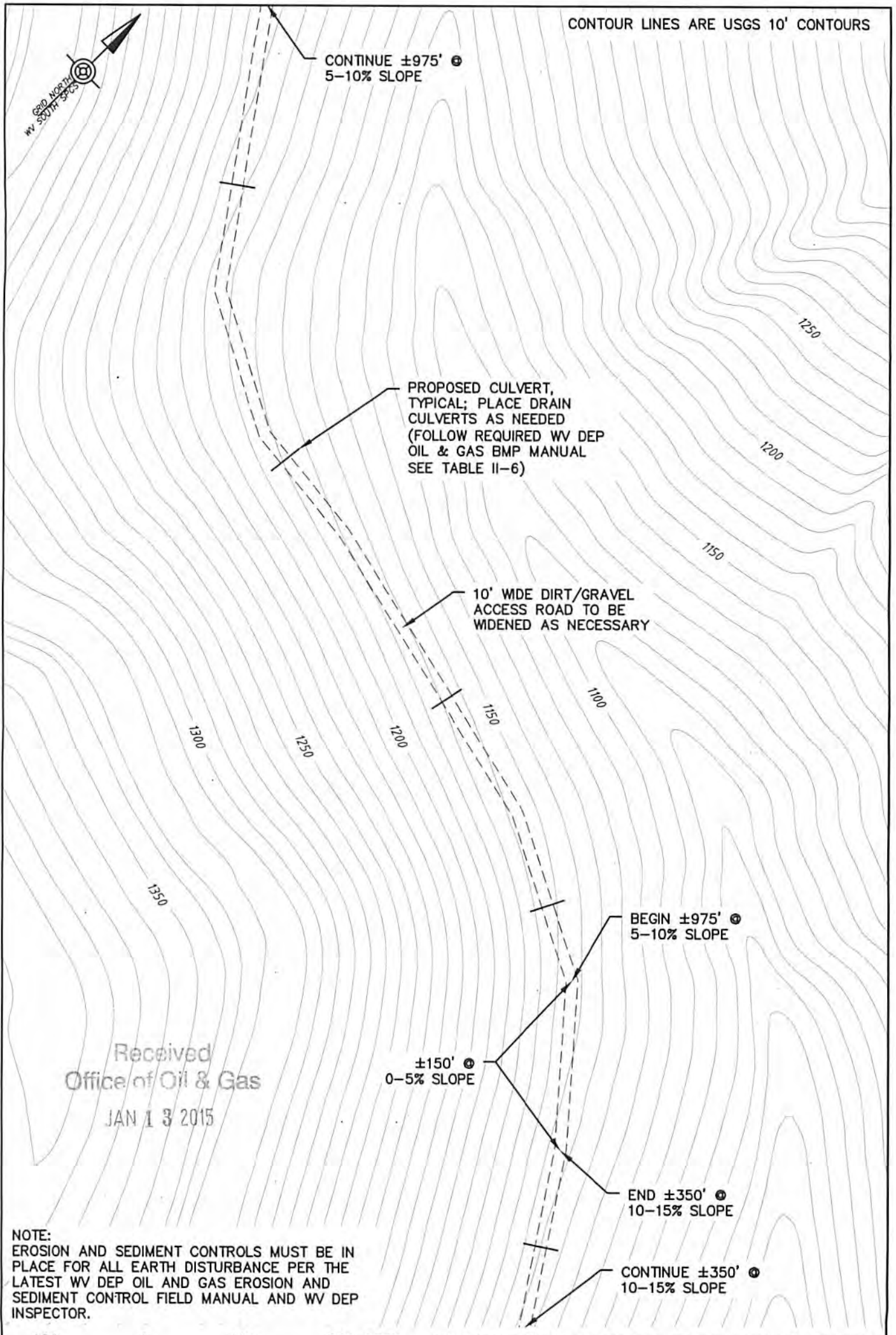
NOTE:  
 EROSION AND SEDIMENT CONTROLS MUST BE IN PLACE FOR ALL EARTH DISTURBANCE PER THE LATEST WV DEP OIL AND GAS EROSION AND SEDIMENT CONTROL FIELD MANUAL AND WV DEP INSPECTOR.



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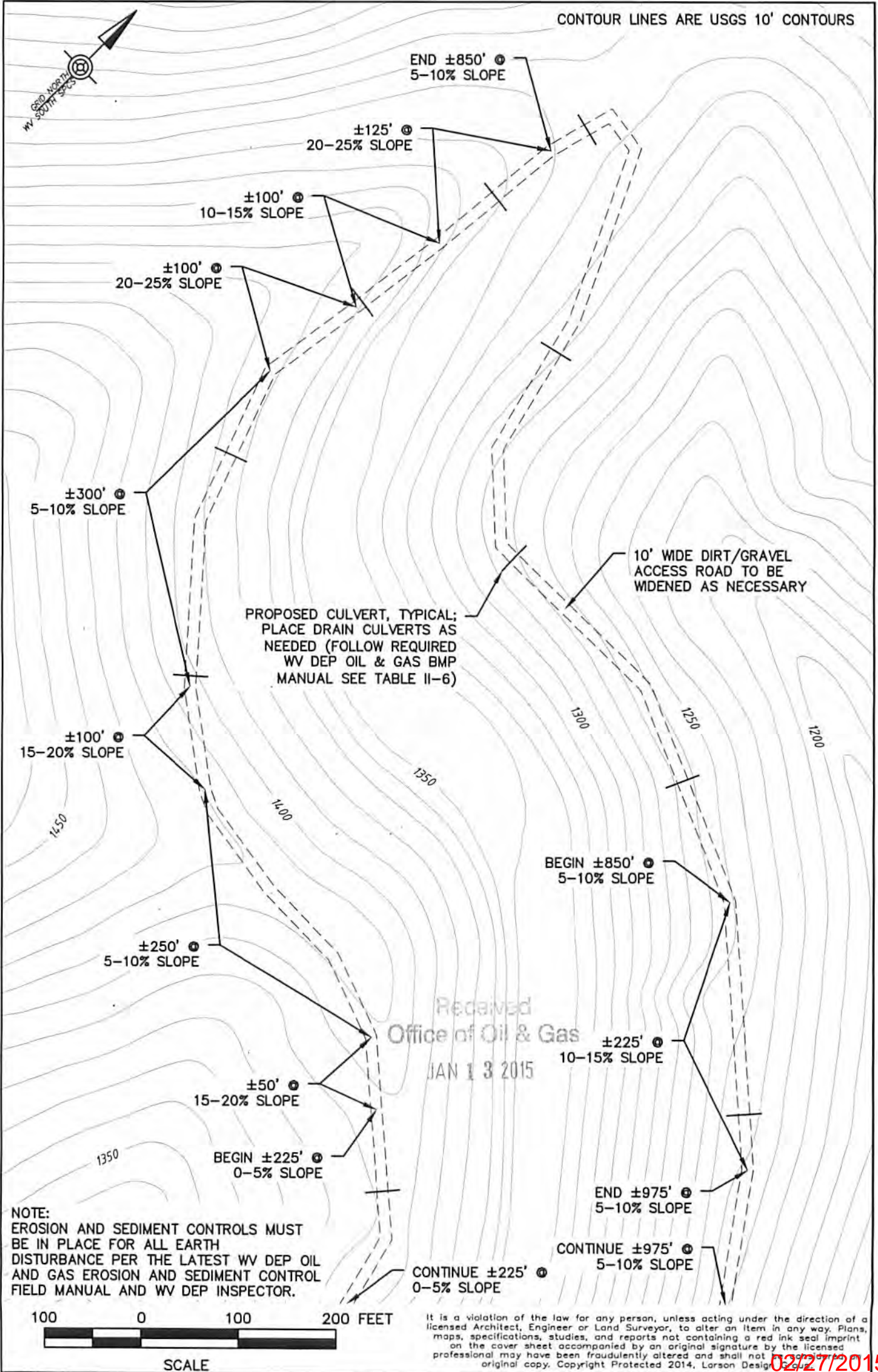
02/27/2015

PROJECT NO.: 8744-014	SHEET NO.: 2 of 8	<b>RECLAMATION PLAN BOWERS 23</b>		
		CABIN CREEK DISTRICT, KANAWHA COUNTY, WEST VIRGINIA		
CABOT OIL & GAS CORPORATION FIVE PENN CENTER WEST, SUITE 401 PITTSBURGH, PA 15276-0130 PHONE (304) 595-5015 DATE: 4/3/14 DRAWN BY: JCW CHECKED BY: THK		Larson Design Group • Architects Engineers Surveyors 2502 Cranberry Square Morgantown, WV 26508 PHONE 304.777.2940 TOLL FREE 877.323.6603 FAX 570.323.9902 • www.larsondesigngroup.com		



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PROJECT NO: 8744-014	SHEET NO: 3 of 8	<b>RECLAMATION PLAN BOWERS 23</b>		
		CABIN CREEK DISTRICT, KANAWHA COUNTY, WEST VIRGINIA		
CABOT OIL & GAS CORPORATION FIVE PENN CENTER WEST, SUITE 401 PITTSBURGH, PA 15276-0130 PHONE (304) 595-5015 DATE: 4/3/14 DRAWN BY: JCW CHECKED BY: THK		Larson Design Group • Architects Engineers Surveyors 2502 Cranberry Square Morgantown, WV 26508 PHONE 304.777.2940 TOLL FREE 877.323.6603 FAX 570.323.9902 • www.larsondesigngroup.com		Larson Design Group®



PROJECT NO.: 8744-014	SHEET NO.: 4 of 8	<b>RECLAMATION PLAN BOWERS 23</b>	
		CABIN CREEK DISTRICT, KANAWHA COUNTY, WEST VIRGINIA	
CABOT OIL & GAS CORPORATION FIVE PENN CENTER WEST, SUITE 401 PITTSBURGH, PA 15276-0130 PHONE (304) 595-5015 DATE: 4/3/14 DRAWN BY: JCW CHECKED BY: THK		Larson Design Group • Architects Engineers Surveyors 2502 Cranberry Square Morgantown, WV 26508 PHONE 304.777.2940 TOLL FREE 877.323.6603 FAX 570.323.9902 • www.larsondesigngroup.com	



CONTOUR LINES ARE USGS 10' CONTOURS



CONTINUE ±225' 0-5% SLOPE

END ±225' 0-5% SLOPE

±50' 5-10% SLOPE

±225' 0-5% SLOPE

PROPOSED CULVERT, TYPICAL;  
PLACE DRAIN CULVERTS AS  
NEEDED (FOLLOW REQUIRED  
WV DEP OIL & GAS BMP  
MANUAL SEE TABLE II-6)

±100' 5-10% SLOPE

10' WDE DIRT/GRAVEL  
ACCESS ROAD TO BE  
WIDENED AS NECESSARY

±150' 0-5% SLOPE

±75' 15-20% SLOPE

±100' 0-5% SLOPE

±75' 10-15% SLOPE

BEGIN ±350' 0-5% SLOPE

CONTINUE ±350' 0-5% SLOPE

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Office of Oil & Gas  
JAN 13 2015

NOTE:  
EROSION AND SEDIMENT CONTROLS MUST BE IN  
PLACE FOR ALL EARTH DISTURBANCE PER THE  
LATEST WV DEP OIL AND GAS EROSION AND  
SEDIMENT CONTROL FIELD MANUAL AND WV DEP  
INSPECTOR.



SCALE

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### RECLAMATION PLAN BOWERS 23

CABIN CREEK DISTRICT, KANAWHA COUNTY, WEST VIRGINIA

CABOT OIL & GAS CORPORATION  
FIVE PENN CENTER WEST, SUITE 401  
PITTSBURGH, PA 15276-0130  
PHONE (304) 595-5015  
DATE: 4/3/14 DRAWN BY: JCW CHECKED BY: THK

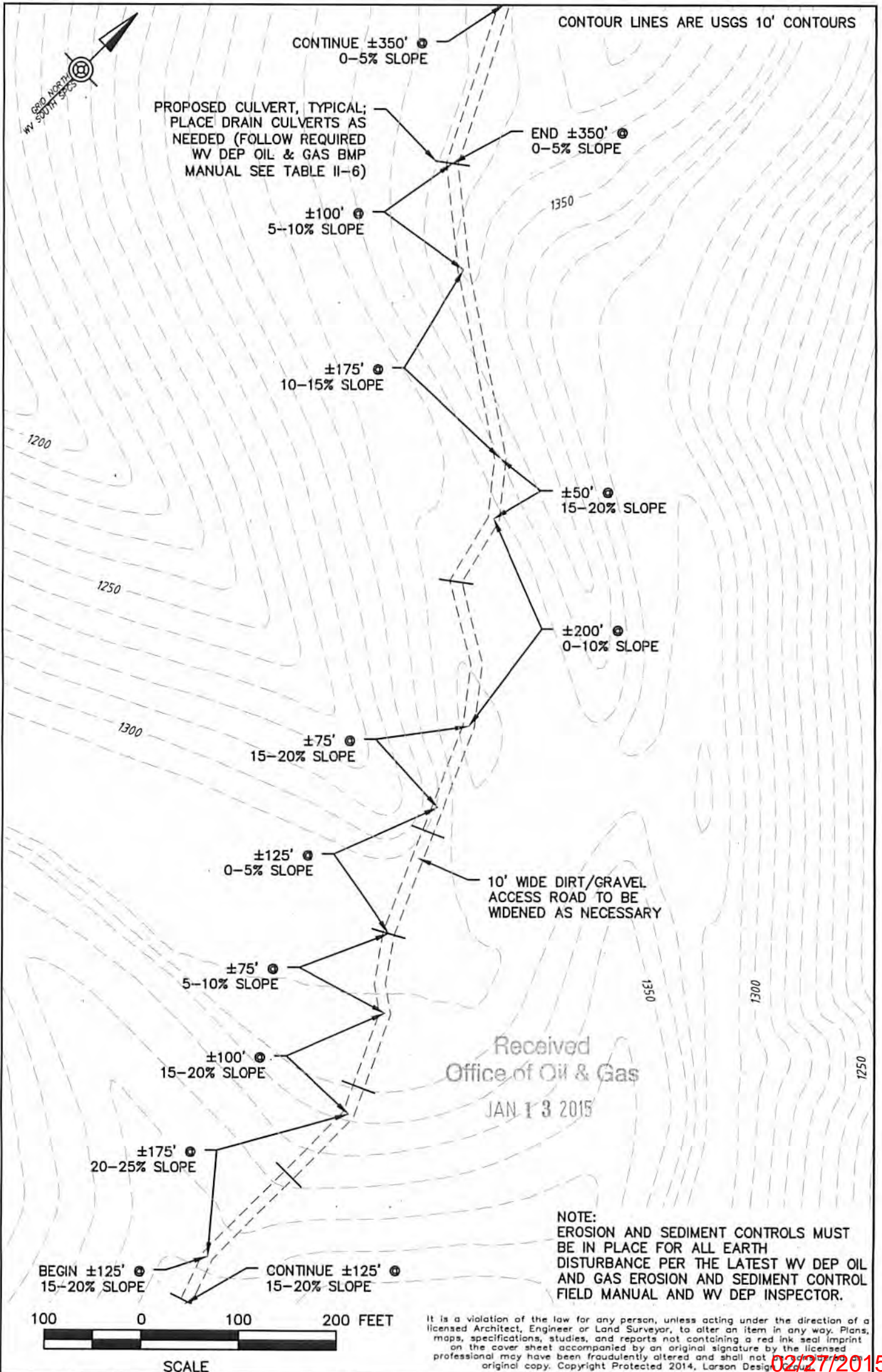
Larson Design Group • Architects Engineers Surveyors  
2502 Cranberry Square  
Morgantown, WV 26508  
PHONE 304.777.2940 TOLL FREE 877.323.6603  
FAX 570.323.9902 • www.larsondesigngroup.com



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PROJECT NO.:  
8744-014

SHEET NO.:  
5 of 8



02/27/2015

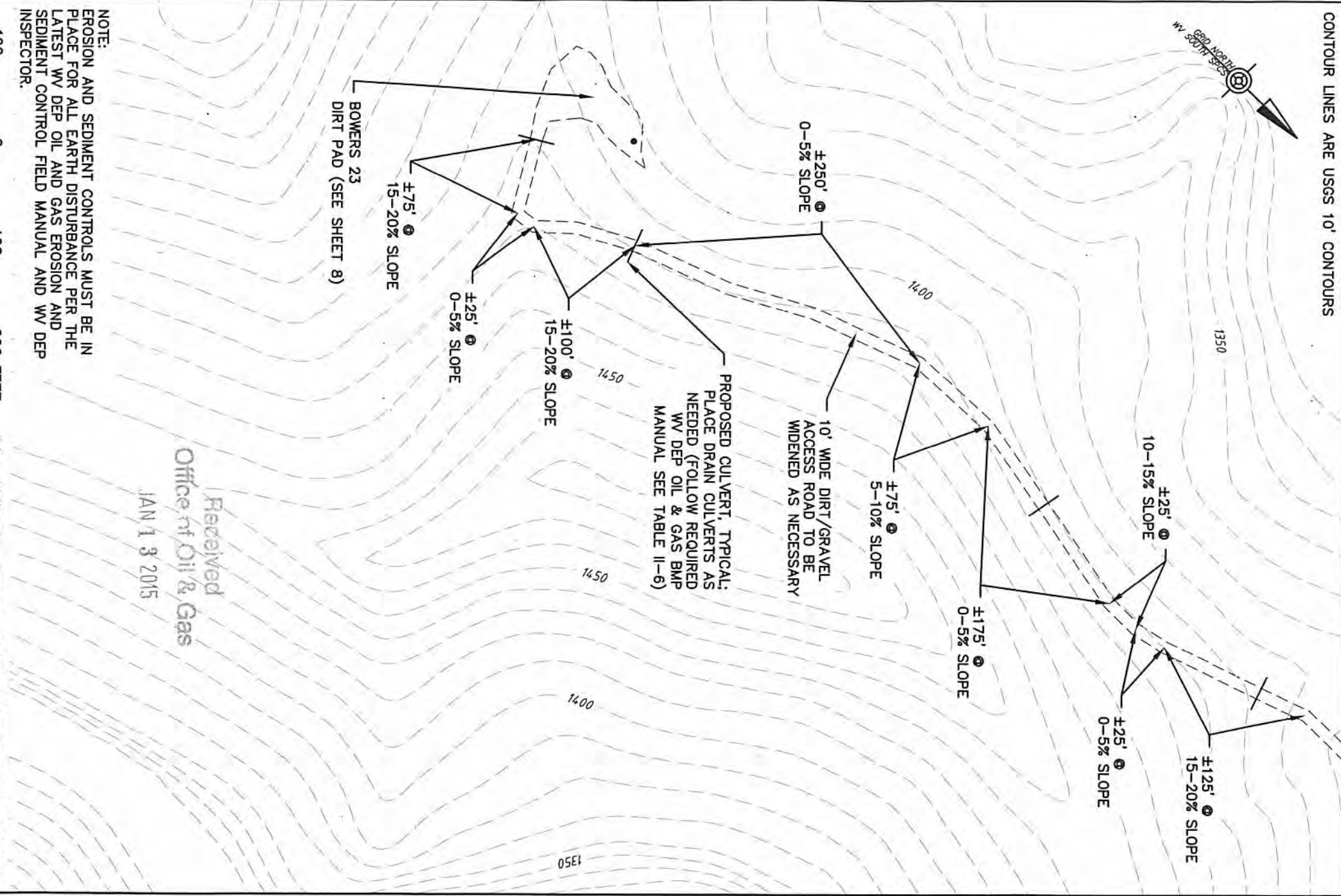
PROJECT NO.: 8744-014	SHEET NO.: 6 of 8	<b>RECLAMATION PLAN BOWERS 23</b>	
		CABIN CREEK DISTRICT, KANAWHA COUNTY, WEST VIRGINIA	
CABOT OIL & GAS CORPORATION FIVE PENN CENTER WEST, SUITE 401 PITTSBURGH, PA 15276-0130 PHONE (304) 595-5015 DATE: 4/3/14 DRAWN BY: JCW CHECKED BY: THK		Larson Design Group • Architects Engineers Surveyors 2502 Cranberry Square Morgantown, WV 26508 PHONE 304.777.2940 TOLL FREE 877.323.6603 FAX 570.323.9902 • www.larsondesigngroup.com	



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 Office of Oil & Gas  
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# RECLAMATION PLAN BOWERS 23

CABIN CREEK DISTRICT, KANAWHA COUNTY, WEST VIRGINIA

<b>CABOT OIL &amp; GAS CORPORATION</b> FIVE PENN CENTER WEST, SUITE 401 PITTSBURGH, PA 15276-0130 PHONE (304) 595-5015 DATE: 4/3/14 DRAWN BY: JCW CHECKED BY: THK	<b>Larson Design Group • Architects Engineers Surveyors</b> 2502 Cranberry Square Morgantown, WV 26508 PHONE 304.777.2940 TOLL FREE 877.323.6603 FAX 570.323.9902 • www.larsondesigngroup.com
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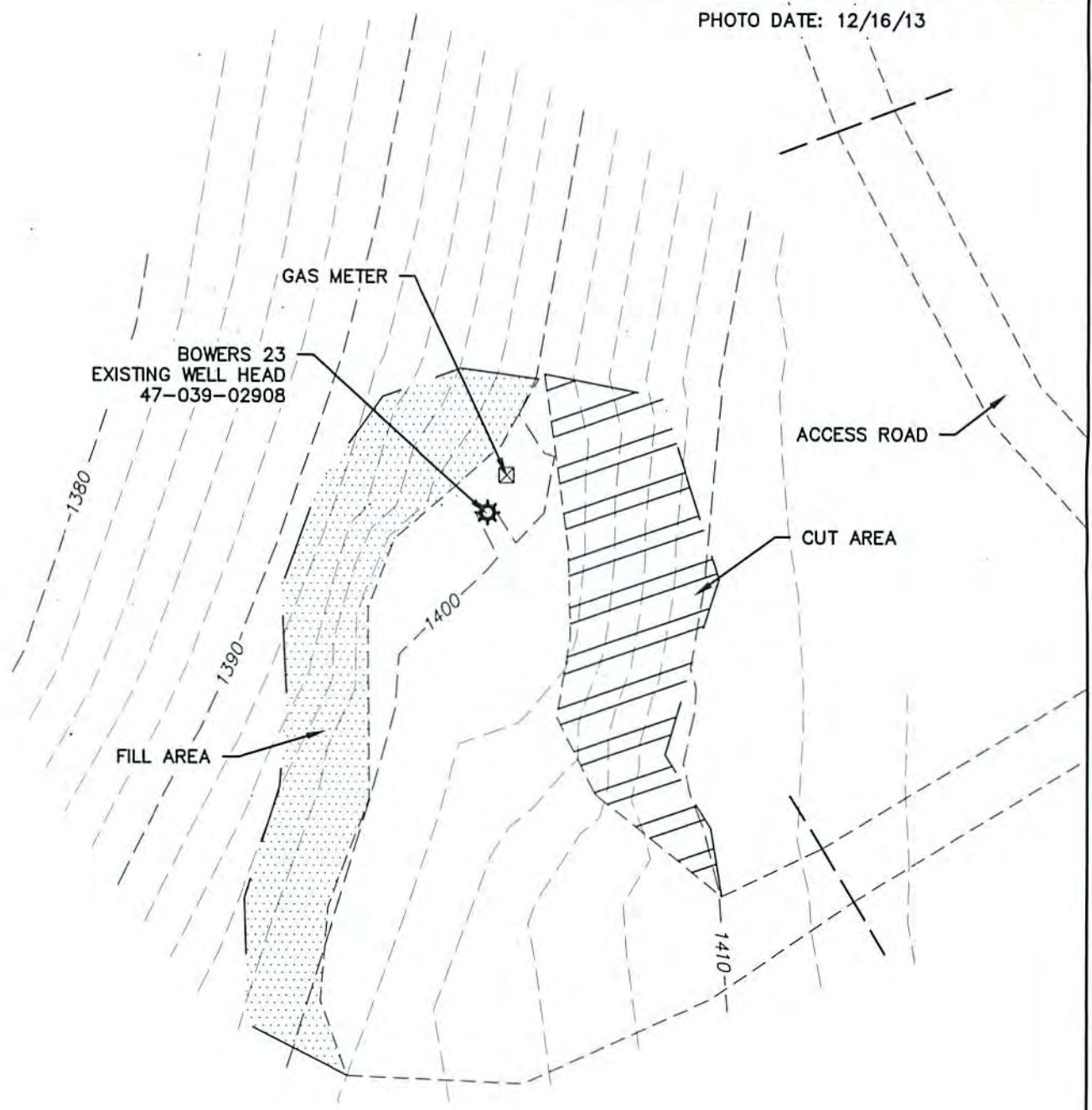


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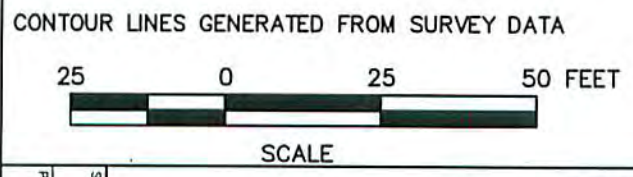
PROJECT NO.: 8744-014  
 SHEET NO.: 7 of 8



EXISTING BOWERS 23 WELL HEAD  
PHOTO DATE: 12/16/13



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PROJECT NO.: 8744-014  
SHEET NO.: 8 of 8

**RECLAMATION PLAN  
BOWERS 23**  
CABIN CREEK DISTRICT, KANAWHA COUNTY, WEST VIRGINIA

<b>CABOT OIL &amp; GAS CORPORATION</b> FIVE PENN CENTER WEST, SUITE 401 PITTSBURGH, PA 15276-0130 PHONE (304) 595-5015 DATE: 4/3/14 DRAWN BY: JCW CHECKED BY: THK	<b>Larson Design Group</b> • Architects Engineers Surveyors 2502 Cranberry Square Morgantown, WV 26508 PHONE 304.777.2940 TOLL FREE 877.323.6603 FAX 570.323.9902 • www.larsondesigngroup.com
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January 7, 2015

Chief  
West Virginia Division of Environmental Protection  
Office of Oil & Gas  
601 57<sup>th</sup> Street  
Charleston, WV 25304

RE: William Bowers #23 (S-646)  
Cabin Creek District, Kanawha County, WV  
API # 47-039-02908  
Written Application to plug and abandon wellbore

Dear Chief:

In accordance with Article 22-6-23 of the Code of State Regulations regarding oil and gas operations, please find attached a formal application for the plug and abandonment of the subject well.

Notices of our intention to plug this wellbore have been sent to surface owner, coal owner, 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, I can be reached at 412-249-3850.

Sincerely,



Kenneth L. Marcum  
Regulatory Supervisor

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Office of Oil & Gas  
JAN 13 2015