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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

May 21, 2014

**WELL WORK PERMIT**  
**Horizontal 6A Well**

This permit, API Well Number: 47-5101744, issued to NOBLE 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.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days 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.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-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) 926-0499 ext. 1654.

James Martin  
Chief

Operator's Well No: MND 6 BHS  
Farm Name: CONSOLIDATION COAL COMPA  
**API Well Number: 47-5101744**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 05/21/2014

**Promoting a healthy environment.**

**INSPECTORS PERMIT SUMMARY FORM**

GPS YES [ ] NO [ ]

DATE STARTED/LOCATION: \_\_\_\_\_ OPERATOR: NOBLE ENERGY, INC.  
 DRILLING COMMENCED: \_\_\_\_\_ FARM: CONSOLIDATION COAL COMPANY  
 TO DATE: \_\_\_\_\_ DEPTHS: \_\_\_\_\_ Well No: MND 6 BHS  
 WATER DEPTHS: \_\_\_\_\_ COAL DEPTHS \_\_\_\_\_

QUESTIONS FOR THIS REPORT ARE IN ACCORDANCE OF WV CODE 22-6-30 AND REGULATIONS 35CSR 4-12.1 AND 35CSR 4-16 AND THE GENERAL WATER POLLUTION CONTROL PERMIT.

**POINTS ARE TO BE GIVEN UP TO MAXIMUM AS SHOWN BASED ON PERFORMANCE.**

1. DID OPERATOR GIVE PROPER NOTICE TO INSPECTOR BEFORE THE FOLLOWING:
  - A. CONSTRUCTION YES [ ] NO [ ] (2\_PTS) (4\_PTS) \_\_\_\_\_
  - B. DRILLING YES [ ] NO [ ] (2\_PTS)
2. WAS THE TIMBER CUT, STACKED, AND BRUSH USED FOR SEDIMENT BARRIERS BEFORE DIRT WORK STARTED? YES [ ] NO [ ] (2\_PTS) (4\_PTS) \_\_\_\_\_
3. ARE ALL LOCATION AND/OR ROAD BANKS BEING SLOPED? YES [ ] NO [ ] (4\_PTS) (4\_PTS) \_\_\_\_\_
4. CONSTRUCTIONS:  
WERE THE FOLLOWING SEDIMENT CONTROL STRUCTURES PROPERLY INSTALLED/MAINTAINED?
 

A. ROAD DITCHES (1)_ (2)_ (3)_ (4)_ (PTS)	B. CROSS DRAINS (1)_ (2)_ (3)_ (4)_ (5)_ (PTS)
C. CULVERTS (1)_ (2)_ (3)_ (4)_ (5)_ (PTS)	D. CREEK CROSSINGS (1)_ (2)_ (3)_ (PTS)
E. DIVERSION DITCHES (1)_ (2)_ (3)_ (PTS)	F. BARRIERS (1)_ (2)_ (3)_ (PTS)
G. TEMPORARY SEEDING YES [ ] NO [ ] (10_PTS)	

**POINTS AVAILABLE FOR QUESTION 4: (33\_PTS) \_\_\_\_\_**

5. HAS TOP SOIL (IF ANY) BEEN STOCKED PILED? YES [ ] NO [ ] (2\_PTS) (2\_PTS) \_\_\_\_\_
6. IS THE PIT PROPERLY INSTALLED AND MAINTAINED? YES [ ] NO [ ] (9\_PTS) (9\_PTS) \_\_\_\_\_
7. RECLAMATION:
 

A. ROADWAY (1)_ (2)_ (3)_ (PTS)	B. LOCATION (1)_ (2)_ (3)_ (PTS)
C. PITS (1)_ (2)_ (3)_ (PTS)	D. PIPELINES (1)_ (2)_ (3)_ (PTS)
E. TANK DIKES (1)_ (2)_ (3)_ (PTS)	F. API INSTALLED YES [ ] NO [ ] (3_PTS)
G. ADEQUATE SEEDING MATERIALS (1)_ (2)_ (3)_ (PTS)	
H. WAS SEED BED ADEQUATE (1)_ (2)_ (3)_ (PTS)	

**POINTS AVAILABLE FOR QUESTION 7: (24\_PTS) \_\_\_\_\_**

8. WAS RECLAMATION COMPLETED WITHIN:  
6 MTHS OF TD 6\_PTS ONLY; 4 MTHS OF TD 12\_PTS ONLY; 2 MTHS OF TD 19\_PTS ONLY;

**POINTS AVAILABLE FOR QUESTION 8: (19\_PTS) \_\_\_\_\_**

**TOTAL MAXIMUM POSSIBLE SCORE OF 99.**

**TOTAL RECLAMATION SCORE: \_\_\_\_\_**

\_\_\_\_\_  
DATE RELEASED

\_\_\_\_\_  
INSPECTOR'S SIGNATURE

INSPECTIONS:

Lined area for recording inspection details.

## PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) 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. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. 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 § 22-6A-5a (12), 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.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov) within 30 days of commencement of drilling.

WW-9  
(9/13)

API Number 47 - \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. MND 6 BHS

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Noble Energy, Inc. OP Code 494501907

Watershed (HUC 10) Fish Creek Undefined (HUC 10) Quadrangle Powhatan Point

Elevation 721' Post Construction County Marshall District Franklin

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: Closed Loop-No pit will be utilized

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number \_\_\_\_\_ )
- Reuse (at API Number TBD-Next anticipated well)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

Will closed loop system be used? If so, describe: Yes

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air thru coal string, then SOBMs

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

Additives to be used in drilling medium? Please see attached

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

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

-Landfill or offsite name/permit number? Please see attached

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 Laura L. Adkins

Company Official (Typed Name) Laura Adkins

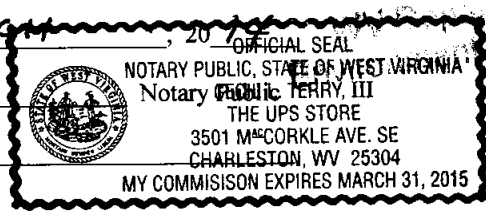
Company Official Title Regulatory Analyst

RECEIVED  
Office of Oil and Gas  
MAR 20 2014

Subscribed and sworn before me this 17 day of MARCH, 2014

\_\_\_\_\_  
[Signature]

My commission expires 3/31/2015



Department of Environmental Protection

4705101744

## Site Water/Cuttings Disposal

### Cuttings

#### Haul off Company:

Eap Industries, Inc. DOT # 0876278  
1575 Smith Twp State Rd. Atlasburg PA 15004  
1-888-294-5227

MAX Environmental Technologie  
233 Max Lane  
Yukon, PA 25698  
PAD004835146

#### Disposal Locations:

Apex Environmental, LLC Permit # 06-08438  
11 County Road 78  
Amsterdam, OH 43903  
740-543-4389

Westmoreland Waste, LLC Permit # 100277  
111 Conner Lane  
Belle Vernon, PA 15012  
724-929-7694

Sycamore Landfill (Allied Waste) R30-07900105-2010  
4301 Sycamore Ridge Road  
Hurricane, WV 25526  
304-562-2611

### Water

#### Haul off Company:

Dynamic Structures, Clear Creek DOT # 720485  
3790 State Route 7  
New Waterford, OH 44445  
330-892-0164

#### Disposal Location:

Solidification  
Waste Management, Arden Landfill Permit # 100172  
200 Rangos Lane  
Washington, PA 15301  
724-225-1589

Solidification/Incineration  
Soil Remediation, Inc. Permit # 02-20753  
6065 Arrel-Smith Road  
Lowelville, OH 44436

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Chemical List including CAS#'s

Type: Friction Reducer (DWP-612)  
Chemical Component as listed on MSDS: Long Chain Polyacrylamide  
CAS: N/A

Type: Biocide (DWP-944)  
1<sup>st</sup> Chemical Component as listed on MSDS: 2,2-Dibromo-3-nitrilopropionamide  
CAS: 10222-01-2  
2<sup>nd</sup> Chemical Component as listed on MSDS: Polyethylene Glycol Mixture  
CAS: 25322-68-3

Type: Scale Inhibitor (DAP-901)  
1<sup>st</sup> Chemical Component as listed on MSDS: Methanol  
CAS: 67-56-1  
2<sup>nd</sup> Chemical Component as listed on MSDS: Phosphoric Acid Ammonium Salt  
CAS: Trade Secret  
3<sup>rd</sup> Chemical Component as listed on MSDS: Ammonium Chloride  
CAS: 12125-02-9  
4<sup>th</sup> Chemical Component as listed on MSDS: Organic Phosphonate  
CAS: Trade Secret  
5<sup>th</sup> Chemical Component as listed on MSDS: Amine Salt  
CAS: Trade Secret  
6<sup>th</sup> Chemical Component as listed on MSDS: Oxyalkylated Polyamine  
CAS: Trade Secret

Type: Surfactant (DWP-938)  
Chemical Component as listed on MSDS: Soap  
CAS: N/A

Type: Hydrochloric Acid  
Chemical Component as listed on MSDS: Hydrochloric Acid  
CAS: 7647-01-0

Type: PA Breaker (DWP-690)  
Chemical Component as listed on MSDS: Hydrogen Peroxide  
CAS: Trade Secret

Type: Gel Slurry (DWP-111)  
Chemical Component as listed on MSDS: Viscosifier  
CAS: N/A

Type: Oxidizer Breaker (DWP-901)  
Chemical Component as listed on MSDS: Ammonium Persulfate  
CAS: 7727-54-0

Type: Buffer (DWP-204)  
Chemical Component as listed on MSDS: Formic Acid  
CAS: 64-18-6

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Form WW-9

Operator's Well No. MND 6 BHS

Noble Energy, Inc.

Proposed Revegetation Treatment: Acres Disturbed 9.6 acres Prevegetation pH \_\_\_\_\_

Lime 2 to 3 Tons/acre or to correct to pH \_\_\_\_\_

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Hay or straw at 2 Tons/acre

Seed Mixtures

**Temporary**

**Permanent**

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5
See site plans for full list	

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5
See site plans for full list	

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Jim Nicholson WVOOG State Inspector

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

Title: Oil & Gas Inspector

Date: 4/20/14

Field Reviewed? (  ) Yes (  ) No

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Office of Oil and Gas  
MAY 08 2014  
WV Department of  
Environmental Protection



4705101744



# Site Safety Plan

**Noble Energy, Inc.  
MND 6 BHS**

*JW 4/29/14*

**December 2013: Version 1**

**For Submission to  
West Virginia Department of Environmental  
Protection, Office of Oil and Gas**

**Noble Energy, Inc.  
Appalachia Offices  
333 Technology Drive, Suite 116  
Canonsburg, PA 15317-9504**

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**MND6 SITE SAFETY PLAN**  
- FLOODPLAIN ZONES -

X Access Road Extension	● Well Pit
--- Proposed Access Road	■ Proposed Unit
	■ Floodplain

0 750 1,500 3,000 Feet

Scale 1" = 1,500'

Projection: NAD\_1983\_StatePlane\_WestVirginia\_North\_FIPS\_4701  
Units: Feet US

**noble energy**

Disclaimer: All data is licensed for use by Noble Energy Inc. use only.

Date: 12/10/2013  
Author: Christopher Glover

2/6

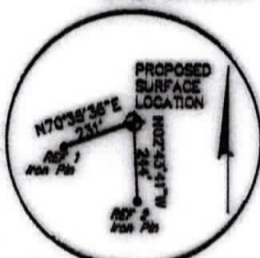
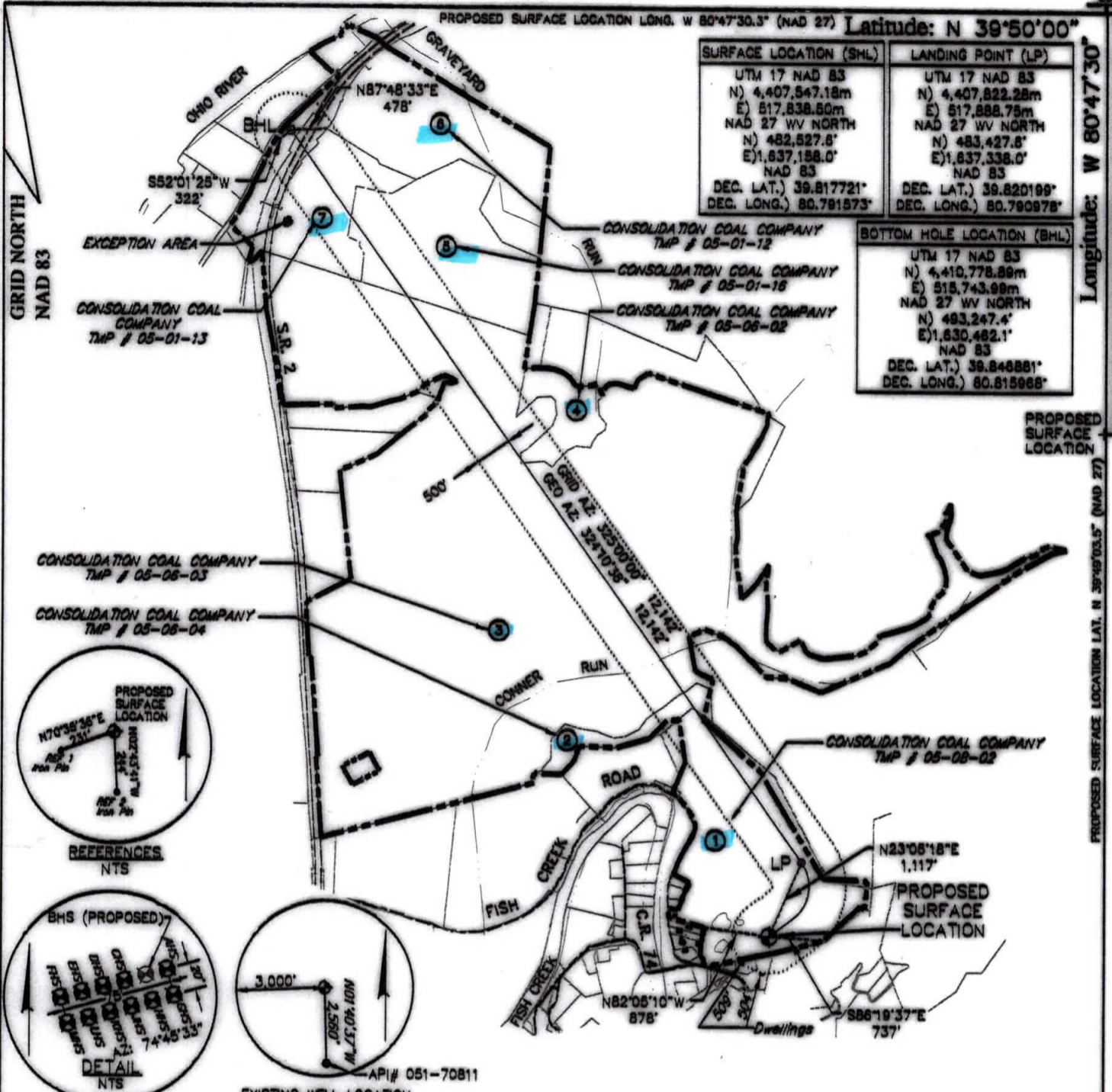
PROPOSED SURFACE LOCATION LONG. W 80°47'30.3" (NAD 27) Latitude: N 39°50'00"

GRID NORTH  
NAD 83

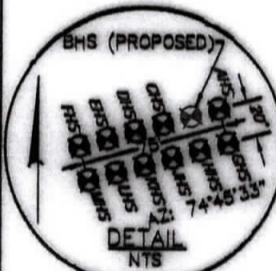
Longitude: W 80°47'30"

SURFACE LOCATION (SML)	LANDING POINT (LP)
UTM 17 NAD 83 N) 4,407,547.18m E) 517,838.60m NAD 27 WV NORTH N) 482,527.8' E) 1,637,158.0' NAD 83 DEC. LAT.) 39.817721° DEC. LONG.) 80.791573°	UTM 17 NAD 83 N) 4,407,822.28m E) 517,888.79m NAD 27 WV NORTH N) 483,427.8' E) 1,637,338.0' NAD 83 DEC. LAT.) 39.820169° DEC. LONG.) 80.790978°

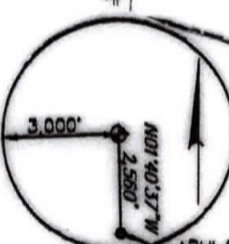
BOTTOM HOLE LOCATION (BHL)
UTM 17 NAD 83 N) 4,410,778.89m E) 515,743.98m NAD 27 WV NORTH N) 483,247.4' E) 1,630,462.1' NAD 83 DEC. LAT.) 39.846881° DEC. LONG.) 80.815968°



REFERENCES  
NTS



DETAIL  
NTS



EXISTING WELL LOCATION  
NTS

**GENERAL NOTES:**

1. THE LOCATION OF BOUNDARY LINES SHOWN HEREON ARE BASED ON RECORD DEED, PLATS, AND TAX MAPS BEST FIT TO FOUND FIELD EVIDENCE AND AERIAL PHOTOS, UNLESS OTHERWISE NOTED.
2. THIS PLAT DOES NOT REPRESENT AN ACTUAL BOUNDARY SURVEY OF THE INDIVIDUAL PARCELS.
3. THERE ARE NO EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF PROPOSED WELL.
4. PROPOSED WELL IS GREATER THAN 100' FROM PERENNIAL STREAM, WETLAND, POND, RESERVOIR OR LAKE.
5. THERE ARE NO NATIVE TROUT STREAMS WITHIN 300' OF PROPOSED WELL.
6. THERE ARE TWO DWELLINGS LOCATED WITHIN 650' OF PROPOSED WELLBORE.
7. THE SURROUNDING LANDS ARE BEING SERVED BY PUBLIC WATER BY THE GRAND VIEW DOOLIN WATER SYSTEM PROVIDED BY MARSHALL COUNTY PUBLIC HEALTH AND SANITATION DIVISION.

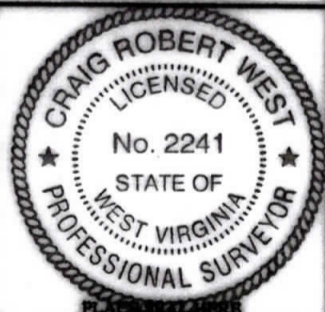
**LEGEND**

- PROPOSED GAS WELL
- PROPOSED BORE
- TIE LINE
- OIL & GAS LEASE BOUNDARY
- PROPERTY LINE
- STREAM LINE
- 500' SETBACK LINE

FILE #: 093842010  
 DRAWING #: 093842010\_SV-Plat  
 SCALE: PLAT & TICK: 1" = 2,000'  
 MINIMUM DEGREE OF ACCURACY: 1/200  
 PROVEN SOURCE OF ELEVATION: NOS (CORS)

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

SIGNED: *Craig Robert West*  
 R.P.E.: \_\_\_\_\_ L.L.S.: 2241



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



DATE: FEBRUARY 7, 2014  
 OPERATOR'S WELL #: MNDS BHS  
 API WELL #: 47 051 01744  
 STATE: \_\_\_\_\_ COUNTY: \_\_\_\_\_ PERMIT: MGA

WELL TYPE:  OIL  GAS  WASTE DISPOSAL  LIQUID INJECTION  PRODUCTION  STORAGE  DEEP  SHALLOW

WATERSHED: FISH CREEK ELEVATION: 722'

COUNTY/DISTRICT: MARSHALL / FRANKLIN QUADRANGLE: POWHATAN POINT, OHIO-W.VA

SURFACE OWNER: CONSOLIDATION COAL COMPANY ACREAGE: Office 136.987# and Gas

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY LLC and NOBLE ENERGY, INC. ACREAGE: \_\_\_\_\_

CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PERFORATE NEW FORMATION  PLUG & ABANDON

DRILL  PLUG OFF OLD FORMATION  CLEAN OUT & REPLUG  OTHER CHANGE (SPECIFY): \_\_\_\_\_

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 5,940' TMD: 18,592'

WELL OPERATOR: NOBLE ENERGY, INC. DESIGNATED AGENT: STEVE M. GREEN

ADDRESS: 333 TECHNOLOGY DRIVE, SUITE 116 ADDRESS: 800 VIRGINIA STREET EAST, UNITED CENTER SUITE 600

CITY: CANONSBURG STATE: PA ZIP CODE: 15317 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

WW-6A5  
(1/12)

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF PLANNED OPERATION**

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** \_\_\_\_\_ **Date Permit Application Filed:** \_\_\_\_\_

**Delivery method pursuant to West Virginia Code § 22-6A-16(c)**

- CERTIFIED MAIL  
RETURN RECEIPT REQUESTED
- HAND  
DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

**Notice is hereby provided to the SURFACE OWNER(s)**

(at the address listed in the records of the sheriff at the time of notice):

Name: Consolidation Coal Company Jason Witt  
Address: 46226 National Road  
Saint Clairsville, OH 43950

Name: Kevin E. and Teresa McGilton  
Address: 1704 2nd Street  
Moundsville, WV 26041-1534

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>517838.492</u>
County: <u>Marshall</u>		Northing: <u>4407547.186</u>
District: <u>Franklin</u>	Public Road Access: <u>CR 7/4-Fish Creek Rd</u>	
Quadrangle: <u>Powhatan Point</u>	Generally used farm name: <u>Consol (Now owned by Murray American Energy)</u>	
Watershed: <u>Fish Creek Undefined (HUC 10)</u>		

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: Noble Energy, Inc.  
Telephone: 412-841-9567  
Email: ladkins@nobleenergyinc.com

Address: 333 Technology Drive Suite 116  
Canonsburg, PA 15317  
Facsimile: 724-820-3098

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

RECEIVED  
Office of Oil and Gas  
MAR 26 2014  
WV Department of  
Environmental Protection

4705101744



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110  
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin  
Governor

Paul A. Mattox, Jr., P. E.  
Secretary of Transportation/  
Commissioner of Highways

December 6, 2013

James A. Martin, Chief  
Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304

Subject: DOH Permit for the MND-6 Well Site, Marshall County

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permit #06-2013-0529 for the subject site to Noble Energy, Inc. for access to the State Road for the well site located off of Marshall County Route 74 SLS.

The operator has signed an OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

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Office of Oil and Gas  
Very Truly Yours,

MAR 20 2014

WV Department of  
Environmental Protection  
Regional Maintenance Engineer  
Central Office Oil & Gas Coordinator

Cc: James L. McCune  
Noble Energy, Inc.  
CH, OM, D-6  
File

**Hydraulic Fracturing Fluid Product Component Information Disclosure**

**4705101744**

**Hydraulic Fracturing Fluid Composition:**

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**
Fresh Water	Operator				100.00%
HYDROCHLORIC ACID 5-10%	Halliburton		Hydrochloric acid	7647-01-0	10.00%
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%
BE-9	Halliburton	Biocide	Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00%
Scalechek® LP-65 Scale Inhibitor	Halliburton	Scale Inhibitor	Ammonium chloride	12125-02-9	10.00%
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%
			Naphtha, hydrotreated heavy	64742-48-9	60.00%
LCA-1	Halliburton	Solvent	Paraffinic solvent	Confidential Business Information	100.00%
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor	Methanol	67-56-1	60.00%
			Propargyl alcohol	107-19-7	10.00%
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%
			Acetic anhydride	108-24-7	100.00%
LoSurf-300D	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%
			Ethanol	64-17-5	60.00%
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%
			Naphthalene	91-20-3	5.00%
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00%
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00%

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and

# EROSION & SEDIMENT CONTROL PLAN FOR MIND 6 WELL PAD FRANKLIN DISTRICT, MARSHALL COUNTY, WV

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WV Department of  
Environmental Protection

AP#15101732

**GENERAL NOTES**

1. THE INFORMATION SHOWN ON THIS BASE MAP WAS PERFORMED BY BETTMAN ASSOCIATES, INC. IN SEPTEMBER 2013.
2. PROPERTY BOUNDARIES, LANDOWNER INFORMATION AND ROAD NETWORKS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE CURRENT GIS/PARCEL DATA.
3. THE AERIAL PHOTOGRAPHY, LINES AND BOUNDARIES HAVE BEEN LOCATED PER AVAILABLE DATA.
4. THE HORIZONTAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
5. THE VERTICAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN VERTICAL DATUM (NAVD).
6. THE LOCATIONS SHOWN ON THIS PLAN ARE FOR REFERENCE PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION PRIOR TO ANY PREPARATION OF ANYTHING WITHIN THE PROPERTY.
7. THE DESIGN/CONSTRUCTION SURVEY WAS PERFORMED BY BETTMAN ASSOCIATES, INC. ON MAY 8, 2014.
8. THE SITE & FULL SUMMARY CALCULATIONS PRESENTED ON THIS PLAN ARE FOR PERMITTING AND INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO ANY PREPARATION OF ANYTHING WITHIN THE PROPERTY. ANY ISSUES ARE TO BE BROUGHT TO THE ENGINEER'S AND OWNER'S ATTENTION PRIOR TO COMMENCEMENT OF WORK.
9. INFORMATION UTILITIES HAVE BEEN SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION.
10. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL ABOVE AND BELOW GROUND UTILITIES AND STRUCTURES AT ALL TIMES. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR THE PROTECTION OF UTILITIES AND STRUCTURES.
11. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND STRUCTURES. ANY DAMAGE TO UTILITIES OR STRUCTURES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DAMAGED OR DESTRUCTED UTILITIES AND STRUCTURES.
13. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE PROJECT SITE PRIOR TO THE START OF CONSTRUCTION.
14. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AS REQUIRED.
15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AS REQUIRED.
16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AS REQUIRED.
17. SEED AND MULCH ALL DISTURBED AREAS PER DETAILS IN THIS PLAN.
18. ALL CLEARED TREE TRUNKS SHALL BE PLACED ON UPHILL SIDE OF COMPOSITE FILL SEGS.
19. THE CONTRACTOR SHALL STOP WORK IMMEDIATELY AND CONTACT NOBLE ENERGY AND APPROPRIATE RESPONSIBLE AUTHORITIES SHOULD ANY HISTORICAL, ARCHAEOLOGICAL, POTENTIAL, ETC. BE ENCOUNTERED DURING CONSTRUCTION.
20. NO WORK SHALL BE DONE OUTSIDE THE LIMITS OF DISTURBANCE OR IN PROTECTED AREAS.

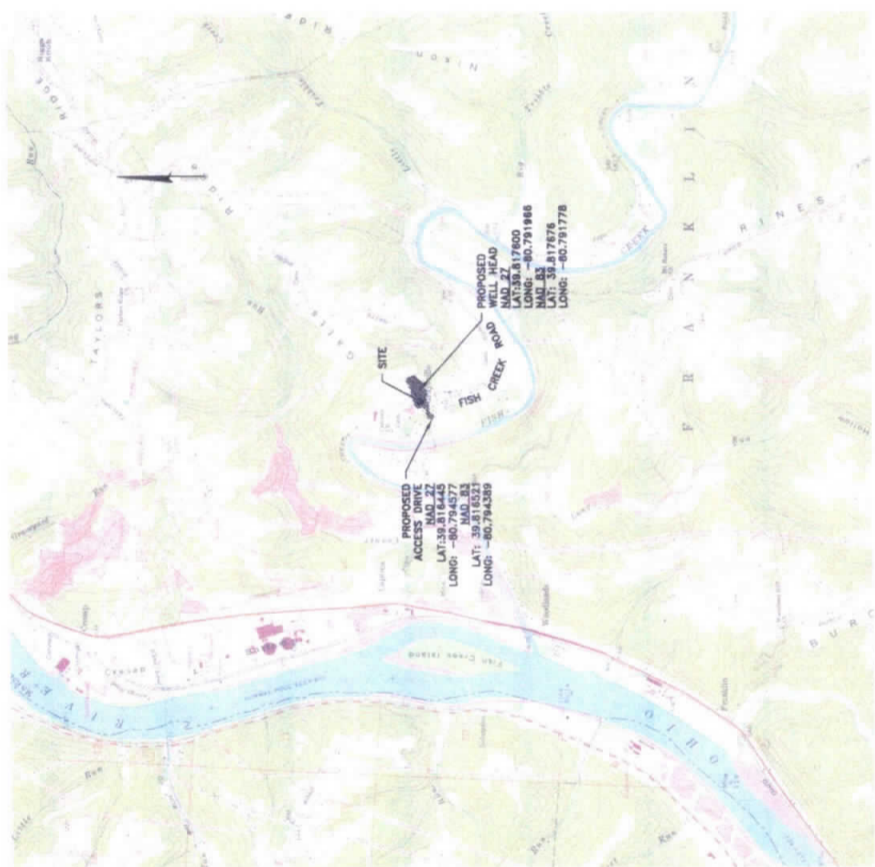
**DIRECTIONS TO THE SITE**

FROM THE WEST VIRGINIA STATE PLANE, NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE, THE SITE IS LOCATED ON THE WEST SIDE OF STATE ROUTE 102, APPROXIMATELY 1.2 MILES WEST OF THE INTERSECTION OF STATE ROUTE 102 AND STATE ROUTE 102A. THE SITE IS LOCATED ON THE WEST SIDE OF STATE ROUTE 102, APPROXIMATELY 1.2 MILES WEST OF THE INTERSECTION OF STATE ROUTE 102 AND STATE ROUTE 102A.

**CUT & FILL**

ITEM	DESCRIPTION	QUANTITY	UNIT
1	CUT	15,250	CY
2	FILL	12,280	CY
3	USE COMPACT	5,275	CY
4	NET TOTAL	12,280	CY

NOTES:  
1. THE ASSUMED EROSION CALCULATIONS PRESENTED ON THIS PLAN ARE FOR INFORMATIONAL PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXISTING SLOPES AND VERIFY EROSION CONTROL MEASURES ARE TO BE BROUGHT TO THE ENGINEER'S AND OWNER'S ATTENTION PRIOR TO COMMENCEMENT OF WORK.



7.5 MIN QUADRANGLE MAP FORMATION POINT: 04-897  
LOCATION MAP  
SCALE: 1" = 100'

**WEST VIRGINIA 811**

**CALL BEFORE YOU DIG!**  
Dial 811 or 800.245.4648  
AT LEAST 48 HOURS, BUT NOT MORE THAN 10 BUSINESS DAYS (EXCLUDING WEEKENDS AND HOLIDAYS), PRIOR TO STARTING ANY EXCAVATION, TRENCHING, OR DRILLING OPERATIONS, CONTACT THE WEST VIRGINIA 811 CENTER AT 1-800-245-4648, OR VISIT WWW.WV811.COM FOR MORE INFORMATION.

**SOILS CLASSIFICATION**

- 1.00 - SANDY SILT LOAM, 6% TO 15% SILTS
- 2.00 - SANDY SILT LOAM, 10% TO 20% SILTS
- 3.00 - SANDY SILT LOAM, 15% TO 25% SILTS
- 4.00 - SANDY SILT LOAM, 20% TO 35% SILTS
- 5.00 - SANDY SILT LOAM, 35% TO 50% SILTS

**LIST OF DRAWINGS**

- 1.00 - COVER SHEET
- 2.00 - ENVIRONMENTAL RESOURCES/BETTMAN PLAN
- 3.00 - EROSION & SEDIMENT CONTROL PLAN
- 4.00 - EROSION & SEDIMENT CONTROL PLAN
- 5.00 - EROSION & SEDIMENT CONTROL PLAN
- 6.00 - EROSION & SEDIMENT CONTROL PLAN
- 7.00 - EROSION & SEDIMENT CONTROL PLAN
- 8.00 - EROSION & SEDIMENT CONTROL PLAN
- 9.00 - EROSION & SEDIMENT CONTROL PLAN
- 10.00 - NOTES & DETAILS

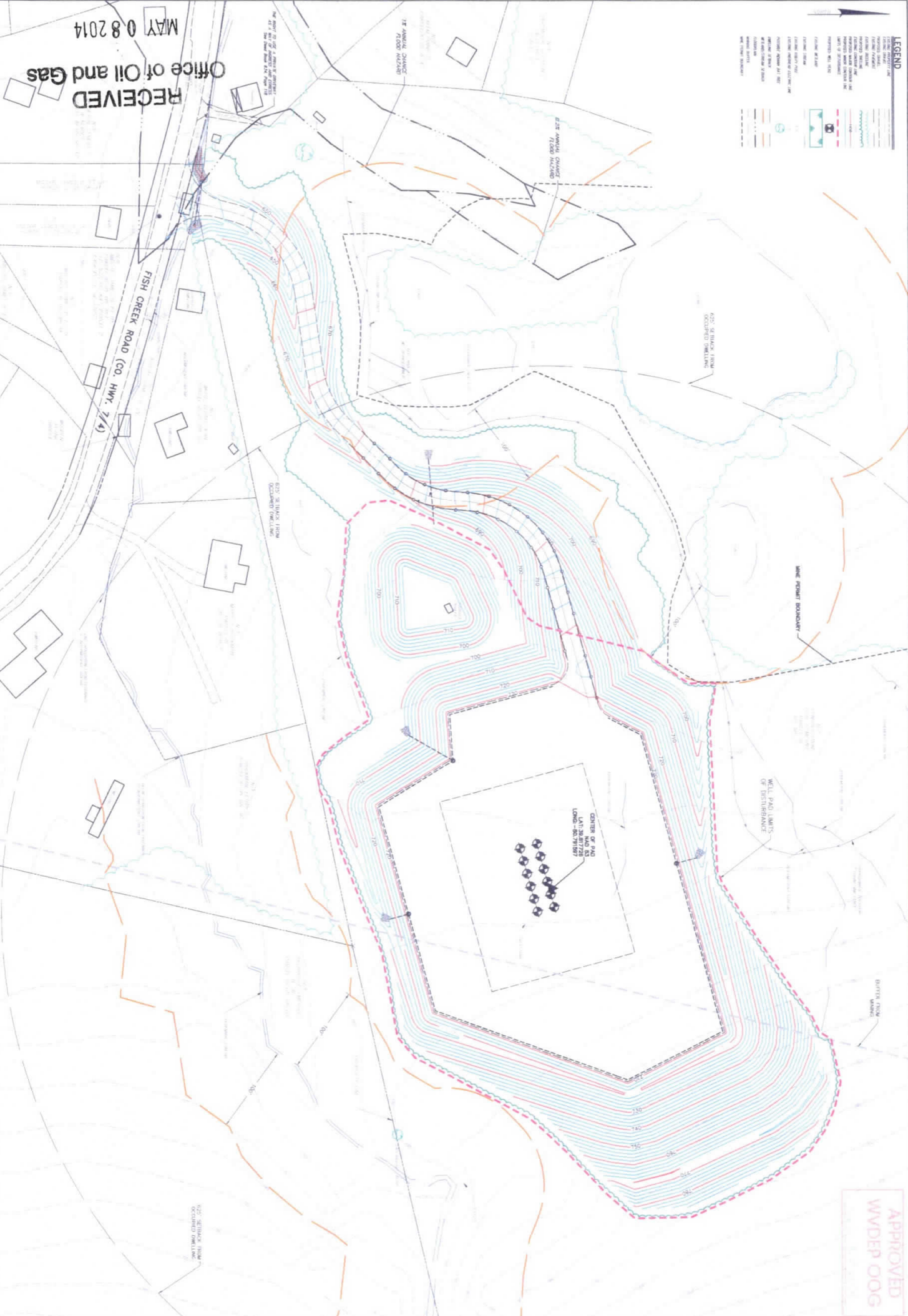
**DISTURBANCE SUMMARY**

TOTAL AMOUNT OF DISTURBANCE: 4.8 ACRES  
TOTAL AMOUNT OF RESTORATION: 4.8 ACRES  
NET DISTURBANCE: 0.0 ACRES

<p>NO. DATE REGION</p>		<p>MANAGER: MICHAEL R. COOPER DESIGN: ASL CHECK: ASL PERFORM: ASL DATE: 05/08/14</p>	<p>CLIENT: NOBLE ENERGY 333 TECHNOLOGY DRIVE, SUITE 116 CANNONBURG, PA 15317-3077 (724) 820-3000</p>	<p>LETTER ASSOCIATES, INC. 1000 W. MARKET STREET, SUITE 200 PITTSBURGH, PA 15222 (412) 446-1735 www.letter.com</p>	<p>FRANKLIN DISTRICT MARSHALL COUNTY, WV</p>
<p>COVER SHEET FOR MIND 6 WELL PAD</p>			<p>BETTMAN</p>		
<p>DATE: 5/8/2014 SHEET NO. 1 OF 10 DWG. NO. 093842010</p>					

Electronic Version of These Plans May Be Viewed at: Q:\OIL GAS\SAY FILES\REVIEWS

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ENVIRONMENTAL RESOURCES BUFFER PLAN FOR <b>MND 6 WELL PAD</b>		RETTEW Associates, Inc. 4955 Sheasville Pl., Ste 305, Pittsburgh, PA 15205 Phone: (412) 446-1728 • Fax: (412) 446-1733 Email: rette@rettew.com Website: www.rettew.com	CLIENT <b>NOBLE ENERGY</b> 333 TECHNOLOGY DRIVE, SUITE 116 CANONSBURG, PA 15317-3077 BEN DEREUME, PE (724) 820-3000 	MANAGER: MICHAEL R. OGDEN DESIGN BY: ASH DRAWN BY: ASH SURV. CHIEF: FELDBROO, NO. BARR COLLEGE	FOR RETTEW ASSOCIATES BY: 	SCALE 0 25' 50' 100' 150' NO. DATE REVISION
DATE: 3/9/2014 SHEET NO. 2 OF 10 Dwg. No.: 003842010	FRANKLIN DISTRICT MARSHALL COUNTY, WV		DATE: 3/9/2014 SHEET NO. 2 OF 10 Dwg. No.: 003842010	DATE: 3/9/2014 SHEET NO. 2 OF 10 Dwg. No.: 003842010	DATE: 3/9/2014 SHEET NO. 2 OF 10 Dwg. No.: 003842010	DATE: 3/9/2014 SHEET NO. 2 OF 10 Dwg. No.: 003842010

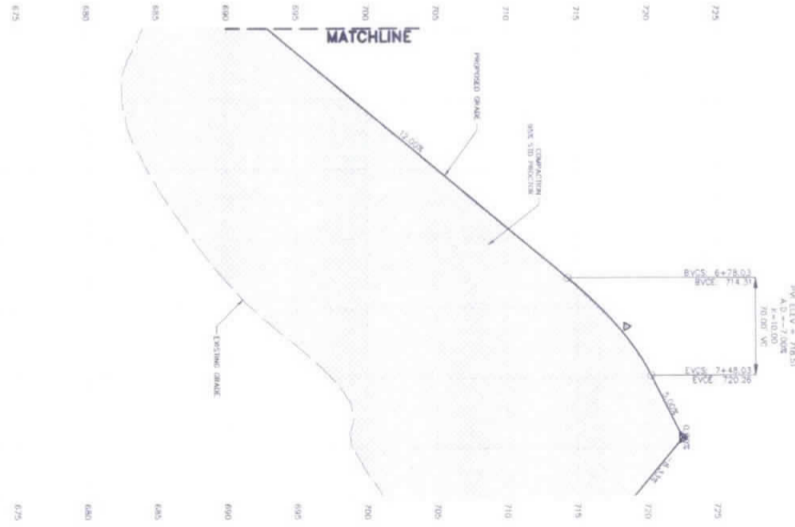
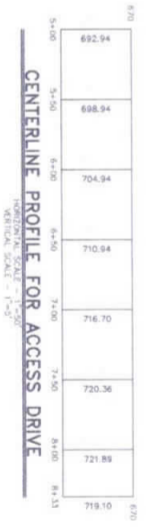
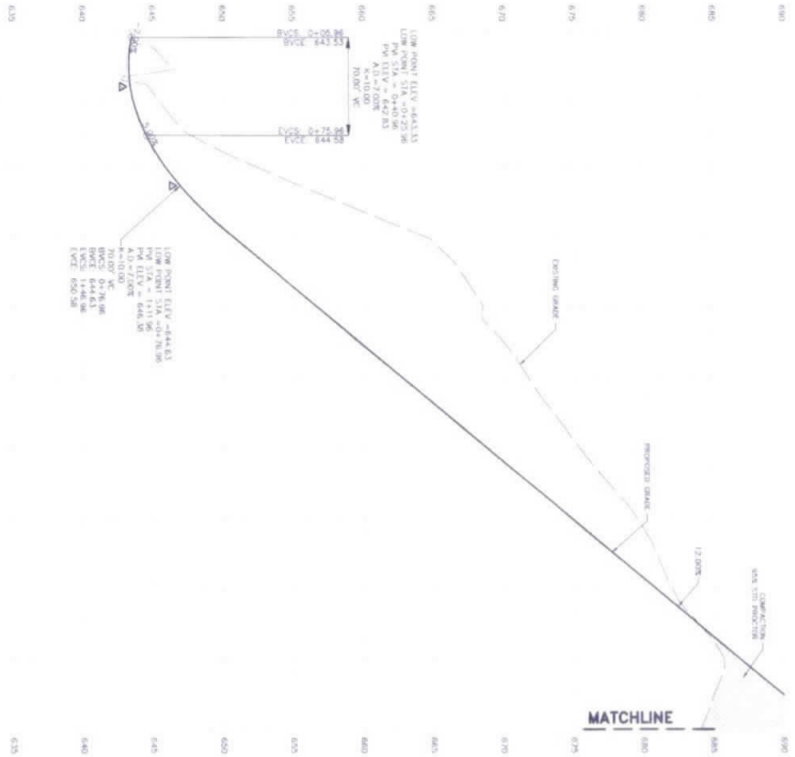
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MAY 08 2014



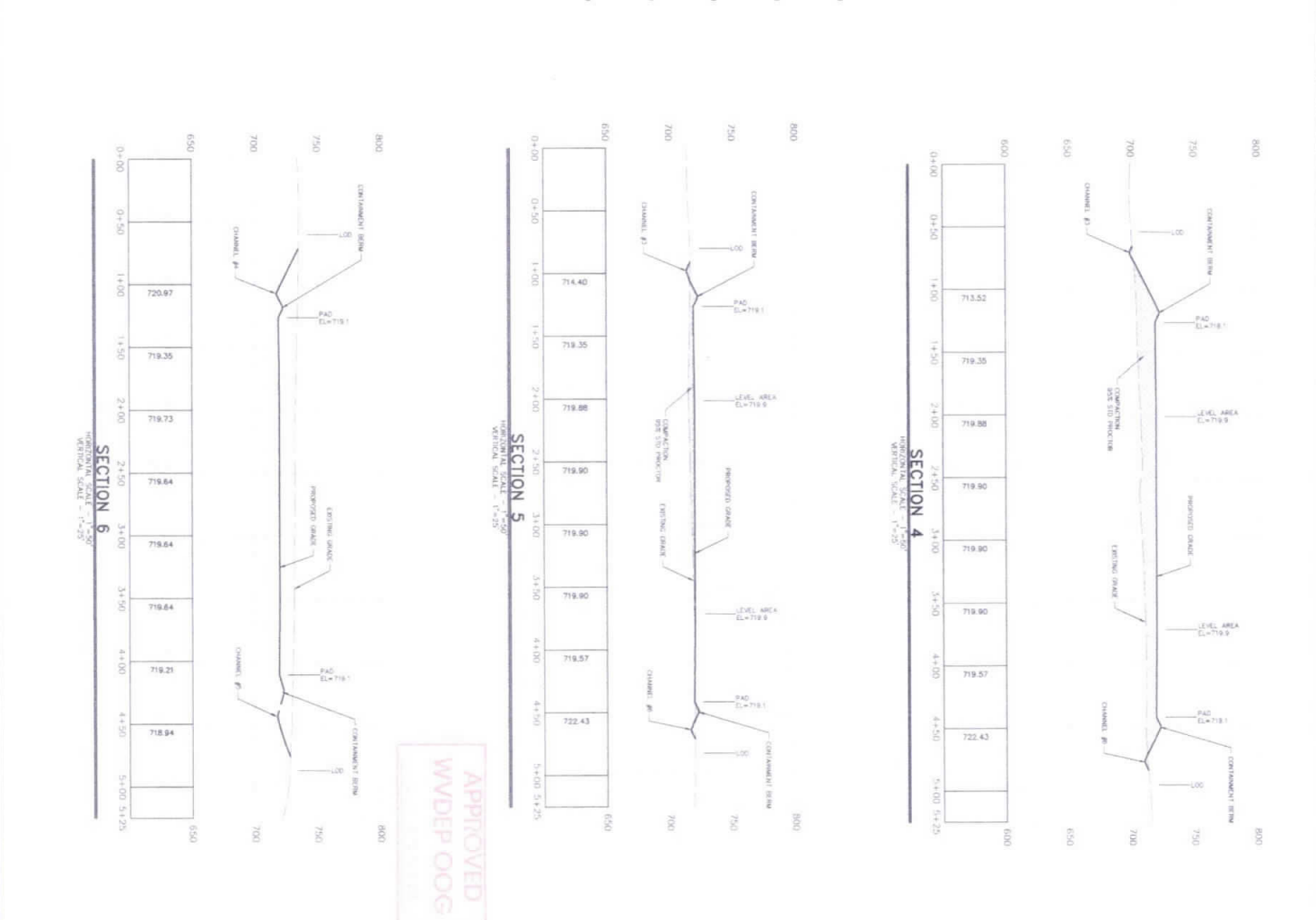
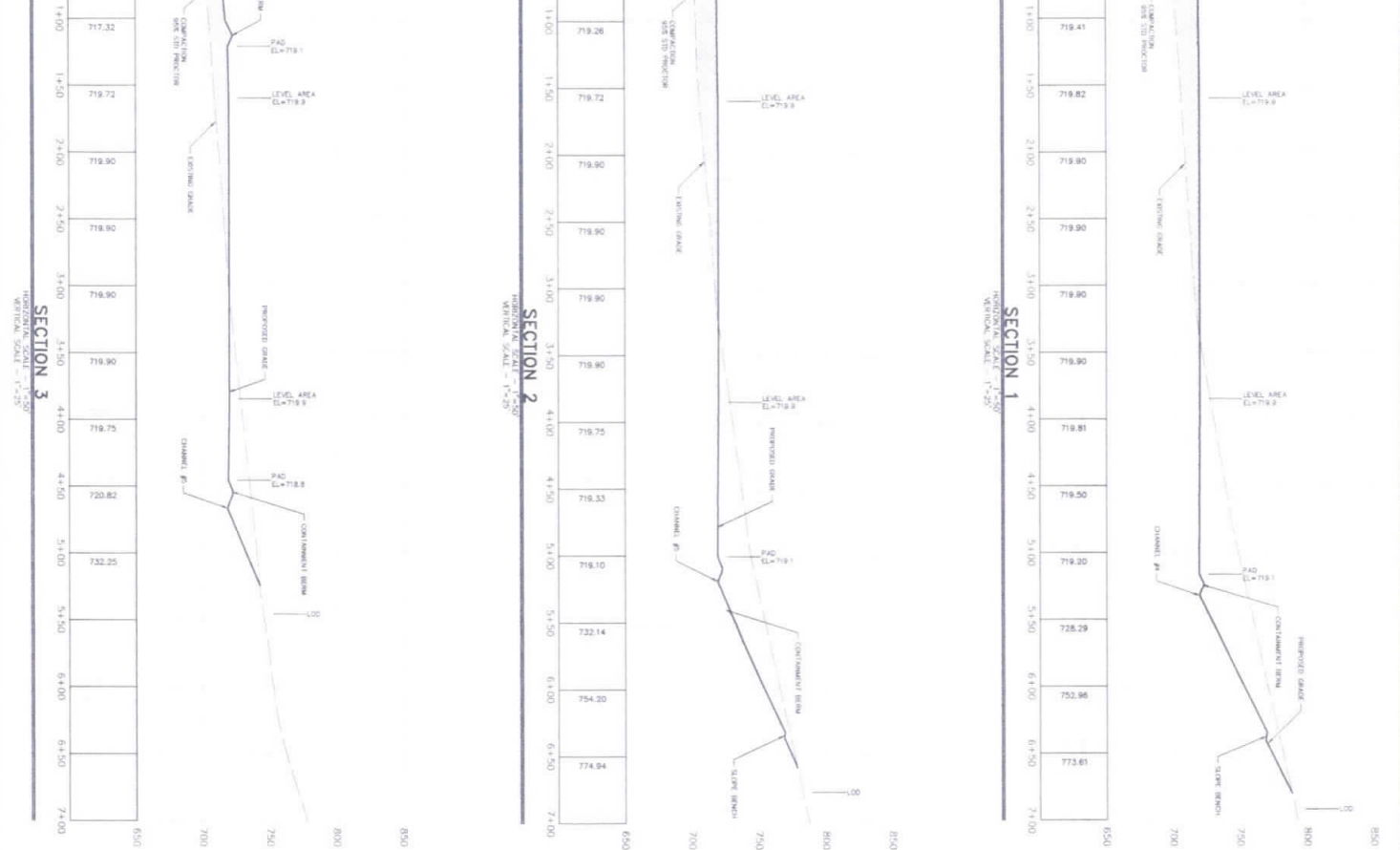
APPROVED  
WDEP OOG

DATE: 3/5/2014 SHEET NO: 5 OF 10 DWG. NO: 053842010	ACCESS DRIVE PROFILES FOR <b>MND 6 WELL PAD</b>	<b>RETTEW</b> RETTEW Associates, Inc. Two Towers, 4955 Siebenmile Pk, Ste 306, Pittsburgh, PA 15205 Phone: (412) 446-1728 Fax: (412) 446-1733 Email: rettew@rettew.com Website: www.rettew.com	CLIENT <b>NOBLE ENERGY</b> 333 TECHNOLOGY DRIVE, SUITE 116 CANONSBURG, PA 15317-3077 BEN DERELUME, PE (724) 820-3000	MANAGER: MICHAEL R. OGDEN DESIGN BY: ASN DRAWN BY: ASN SURV. CHIEF: FELIXBOOK NO. DATA COLLECTOR	FOR RETTEW ASSOCIATES BY: MICHAEL R. OGDEN DATE: 3-25-14 15074 W. H. HENRY	SCALE AS SHOWN
				NO. DATE REVISION		

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MAY 08 2014



APPROVED  
WVDEP OOG  
MICHAEL R. OODEN

<p>CROSS SECTIONS FOR MND 6 WELL PAD</p> <p>DATE: 3/5/2014 SHEET NO: 7 OF 10 DWG. NO.: 08-38-2010</p>		<p><b>RETTEW</b></p> <p>RETTEW Associates, Inc. Ten Towers, 4055 Clatsville Pl., Ste 205, Pittsburg, PA 15205 Phone (412) 446-1728 - Fax (412) 446-1733 Email: rette@rettew.com Website: www.rettew.com</p>	<p>CLIENT</p> <p><b>NOBLE ENERGY</b> 333 TECHNOLOGY DRIVE, SUITE 116 CANONSBURG, PA 15317-3077 BEN DEREUME, PE (724) 820-3000</p> <p><b>noble energy</b></p>	<p>MANAGER: MICHAEL R. OODEN DESIGN BY: DWD BY: ASH DRAWN BY: ASH SURV. CHIEF: FELSBOK, NO. DATA COLLECTOR</p>	<p>FOR RETTEW ASSOCIATES BY:</p> <p>18074 STATE OF WEST VIRGINIA Professional Engineer Ben DEREUME Ben DEREUME</p>	<p>SCALE AS SHOWN</p> <table border="1"> <tr><th>NO.</th><th>DATE</th><th>REVISION</th></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	NO.	DATE	REVISION			
NO.	DATE	REVISION										

4705101744

**RECLAMATION NOTES:**

1. CONTAMINATED AREAS SHALL BE RECLAIMED TO ORIGINAL OR BETTER CONDITION.
2. DISTURBED AREAS TO BE STABILIZED WITH SEED OR PERMANENT VEGETATION.
3. EROSION CONTROL MEASURES SHALL BE INSTALLED TO PREVENT EROSION.
4. EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND POST-CONSTRUCTION.

**RESTORATION OF PLANTED AREAS**

1. PLANTED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION.
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**POST-USE RECLAMATION**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A STATE OF CARE AS ALL SECTIONS OF SLOPED AREAS, EROSION PROOFING, OR ANY OTHER CONSTRUCTION ENCOUNTERED SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A STATE OF CARE AS ALL SECTIONS OF SLOPED AREAS, EROSION PROOFING, OR ANY OTHER CONSTRUCTION ENCOUNTERED SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
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 LIMITS OF  
 DISTURBANCE  
 18.8 ACRES

**LEGEND**

- PROPOSED WELL PAD
- EXISTING WELL PAD
- PROPOSED EROSION CONTROL MEASURES
- EXISTING EROSION CONTROL MEASURES
- PROPOSED VEGETATION
- EXISTING VEGETATION
- PROPOSED ROAD
- EXISTING ROAD
- PROPOSED FENCE
- EXISTING FENCE
- PROPOSED UTILITY
- EXISTING UTILITY
- PROPOSED PROPERTY LINE
- EXISTING PROPERTY LINE
- PROPOSED DISTURBANCE LIMITS
- EXISTING DISTURBANCE LIMITS
- PROPOSED LINE FRONT BOUNDARY
- EXISTING LINE FRONT BOUNDARY

WELL PAD RECLAMATION PLAN FOR <b>MND 6 WELL PAD</b>		<b>RETTEW</b> RETTEW Associates, Inc. Two Towers, 4955 Steubenville Pl, Ste 305, Pittsburgh, Pa 15205 Phone: (412) 446-1728 Fax: (412) 446-1733 Email: rettew@rettew.com Website: www.rettew.com		CLIENT <b>NOBLE ENERGY</b> 333 TECHNOLOGY DRIVE, SUITE 116 CANONSBURG, PA 15317-3077 BEN DEREUME, PE (724) 820-3000		MANAGER: MICHAEL R. OGDEN DESIGN BY: ASN DRAWN BY: ASN SURV. CHECK: FELBROOK NG DATA COLLECTOR		FOR RETTEW ASSOCIATES BY: 3-25-14 		SCALE 1"=50' 0 25 50 100 150	
DATE: 3/9/2014	SHEET NO.: 5	OF: 10	FRANKLIN DISTRICT MARSHALL COUNTY, WV		NO. DATE REVISION						

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**EROSION AND SEDIMENTATION CONTROL NOTES**

EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE CONSTRUCTION AND DEMOLITION PHASES OF THIS PROJECT. THE CONSTRUCTION AND DEMOLITION PHASES SHALL BE DEFINED AS PER THE DEFINITIONS IN THE WVDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, ETC. AS APPLICABLE TO THIS PROJECT. THE CONSTRUCTION AND DEMOLITION PHASES SHALL BE DEFINED AS PER THE DEFINITIONS IN THE WVDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, ETC. AS APPLICABLE TO THIS PROJECT. THE CONSTRUCTION AND DEMOLITION PHASES SHALL BE DEFINED AS PER THE DEFINITIONS IN THE WVDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, ETC. AS APPLICABLE TO THIS PROJECT.

**TABLE IV-1  
TEMPORARY SEEDING  
FOR CRITICAL AREAS**

SEEDS	RATES IN BAY PER ACRE	RECOMMENDED DATA
ANNUAL PERGRASS	40	APR. 1 TO JUNE 1 APR. 15 TO APR. 15
SPRING GRASS	80	MAY 1 TO JUNE 15
PERGRASS	140	APR. 15 TO OCT. 15
ANNUAL PERGRASS	20	MAY 1 TO JUNE 15
SPRING GRASS	64	MAY 1 TO JUNE 15

**TABLE IV-3  
LIME AND FERTILIZER  
APPLICATION TABLE**

pH OF SOIL	LIME IN TONS PER ACRE (10-20% OR EQUIVALENT)	FERTILIZER IN TONS PER ACRE (10-20% OR EQUIVALENT)
ABOVE 6.0	2	500
5.0 TO 6.0	3	500
BELOW 5.0	4	500

THE pH CAN BE DETERMINED WITH A PORTABLE TESTING KIT OR BY SENDING THE SOIL SAMPLES TO A SOIL TESTING LABORATORY. WHEN A PORTABLE TESTING KIT IS USED, IT MUST BE USED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS. TRACKING UP AND DOWN THE SLOPE.

**TABLE IV-2  
PERMANENT SEEDING  
FOR ALL DISTURBED AREAS**

SEED	RATES IN BAY PER ACRE
WHITE Clover	15
RED TOP	15
CRACKDOCK GRASS	20

**TABLE IV-4  
MULCH MATERIALS RATES AND USES**

MATERIAL	MINIMUM RATES PER ACRE	COMMENTS	REQUIREMENTS
HAY OR STRAW	2" TO 3" THICK	TEMP. 15 TO 20 DEG. OR WARMER	SUBJECT TO WIND BLOWING
WOOD CHIP MULCH	100 TO 150 BAYALS	OR SUBMERG	OR WIND BLOWING
WOOD CHIP MULCH	1000 TO 1500 BAYALS	OR SUBMERG	OR WIND BLOWING

SETTING IS NOT RECOMMENDED DURING THE MONTHS OF NOVEMBER AND DECEMBER. THE BEST TIME TO SET IS IN THE MONTHS OF APRIL, MAY, AND JUNE. USE A TANKER OR SPREADER TO APPLY MULCH.

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**SCHEDULE OF MAINTENANCE OF EROSION & SEDIMENTATION CONTROLS**

THE SOIL EROSION AND SEDIMENTATION CONTROLS UTILIZED IN THE DEVELOPMENT OF THIS PLAN SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND DEMOLITION PHASES OF THIS PROJECT. THE CONSTRUCTION AND DEMOLITION PHASES SHALL BE DEFINED AS PER THE DEFINITIONS IN THE WVDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, ETC. AS APPLICABLE TO THIS PROJECT.

**ROCK CONSTRUCTION EXTENDS**

1. THE SEDIMENTATION CONTROL SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND DEMOLITION PHASES OF THIS PROJECT. THE CONSTRUCTION AND DEMOLITION PHASES SHALL BE DEFINED AS PER THE DEFINITIONS IN THE WVDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, ETC. AS APPLICABLE TO THIS PROJECT.
2. THE SEDIMENTATION CONTROL SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND DEMOLITION PHASES OF THIS PROJECT. THE CONSTRUCTION AND DEMOLITION PHASES SHALL BE DEFINED AS PER THE DEFINITIONS IN THE WVDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, ETC. AS APPLICABLE TO THIS PROJECT.
3. THE SEDIMENTATION CONTROL SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND DEMOLITION PHASES OF THIS PROJECT. THE CONSTRUCTION AND DEMOLITION PHASES SHALL BE DEFINED AS PER THE DEFINITIONS IN THE WVDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, ETC. AS APPLICABLE TO THIS PROJECT.
4. THE SEDIMENTATION CONTROL SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND DEMOLITION PHASES OF THIS PROJECT. THE CONSTRUCTION AND DEMOLITION PHASES SHALL BE DEFINED AS PER THE DEFINITIONS IN THE WVDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, ETC. AS APPLICABLE TO THIS PROJECT.
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**ROCK CHECK DAM**

1. ROCK CHECK DAM SHALL NOT BE USED IN CHANNELS OF LESS THAN 1 FOOT DEPTH.
2. THE DAM SHALL BE CONSTRUCTED TO 1/2 THE WIDTH OF THE CHANNEL WITH A 4" OVERLAP ON EACH SIDE.
3. A ONE FOOT THICK LAYER OF ASPHALT #7 OR SMALLER SHALL BE PLACED ON THE SURFACE OF THE DAM.
4. ROCK CHECK DAMS SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL EVENT.
5. DAMS SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND DEMOLITION PHASES OF THIS PROJECT.
6. DAMS SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND DEMOLITION PHASES OF THIS PROJECT.

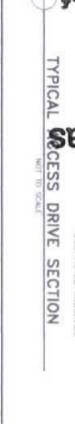
**CHANNEL CROSS-SECTION**



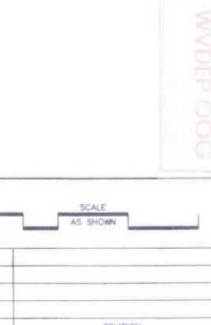
**CONTAINMENT BERM AT PAD ACCESS ROAD**



**CHANNEL CROSS-SECTION**



**APPROVED WVDOT 000**



DATE: 3/6/2014  
SHEET NO: 9 OF 10  
DWG. NO.: 093842010

MANAGER: MICHAEL R. OGDEN  
DESIGN BY: ASL  
DRAWN BY: ASL  
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**NOTES & DETAILS FOR MND 6 WELL PAD**

FRANKLIN DISTRICT MARSHALL COUNTY, WV.

