



west virginia department of environmental protection

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

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

October 28, 2015

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-6900201, issued to SWN PRODUCTION COMPANY, LLC, 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: G W RENTALS LLC OHI 605H

Farm Name: G W RENTALS LLC

API Well Number: 47-6900201

Permit Type: Horizontal 6A Well

Date Issued: 10/28/2015

Promoting a healthy environment.

10/30/2015

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

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 one hundred (100) 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. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, 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.

SWN

Southwestern Energy®

PO Box 1300
Jane Lew, WV 26378
PHONE: (832) 796-1610

September 23, 2015

Ms. Laura Adkins
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

4706900201

RE: Proposed New Well G W Rentals LLC OHI 605H

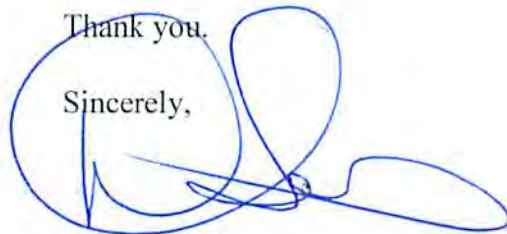
Dear Ms. Adkins

Enclosed please find the Well Work Permit Application for the above captioned well. This well is situated on the G W Rentals' property, in Liberty District, Ohio County, West Virginia.

If you have any questions or desire additional information, please me at 304-884-1614

Thank you.

Sincerely,



Dee Southall
Regulatory Supervisor
Southwestern Energy Production Company, LLC
PO Box 1300
Jane Lew, WV 26378

Received
Office of Oil & Gas

SEP 24 2015



The Right People doing the Right Things,
wisely Investing the cash flow from
our underlying Assets, will create Value+

10/30/2015

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

4706900201

- 1) Well Operator: SWN Production Co., LLC 494512924 69- Ohio 7-Triadelphia 648- Valley Grove
Operator ID County District Quadrangle
- 2) Operator's Well Number: G W Rentals LLC OHI 605H Well Pad Name: G W Rentals LLC OHI Pad
- 3) Farm Name/Surface Owner: G W Rentals LLC Public Road Access: West Alexander Road
- 4) Elevation, current ground: 1246' Elevation, proposed post-construction: 1246'
- 5) Well Type (a) Gas Oil Underground Storage
Other
(b) If Gas Shallow Deep
Horizontal
- 6) Existing Pad: Yes or No yes
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Target Formation- Marcellus, Target Top TVD- 6508', Target Base TVD- 6544', Anticipated Thickness- 36', Associated Pressure- 3900'
- 8) Proposed Total Vertical Depth: 6533'
- 9) Formation at Total Vertical Depth: Marcellus
- 10) Proposed Total Measured Depth: 15,608'
- 11) Proposed Horizontal Leg Length: 6552'
- 12) Approximate Fresh Water Strata Depths: 510'
- 13) Method to Determine Fresh Water Depths: from nearby water wells and offset wells
- 14) Approximate Saltwater Depths: 1339'
- 15) Approximate Coal Seam Depths: 606-629'
- 16) Approximate Depth to Possible Void (coal mine, karst, other): Void Expected from approximately 606'-629'
- 17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No
- (a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

E. T. P. O.
9.21.15

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18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	54.5#	660'	660'	600 sx/CTS
Coal	9 5/8"	New	J-55	40#	2081'	2081'	775 sx/CTS
Intermediate	7"	New	J-55	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	15,608'	15,608'	Lines NOT on this CTS or CTS below this
Tubing	2 3/8"	New	P-110	4.7#	Approx. 8380'	Approx. 8380'	
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Max. Associated Surface Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	30"	0.25	2120	81	Class A	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	633	Class A	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	3950	1768	Class A	1.19/50% Excess
Intermediate	7"	8 3/4"	0.317	4360	3250	Class A	1.20/15% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/15% Excess
Tubing	2 3/8"	4.778"	0.190				
Liners							

PACKERS

Kind:	10K Arrowset AS1-X			
Sizes:	5 1/2"			
Depths Set:				

C. ZLO
9.21.15

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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill and stimulate any potential zones between and including the Benson to Marcellus. **If we should encounter a void place basket above and below void area- balance cement to bottom of void and grout from basket to surface. Run casing not less than 20' below void nor more than 50'-70' below void. (*If freshwater is encountered deeper than anticipated it must be protected, set casing 50'-70' below and cts.)

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Well will be perforated within the target formation and stimulated with a slurry of water, sand, and chemical additives at a high rate. This will be performed in stages with the plug and perf method along the wellbore until the entire lateral has been stimulated within the target formation. All stage plugs are then drilled out and the well is flowed back to surface. The well is produced through surface facilities consisting of high pressure production unites, vertical separation units, water and oil storage tanks. Max press and anticipated max rate- 9000 lbs @ 80 barrels a minute.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 10.8

22) Area to be disturbed for well pad only, less access road (acres): 3.9

23) Describe centralizer placement for each casing string:

All casing strings will be ran with a centralizer at a minimum of 1 per every 3 joints of casing.

24) Describe all cement additives associated with each cement type:

See Attachment ***

25) Proposed borehole conditioning procedures:

All boreholes will be conditioned with circulation and rotation for a minimum of one bottoms up and continuing until operator is satisfied with borehole conditions.

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*Note: Attach additional sheets as needed.


Schlumberger Cement Additives

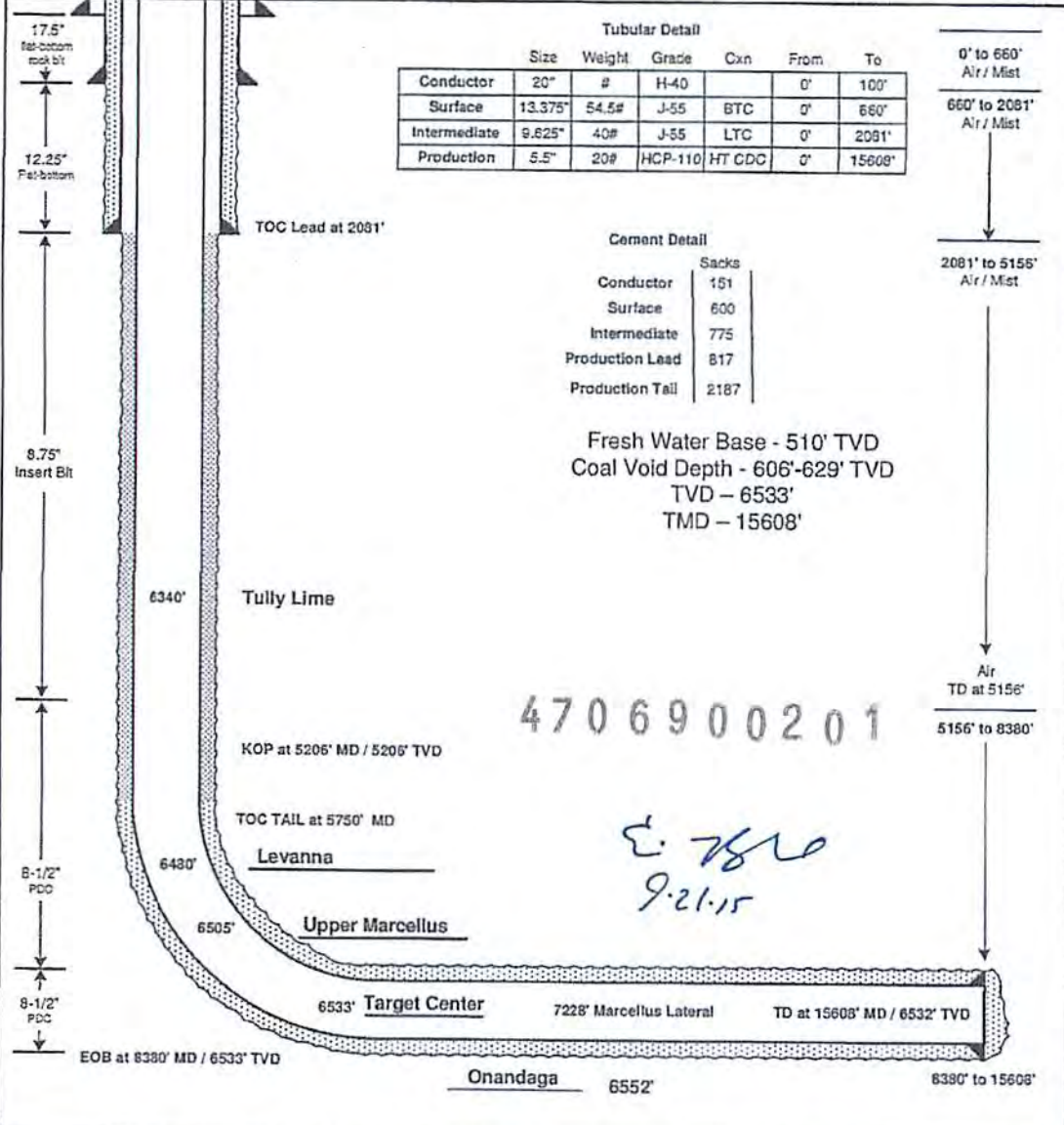
	Product Name	Product Use	Chemical Name	CAS Number
Surface	S001	accelerator	calcium chloride	10043-52-4
	S001	accelerator	calcium chloride	10043-52-4
Kick Off Plug	D080	dispersant	sodium polynaphthalene sulfonate	9008-63-3
	D801	retarder	aromatic polymer derivative	proprietary
	D047	antifoam	polypropylene glycol	25322-69-4
Production-Lead	D167	fluid loss	aliphatic amide polymer	proprietary
	D154	extender	non-crystalline silica	7631-86-9
	D400	gas migration	boric acid	10043-35-3
	D046	antifoam	polypropylene glycol	25322-69-4
			fullers earth (attapulgate)	8031-18-3
	D201	retarder	chrystalline silica	14808-60-7
			metal oxide	proprietary
	D202	dispersant	sulphonated synthetic polymer	proprietary
formaldehyde (impurity)			proprietary	
Production-Tail	D046	antifoam	polypropylene glycol	25322-69-4
			fullers earth (attapulgate)	8031-18-3
	D167	fluid loss	aliphatic amide polymer	proprietary
	D065	dispersant	sodium polynaphthalene sulfonate	9008-63-3
			sodium sulfate	7757-82-6
	D201	retarder	chrystalline silica	14808-60-7
			metal oxide	proprietary
D153	anti-settling	chrystalline silica	14808-60-7	

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Southwestern Energy Company		Proposed Drilling Program	
Well	: G W RENTALS LLC OHI 605	Re-entry Rig	: TBD
Field	: PANHANDLE FIELD	Prospect	: PANHANDLE
County	: OHIO	State	: WV
SHL	: 40.074378 Latitude -80.565528 Longitude		
BHL	: 40.096027 Latitude -80.567468 Longitude		
KB Elev	: 1273 ft MSL	KB	: 26 ft AGL
		GL Elev	: 1247 ft MSL



Data source: K:\EandP\WVD\Team Data\Drilling\Wells\GW Rentals LLC Pack\GW Rentals LLC OHI 605\Drilling Program\Master SWN Well Input Sheet v E-0-1.xls

NOTE: This drawing was created for the Reentry Rig. The depths and lengths shown in the plot are referenced to Reentry Rig RKB.

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Southwestern Energy Company

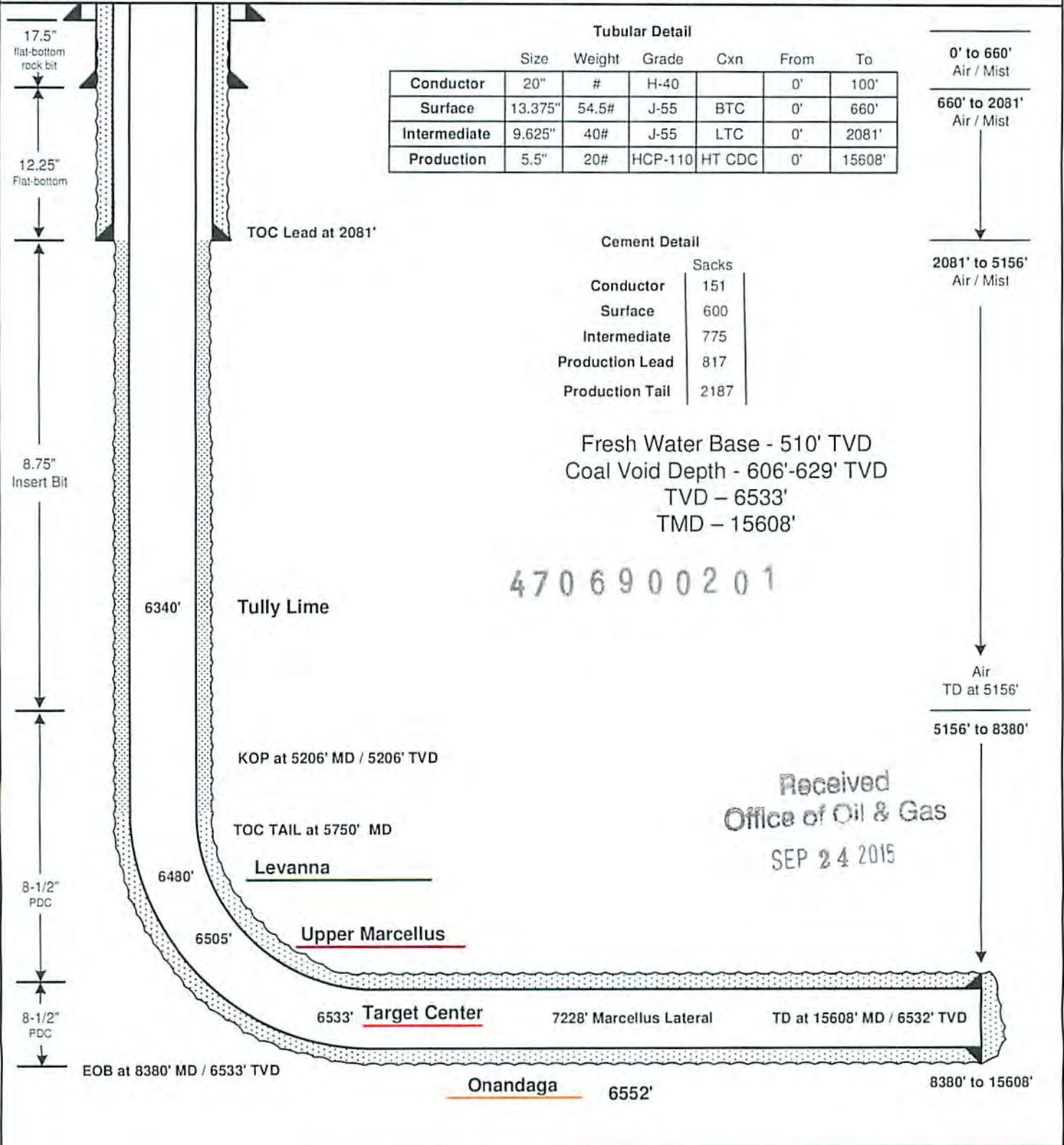
Proposed Drilling Program

Well : G W RENTALS LLC OHI 605
 Field : PANHANDLE FIELD
 County : OHIO
 SHL : 40.074378 Latitude -80.565528 Longitude
 BHL : 40.096027 Latitude -80.567468 Longitude
 KB Elev : 1273 ft MSL

Re-entry Rig : TBD
 Prospect : PANHANDLE
 State : WV



KB : 26 ft AGL GL Elev : 1247 ft MSL



Tubular Detail

	Size	Weight	Grade	Cxn	From	To
Conductor	20"	#	H-40		0'	100'
Surface	13.375"	54.5#	J-55	BTC	0'	660'
Intermediate	9.625"	40#	J-55	LTC	0'	2081'
Production	5.5"	20#	HCP-110	HT CDC	0'	15608'

Cement Detail

	Sacks
Conductor	151
Surface	600
Intermediate	775
Production Lead	817
Production Tail	2187

Fresh Water Base - 510' TVD
 Coal Void Depth - 606'-629' TVD
 TVD - 6533'
 TMD - 15608'

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Data source: K:\EandP\WVD\Team Data\Drilling\Wells\GW Rentals LLC Pad\GW Rentals LLC OHI 605H\Drilling Program\Master SWN Well Input Sheet 0-1.xlsm

NOTE: This drawing was created for the Reentry Rig. The depths and lengths shown in the plot are referenced to Reentry Rig RKB.

10/30/2015

WW-9
(9/13)

API Number 47 - 69 - _____
Operator's Well No. G W Rentals LLC OHI 605H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name SWN Production Co., LLC OP Code 494512924

Watershed (HUC 10) Little Wheeling Creek Quadrangle 648- Valley Grove

Elevation 1246' County 69- Ohio District 7- Triadelphia

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 system in place at this time- cuttings will be taken to a permitted landfill.

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 2D0072539/ 2D0413175/ 2D0610306/ 2D0610317)
- Reuse (at API Number at next anticipated well, API# will be included with the WR-34/DDMR &/or permit addendum.)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain flow back fluids will be put in steel tanks and reused or taken to a permitted disposal facility.)

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 drill to KOP, fluid drill with SGBM from KOP to TD

-If oil based, what type? Synthetic, petroleum, etc. Synthetic Oil Base 4706900201

Additives to be used in drilling medium? see attached sheets

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

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

-Landfill or offsite name/permit number? Meadow SWF- 1032, 5S Grading SWF- 4902, Northwestern SWF- 1025, Short Creek 1034/WV0109517/CID28726, Carbon Limestone 28726/CID28726
Arden Landfill 10072, American 02-12954, Country wide 38390/CID38390, Pine Grove 13688

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

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

Company Official Signature [Signature]

Company Official (Typed Name) Dee Southall

Company Official Title Regulatory Supervisor

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SEP 24 2015

Subscribed and sworn before me this 20th day of April, 20 15

Brittany R Woody
My commission expires 11/27/22



SWN Production Co., LLC

Proposed Revegetation Treatment: Acres Disturbed 10.8 Prevegetation pH _____

Lime as determined by pH test min. 2 _____ Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 600 lbs/acre

Mulch Hay/Straw 2.5 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
White Grove	15
Red Top	15
Orchard Grass	20

Seed Type	lbs/acre
White Grove	15
Red Top	15
Orchard Grass	20

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: *James [Signature]* *[Signature]* 4/22/15
Comments: _____

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SEP 24 2015

Title: Oil and Gas Inspector Date: 4/22/15

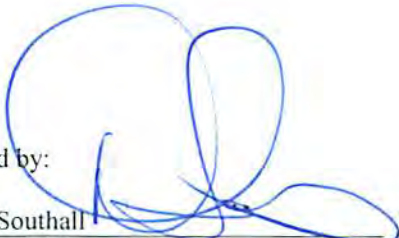
Field Reviewed? () Yes () No


Marcellus Well Drilling Procedures
And Site Safety Plan

SWN Production Co., LLC

47 - 051 -

Well name: G W Rentals LLC OHI 605H
Valley Grove, Quad
Triadelphia, District
Ohio County, West Virginia

Submitted by: 
Danielle Southall _____ Date: 4/20/2015
Title Regulatory Supervisor SWN Production Co., LLC

Approved by:  9/3 4/22/15 Date: 4/22/15
Title: Oil & Gas Inspector

Approved by: _____ Date: _____

Title: _____

SWN Production Co., LLC – Confidential

4706900201

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10/30/2015

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
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:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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"SEE EXHIBIT A"

4706900201


**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

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SEP 24 2015

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: SWN Production Company L.L.C
 By: 
 Its: Robert Walter, Landman

#	TMP	LEASE #	LESSOR	LESSEE	ROYALTY	BOOK/PAGE
1)	6-T9-5	1-256014-000	Lee J. Glessner, a married man dealing in his sole and separate property; and Gary W. Glessner, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	12.5%	788/704 885/470
2)	6-T9-5.1	1-256014-000	Lee J. Glessner, a married man dealing in his sole and separate property; and Gary W. Glessner, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	12.5%	788/704 885/470
		47-003371-01	James Z. Chambers, a/k/a Jimmy Chambers, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	16.7%	854/267
		47-003371-02	Jeffrey S. Chambers, a/k/a Jeff Chambers, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	16.7%	853/746
		47-003371-03	Judy Lynn Chambers, a/k/a Judy Chambers, a single woman	Chesapeake Appalachia, L.L.C.	16.7%	853/741
3)	6-T9-57	Pending	Samuel Lee Harris Sr., Trustee of the Robert Edward Lee Harris and Samuel Lee Harris Jr., Irrevocable Trust	Chesapeake Appalachia, L.L.C.	18.0%	813/105
4)	6-T4-4.30	1-385578-000	Victor A. Wood and Jenna P. Wood, his wife	SWN Production Company, L.L.C. NPAR, LLC	18.0%	883/228 803/657
				Chevron U.S.A., Inc. Chesapeake Appalachia, L.L.C.		827/254 867/713
5)	6-T4-4.28	1-314033-000	H. Elaine Schneider, f/k/a H. Elaine Thorns, and Thomas E. Schneider, her husband	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	18.0%	885/320 810/482
6)	6-T4-4.26	1-314033-000	H. Elaine Schneider, f/k/a H. Elaine Thorns, and Thomas E. Schneider, her husband	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	18.0%	883/180 811/125
7)	6-T4-4.23	47-0000515-000	David Lee Barnett and Nancy Barnett f/k/a Nancy Jean Kovalchie, husband and wife	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	18.0%	883/180 867/62
8)	6-T4-4.14	47-0000607-000	Cathy A. Calissie f/k/a Cathy A. Albaugh, a single woman	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	18.0%	884/397 869/141
			Cathy A. Calissie f/k/a Cathy A. Albaugh, a single woman	Chesapeake Appalachia, L.L.C.		873/609
9)	6-T4-4.15	47-0000607-000	Cathy A. Calissie f/k/a Cathy A. Albaugh, a single woman	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	18.0%	884/409 869/141
			Cathy A. Calissie f/k/a Cathy A. Albaugh, a single woman	Chesapeake Appalachia, L.L.C.		873/609

47-006900201

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 SEP 24 2015

10)	6-T4-4.7	47-0000630-000	Albert J. Mestrovic Jr. and Sherrie E. Mestrovic, husband and wife	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	18.0%	884/409 869/470
11)	6-T4-4.6	47-0000598-000	Gary W. Voorheis and Sundara Voorheis, husband and wife	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	18.0%	884/409 868/569
12)	6-T4-4.29	47-0000598-000	Gary W. Voorheis and Sundara Voorheis, husband and wife	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	18.0%	884/409 868/569
13)	6-T4-4.11	47-0001312-000	RCC Properties, LLC, a West Virginia limited liability company	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	18.0%	884/409 881/329
14)	6-T4-4	1-265432-000	GW Rentals, LLC, a West Virginia Corporation	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C.	12.5%	895/462 790/192
15)	3-L14-14	1-272773-000	Thomas Doepken, a single man	SWN Production Company, L.L.C. Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	16.0%	885/482 795/636 885/272

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SEP 24 2015

16)	3-L14-14.6	1-268359-000	William E. Ward and Lollyanne Ward, his wife,	Chesapeake Appalachia, L.L.C.	12.5%	792/57
				SWN Production Company, L.L.C.		885/248
17)	3-L14-14.13	Pending	Larry R. Lewis and Mison Lewis a/k/a Mi Son Lewis a/k/a Mison Haught, husband and wife	SWN Production Company, L.L.C.	18.0%	893/653
18)	3-L14-14.4	1-268359-000	William E. Ward and Lollyanne Ward, his wife,	Chesapeake Appalachia, L.L.C.	12.5%	792/57
				SWN Production Company, L.L.C.		885/248
19)	3-L14-5	1-312919-000	Scott W. Knollinger and Barbara A. Knollinger, his wife	Chesapeake Appalachia, L.L.C.	18.0%	809/306
				SWN Production Company, L.L.C.		884/61
20)	3-L14-5.1	47-000020-000	Wilda X. Dunn, a widow	Chesapeake Appalachia, L.L.C.	18.0%	815/710
				SWN Production Company, L.L.C.		883/766
21)	3-L14-6	1-313172-000	Steven Passa, a single man	Chesapeake Appalachia, L.L.C.	18.0%	809/286
				SWN Production Company, L.L.C.		884/73
			Steven Passa, a single man	SWN Production Company, L.L.C.	18.0%	893/619
22)	8-VG9-93	47-001608-000	Valley Grove Volunteer Fire Department, Inc., a West Virginia corporation	Chesapeake Appalachia, L.L.C.	18.0%	834/597
				SWN Production Company, L.L.C.		885/176
23)	8-VG7-17	47-001999-000	Thomas J. Hunter and Carol R. Hunter, husband and wife	Chesapeake Appalachia, L.L.C.	18.0%	835/33
				SWN Production Company, L.L.C.		885/728
24)	8-VG7-24	1-385517-000	Jack Lawrence Nelson, a/k/a Jack L. Nelson, and Charlotte Ann Nelson, a/k/a Charlotte A. Nelson, husband and wife	NPAR, LLC	18.0%	815/593
				Chevron U.S.A., Inc.		827/269
				Chesapeake Appalachia, L.L.C.		867/713
				SWN Production Company, L.L.C.		883/742
25)	8-VG7-24.1	1-313868-000	Lynn Reusser and Yvonne Reusser, husband and wife	Chesapeake Appalachia, L.L.C.	18.0%	816/141
			Lynn Reusser and Yvonne Reusser, husband and wife	Chesapeake Appalachia, L.L.C.		820/727
				SWN Production Company, L.L.C.		884/1
26)	3-L11-20.1	47-000579-000	Lynn Reusser and Yvonne Reusser, husband and wife	Chesapeake Appalachia, L.L.C.	18.0%	814/411
				SWN Production Company, L.L.C.		885/620

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 Office of Oil & Gas
 SEP 24 2015

SWN

Southwestern Energy®

PO Box 1300
Jane Lew, WV 26378
PHONE: (832) 796-1610

4706900201

September 16, 2015

Ms. Laura Adkins
WV DEP Office of Oil & Gas
601 57th St., SE
Charleston, WV 25304

RE: SWN's proposed G W Rentals LLC OHI 405H and G W Rentals LLC OHI 605H in Ohio County, West Virginia, Drilling under National Road and West Alexander Road.

Dear Ms. Adkins:

SWN Production Company, LLC ("SWN") is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to SWN's right to drill under National Road and West Alexander Road. Please be advised that SWN has leased all mineral owners under said route as it relates to the above-referenced well and unit.

Thank you.

Sincerely,



Robert Walter
Senior Landman
Southwestern Energy Production Company, LLC
PO Box 1300
Jane Lew, WV 26378

$\frac{R^2}{A} \rightarrow V^+$
The Right People doing the Right Things,
Wise Investing the cash flow from
our underlying Assets, will create Value+
Received
Office of Oil & Gas
SEP 24 2015

10/30/2015

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

Date of Notice Certification: _____

API No. 47- 69 - _____
Operator's Well No. G W Rentals LLC OHI 605H
Well Pad Name: G W Rentals LLC OHI Pad

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>WV</u>	UTM NAD 83 Easting: <u>537046.2</u>
County: <u>69- Ohio</u>	UTM NAD 83 Northing: <u>4436102.9</u>
District: <u>7- Triadelphia</u>	Public Road Access: <u>West Alexander Road</u>
Quadrangle: <u>648- Valley Grove</u>	Generally used farm name: <u>G W Rentals LLC</u>
Watershed: <u>Little Wheeling Creek</u>	

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED <input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION <input checked="" type="checkbox"/> 5. PUBLIC NOTICE <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		OOG OFFICE USE ONLY <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED
--	--	--

4706900201

Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

Received
Office of Oil & Gas

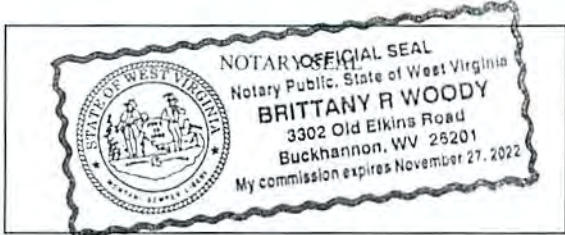
SEP 24 2015

10/30/2015

Certification of Notice is hereby given:

THEREFORE, I _____, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification 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:	<u>SWN Production Co., LLC</u>	Address:	<u>P.O. Box 1300</u>
By:	<u>Dee Southall</u>		<u>Jane Lew, WV 26378</u>
Its:	<u>Regulatory Supervisor</u>	Facsimile:	<u>304-471-2497</u>
Telephone:	<u>304-884-1610</u>	Email:	<u>Dee_Southall@swn.com</u>



Subscribed and sworn before me this 20th day of April 2015.
Brittany R Woody Notary Public
 My Commission Expires 11/27/22

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.

4706900201

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Office of Oil & Gas
SEP 24 2015

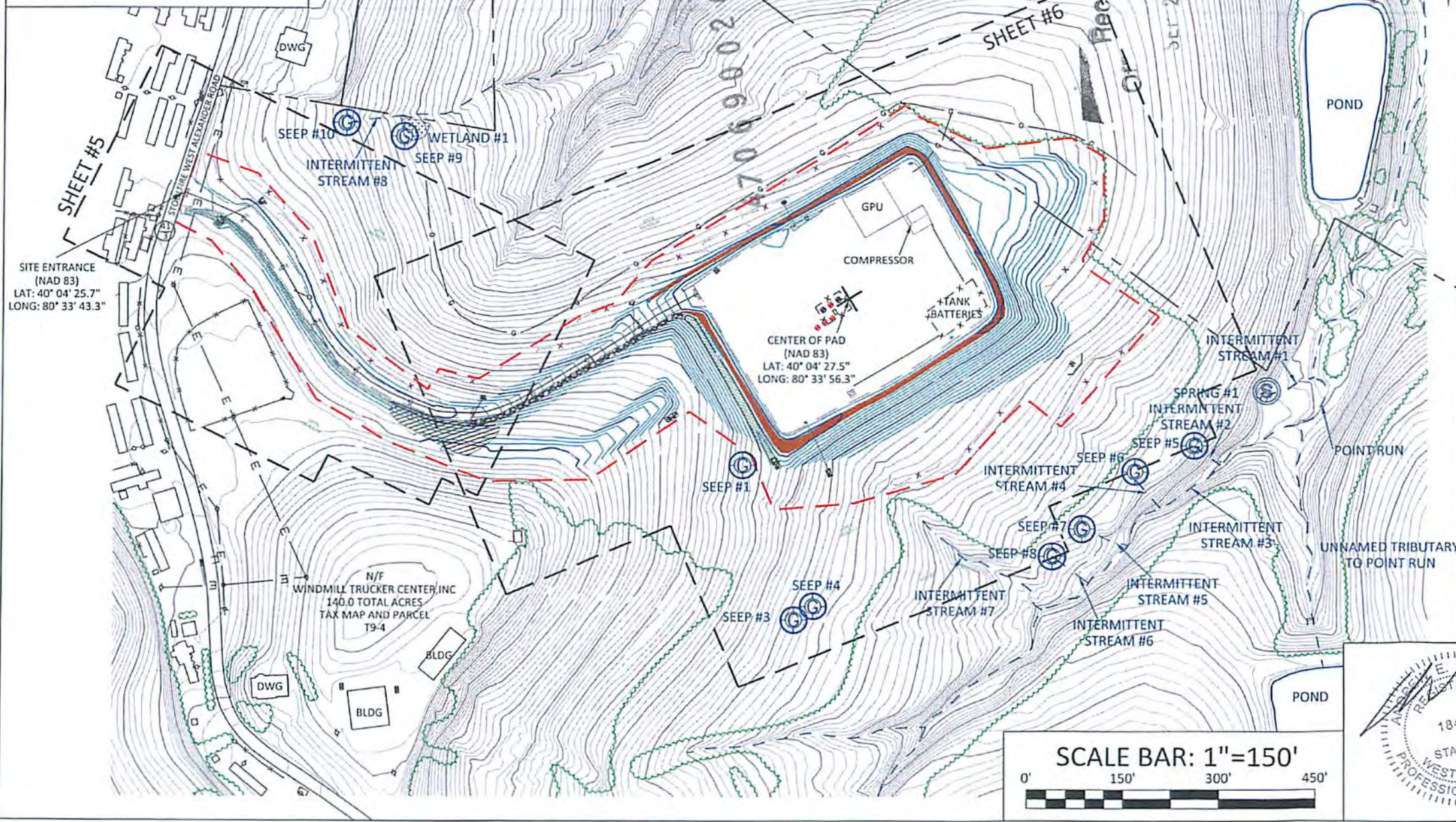
Attachment #3

- LEGEND**
- = PROJECT BOUNDARY(10.8 ACRES)
 - - - = PROPERTY LINE
 - - - = WATER COURSE
 - ⊙ = GROUNDWATER SEEP
 - ⊙ = SPRING
 - ⋯ = WETLAND

N/F
JAMES W. AND BARBARA
AYNN JOHNSON
0.846 TOTAL ACRES
TAX MAP AND PARCEL
T9-6.4

N/F
JOHN J. MOFFETT
5.013 TOTAL ACRES
TAX MAP AND PARCEL
T9-6

N/F
WINDMILL TRUCKER CENTER, INC
140.0 TOTAL ACRES
TAX MAP AND PARCEL
T9-4



SITE ENTRANCE
(NAD 83)
LAT: 40° 04' 25.7"
LONG: 80° 33' 43.3"

CENTER OF PAD
(NAD 83)
LAT: 40° 04' 27.5"
LONG: 80° 33' 56.3"

Received
9/22/15
4/12/17

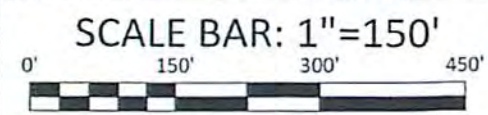


BOORD, BENCHEK and ASSOC., INC.
Engineering, Surveying, Construction,
and Mining Service's
Southpointe, PA 15317 Phone: 724-746-1055

AS-BUILT OVERVIEW

THIS DOCUMENT WAS PREPARED BY:
BOORD, BENCHEK AND ASSOC., INC.
FOR: SWN PRODUCTION CO., LLC

DATE:
MARCH 2015
G.W. REENTALS LLC
OHIO PAD "A"
TRIADDELPHIA DISTRICT,
OHIO COUNTY,
WV



SHEET 4 OF 12

Attachment #4



Legend

- SEP Church
- School
- 1 Mile Radius
- G W RENTALS LLC OHI 605H
470690020
- Transportation Routes

G W RENTALS LLC OHI PAD
Ohio County, West Virginia

Coordinate System: NAD 1983 StatePlane West Virginia North
10/30/2015

SWN
Southwestern Energy

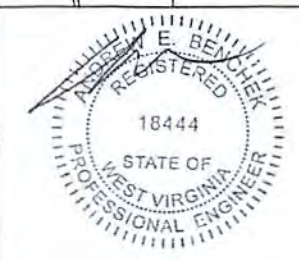
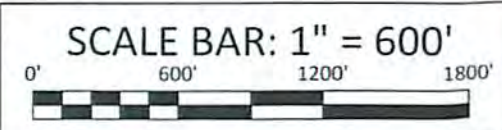
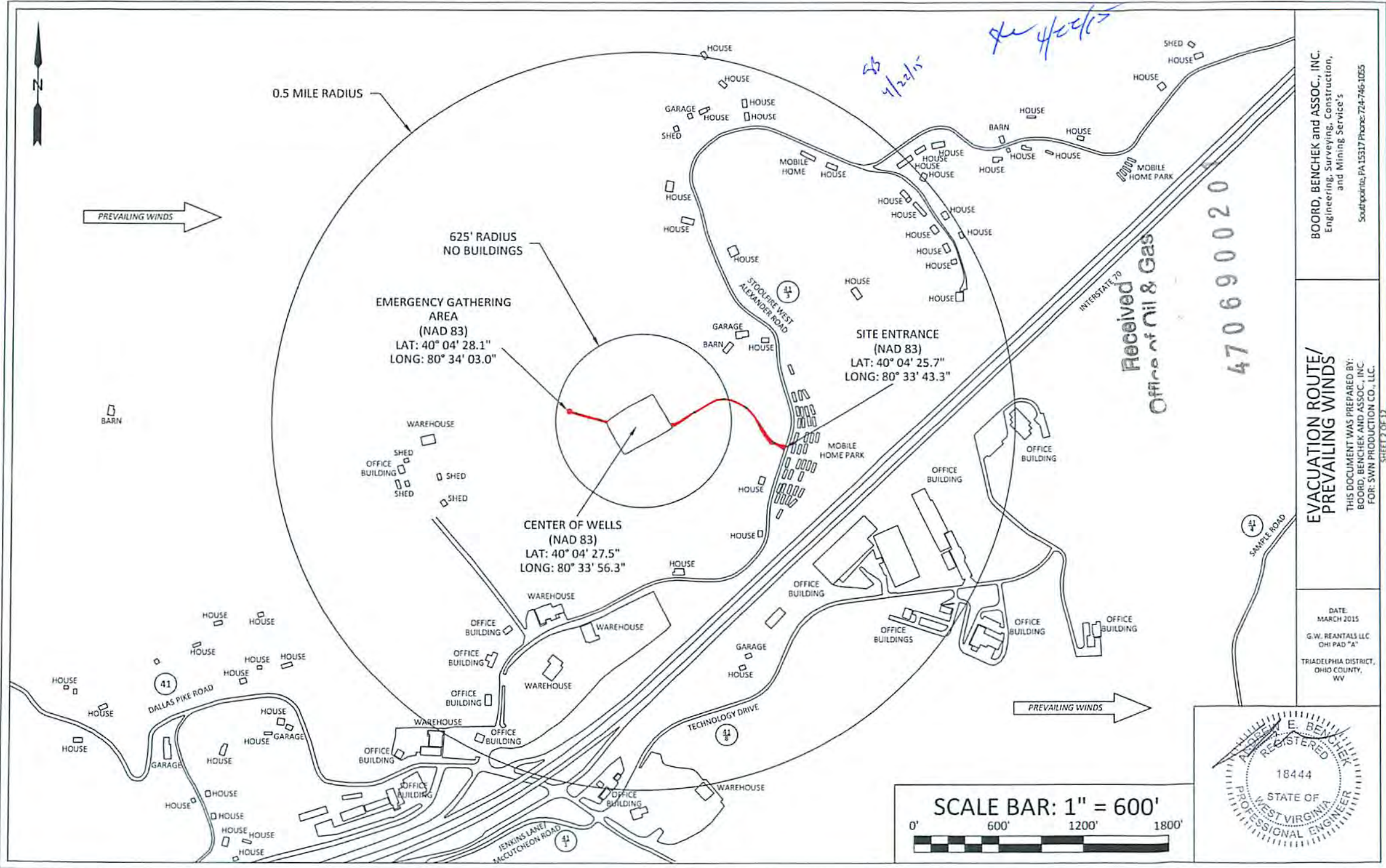
Received
Office of Oil & Gas

4/20/15
4/22/10

Scale: 1:24,000
1,000 500 0 500 1,000 Feet

Path: \\EandP\WVD\Team Data\GD\Levy\Sarah\Projects\Regulatory One Mile Maps\G W RENTALS LLC OHI 605H

Attachment #5



BOORD, BENCHEK and ASSOC., INC.
Engineering, Surveying, Construction,
and Mining Service's
Southport, PA 15317 Phone: 724-746-1055

EVACUATION ROUTE/
PREVAILING WINDS
THIS DOCUMENT WAS PREPARED BY:
BOORD, BENCHEK AND ASSOC., INC.
FOR: SWN PRODUCTION CO., LLC.

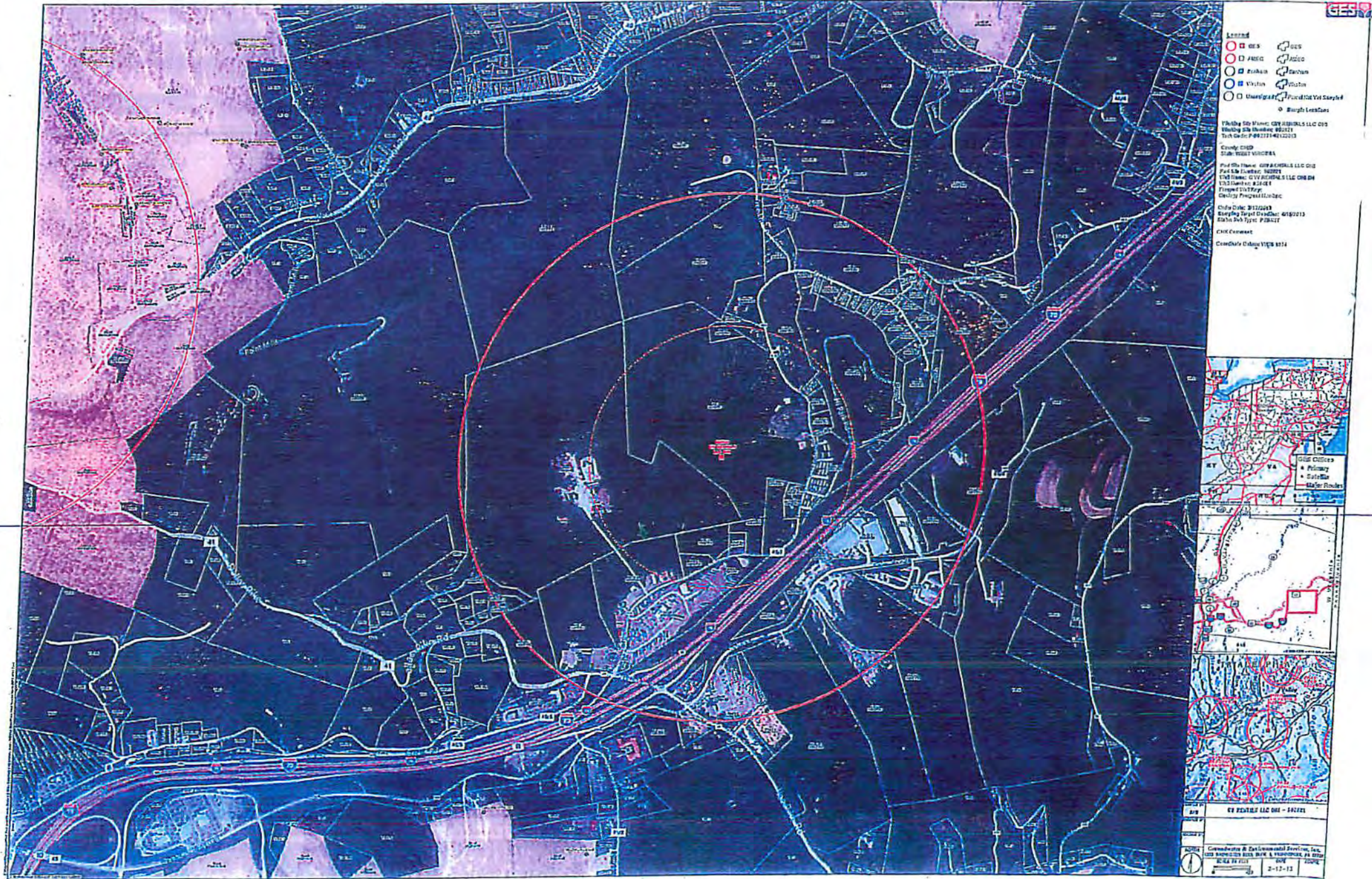
DATE:
MARCH 2015
G.W. REANTALS LLC
OHI PAD "A"
TRIADELPHIA DISTRICT,
OHIO COUNTY,
WV

SHEET 2 OF 12

Received
Office of Oil & Gas

SEP 24 2015

4706900201





320 O'Bryan Lane • Van Buren, AR 72956
Office: 479.474.7916 • Fax: 479.474.2450
Surveying • handa-inc.com

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 53°32'39" E	1282.49'	SHL TO LANDMARK	5/8" REBAR SET
L2	N 17°51'50" E	1268.32'	SHL TO LANDMARK	1" IRON PIPE
L3	S 28°54'49" W	41.08'	SHL TO REF. PNT.	G W RENTALS LLC OHI 1H WELL HEAD 069-00173
L4	S 39°33'52" W	68.16'	SHL TO REF. PNT.	G W RENTALS LLC OHI 8H WELL HEAD 069-00166
LINE	BEARING	DISTANCE	CURVE LENGTH	DESCRIPTION
L5	N 80°17'33" E	2232.70'		SHL TO LP
L6	N 20°24'36" W	7228.56'		LP TO BHL

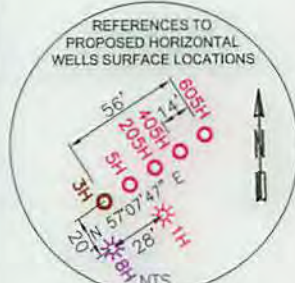
Latitude: 40°05'00"

Longitude: 80°32'30"

TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	GW RENTALS, LLC (S)	6-T9-5	13.96
2	LEE J. GLESSNER & GARY W. GLESSNER (R) GW RENTALS, LLC (S)	6-T9-5.1	27.66
3	SAMUEL LEE HARRIS SR., TRUSTEE OF THE ROBERT EDWARD LEE HARRIS & SAMUEL LEE HARRIS JR., IRREVOCABLE TRUST (S/R) JEFFREY S. CHAMBERS (R) JUDY LYNN CHAMBERS (R)	6-T9-57	9.31
4	JOSEPH M. TEAGARDEN & MARLA M. TEAGARDEN (S) VICTOR A. WOOD & JENNA P. WOOD (R)	6-T4-4.30	33.32
5	H. ELAINE SCHNEIDER & THOMAS E. SCHNEIDER (S/R)	6-T4-4.28	1.71
6	H. ELAINE SCHNEIDER & THOMAS E. SCHNEIDER (S/R)	6-T4-4.26	3.95
7	DAVID LEE BARNETT & NANCY BARNETT (S/R)	6-T4-4.23	0.88
8	CATHY A. CALISSIE (S/R)	6-T4-4.14	0.74
9	CATHY A. CALISSIE (S/R)	6-T4-4.15	0.14
10	ALBERT J. MESTROWIC JR & SHERRIE E. MESTROWIC (S/R)	6-T4-4.7	1.19
11	GARY W. VOORHEIS & SUNDARA VOORHEIS (S/R)	6-T4-4.6	1.03
12	GARY W. VOORHEIS & SUNDARA VOORHEIS (S/R)	6-T4-4.29	0.87
13	RCC PROPERTIES, LLC (S/R)	6-T4-4.11	0.87
14	GW RENTALS, LLC (S/R)	6-T4-4	10.68
15	THOMAS DOEPKEN (S/R)	3-L14-14	25.00
16	WILLIAM E. WARD & LOLLYANNE G. WARD (S/R)	3-L14-14.6	9.74
17	LARRY R. LEWIS & MISON LEWIS (S/R)	3-L14-14.13	4.95
18	WILLIAM E. WARD & LOLLYANNE G. WARD (S/R)	3-L14-14.4	18.34
19	SCOTT W. KNOLLINGER & BARBARA A. KNOLLINGER (S/R)	3-L14-5	5.74
20	WILDA X. DUNN (S/R)	3-L14-5.1	0.69
21	STEVEN PASSA (S/R)	3-L14-6	0.82
22	VALLEY GROVE VOLUNTEER FIRE DEPT., INC (S/R)	8-V09-93	14.80
23	THOMAS J. HUNTER & CAROL R. HUNTER (S/R)	8-V07-17	0.91
24	JACK LAWRENCE NELSON & CHARLOTTE ANN NELSON (S/R)	8-VG7-24	14.78
25	LYNN REUSSER & YVONNE REUSSER (S/R)	8-VG7-24.1	25.87
26	LYNN REUSSER & YVONNE REUSSER (S/R)	3-L11-20.1	66.28

NOTES ON SURVEY

- COORDINATE SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO OCCUPIED DWELLINGS AND AGRICULTURE BUILDINGS GREATER THAN 2500 SQ FT. WITHIN 625 FEET OF PROPOSED OF CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
- NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.

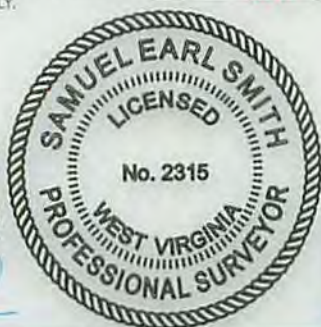


SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,102.929 EASTING: 537,046.192
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,440.161 EASTING: 537,637.213
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,438,505.005 EASTING: 536,869.079

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 2315

Samuel Earl Smith



SWN PRODUCTION COMPANY, LLC
"G W RENTALS LLC OHI 605H"
SURFACE HOLE
ELEV: 1246.6'



ADJOINING OWNER INFORMATION SEE SHEET 2



COMPANY: **SWN** Production Company, LLC

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)

G W RENTALS LLC OHI
OPERATOR'S WELL #: 605H
API WELL #: 47 STATE 69 COUNTY 00201 HCA PERMIT

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

WATERSHED: WHEELING CREEK ELEVATION: 1,246.6'

DISTRICT: TRIADELPHIA COUNTY: OHIO QUADRANGLE: VALLEY GROVE WV.

SURFACE OWNER: GW RENTALS, LLC. ACREAGE: ±27.66

OIL & GAS ROYALTY OWNER: LEE J GLESSNER & MARK W GLESSNER, JAMES Z CHAMBERS, JEFFREY S CHAMBERS, & JUDY LYNN CHAMBERS ACREAGE: ±27.66

DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,533' TVD 15,608' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: DEE SOUTHALL
ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE * EXISTING / PRODUCING WELLHEAD ⊗ ABANDONED WELL ⊗ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR	REVISIONS: ▲ REVISED DIRECTIONAL PATH, 08-06-2015 ▲ ADDED ADJACENT PARCELS, 08-14-2015 ▲ ADDED ADJACENT PARCEL OWNERS, TAX MAP PARCEL NUMBER, & ACREAGE, 09-10-2015	DATE: 09-01-2015 SEE INSET SHEET 2 DRAWN BY: S. HUTSON SCALE: 1" = 2000' DRAWING NO: 59092 WELL LOCATION PLAT
---	---	--



320 O'Bryan Lane • Van Buren, AR 72956
 Office: 479.474.7916 • Fax: 479.474.2450
 Surveying • handa-inc.com

ADJOINING OWNER
 INSET

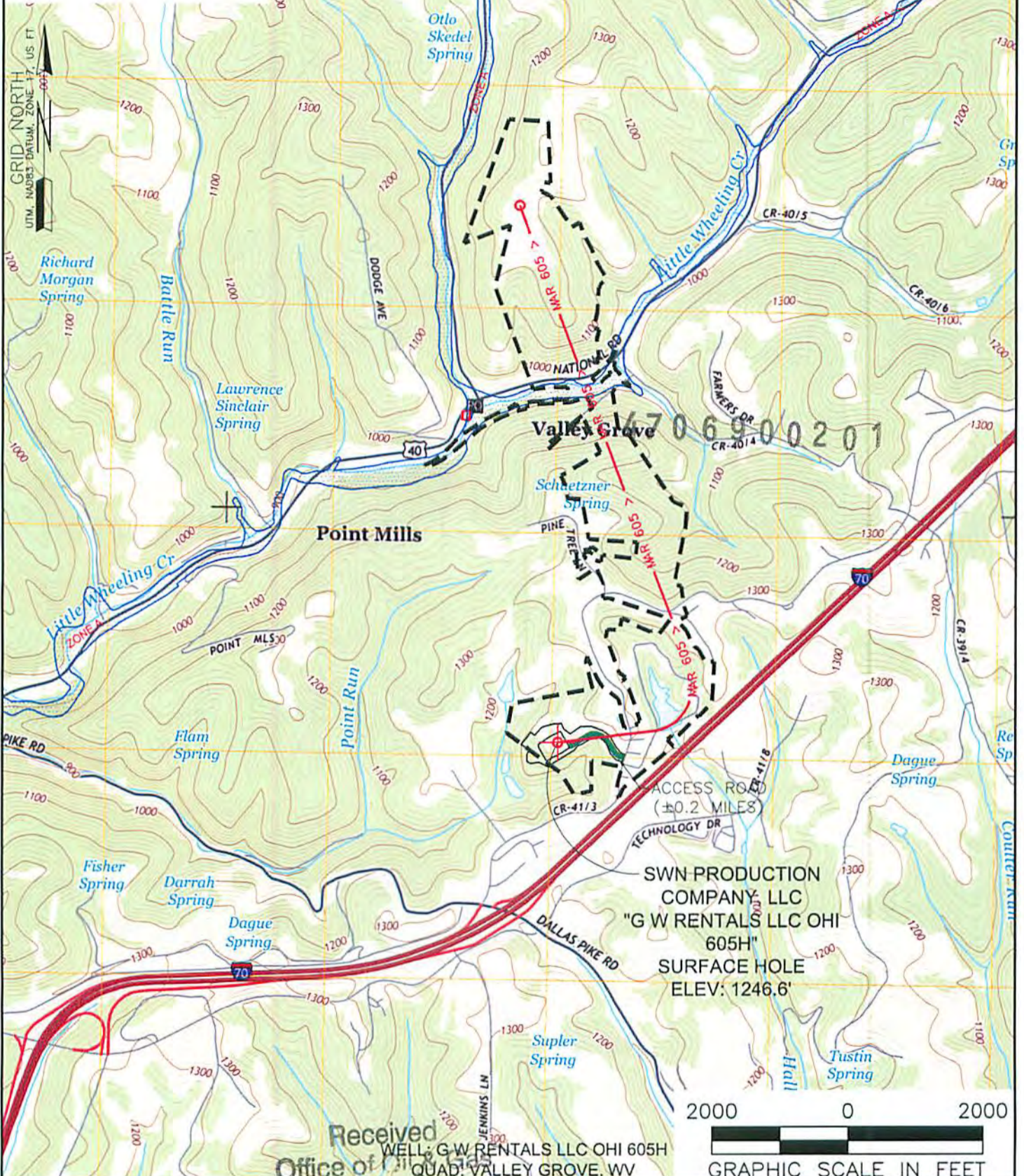
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
A	BUD & DARL INC	6-T9-6.6	2.12
B	WINDMILL TRUCKERS CENTER INC	6-T9-4	140.00
C	GW RENTALS, LLC	6-T9-5.2	38.16
D	GW RENTALS, LLC	6-T4-4.4	1.72
E	GARY W GLESSNER	6-T4-4.9	9.78
F	ROBERT L SCOTT & V J SCOTT	6-T4-4.22	0.76
G	ROBERT J MCCONNELL & ETHEL J MCCONNELL	6-T4-4.27	1.00
H	JACK E CORBETT JR	6-T4-4.25	1.00
I	HOWARD A WALLS III & TERESA WALLS	6-T4-4.24	1.77
J	PAUL WINTERS & LINDA WINTERS	6-T4-4.18	0.45
K	ROBERT B. ELLIOTT & KATHY A. ELLIOTT	6-T4-4.2	3.71
L	ROBERT ERIC BUCK & HUNTER JANNE BUCK	6-T4-4.3	0.68
M	ROBERT ERIC BUCK & HUNTER JANNE BUCK	6-T4-4.31	0.69
N	PAUL R HOWARD & ALICIA L HOWARD	6-T4-4.33	0.74
O	LEE J GLESSNER	6-T4-4.5	3.39
P	GW RENTALS LLC	6-T4-2.2	26.65
Q	WILLIAM E. WARD & LOLLYANNE G. WARD	3-L14-14.3	1.31
R	WILLIAM E. WARD & LOLLYANNE G. WARD	3-L14-14.8	0.15
S	JOHN W GRAMLICH JR	3-L14-14.7	3.04
T	JOHN W GRAMLICH JR	3-L14-14.9	0.21
U	JOHN W GRAMLICH & KATHLEEN GRAMLICH	3-L14-14.11	0.50
V	LARRY R LEWIS	3-L14-14.15	0.07
W	JAMES R. HALL JR. & MELISSA RENEE HALL	3-L14-14.14	1.99
X	LEE J. GLESSNER	3-T4-2	86.89
Y	JAMES E LAUDERMILT JR & ASHLEY L LAUDERMILT	3-L14-4	8.62
Z	RICHARD K DERROW & ALICIA DERROW	3-L14-3	6.74
AA	STEVEN PASSA	8-L14-6	0.82
BB	DONALD C. SINCLAIR & BETTY SINCLAIR	3-L14-1.1	99.77
CC	VALLEY GROVE VOLUNTEER FIRE DEPARTMENT, INC.	8-VG9-94	0.83
DD	JOE VESPA	8-VG9-92.1	1.01
EE	VILLAGE OF VALLEY GROVE	8-VG9-81	1.12
FF	VILLAGE OF VALLEY GROVE	8-VG9-82	0.18
GG	CARL W PHILABAUM III	8-VG9-85	2.00
HH	JEPSON L NELSON & C L NELSON	8-VG9-87	0.27
II	GEORGE E BESS & CATH L BESS	8-VG9-89	0.63
JJ	EDWARD A. REYNOLDS JR.	8-VG9-91	0.39
KK	EDWARD G. SCHULTZ & JANET L. SCHULTZ	8-VG6-23	0.36
LL	LINDA L. RINDER	8-VG7-23	0.26
MM	ROBERT F LUBIC LIFE	8-VG7-22	0.16
NN	GARY DEBOLT & JANICE M DEBOLT	8-VG7-21	0.17
OO	MARTHA A STARKEY & BARBARA A JENKS	8-VG7-18	1.93
PP	LYNN REUSSER	8-L14-2	10.00
QQ	WILLIAM S. PATTERSON III & DAWN E. PATTERSON	3-L14-2.2	32.26
RR	MICHAEL D. VARGO & MELISSA JEAN VARGO	3-L14-1	13.42
SS	LYNN REUSSER & YVONNE REUSSER	3-L14-2	10.84
TT	LYNN REUSSER & YVONNE REUSSER	3-L11-21	79.91
UU	VINCENT W BEVILL & BAMBI A BEVILL	8-VG7-1	2.21
VV	JACK L NELSON	8-VG7-5.1	1.92
WW	BRENDA S SHEPHERD	8-VG7-5	1.94
XX	THOMAS J HUNTER & CAROL R HUNTER	8-VG7-8	0.74
YY	CARL W PHILABAUM III & MARY B PHILABAUM	8-VG7-8.2	1.00
ZZ	CARL PHILABAUM III	8-VG7-9	0.31
AAA	JAMES R. HALL & KATHY D. HALL	8-VG7-14	0.22
BBB	CAROLYN L. NICK & DARRYL D. NICK	8-VG7-15	0.19
CCC	CAROLYN L. NICK & DARRYL D. NICK	8-VG7-16	0.19
DDD	RENA MOSA	8-VG7-7	0.33
EEE	DONALD PLETCHER & PEGGY PLETCHER	3-L14-56	5.13
FFF	KELLY A CALMBACHER	3-L14-56.1	0.63
GGG	DONALD PLETCHER & P L PLETCHER	8-L14-19.1	1.39
HHH	DAVID W. SLYDER & GINA SLYDER	3-L14-9	0.51
III	ANNA HACSKAYLO	8-L14-10	3.14
JJJ	JOHN KOVACS & TINA KOVACS	3-L14-11	2.00
KKK	JOHN W KOVACS JR & TINA M KOVACS	3-L14-11.1	2.00
LLL	RODNEY L MILLER & CLAUDIA K MILLER	8-L14-13	15.00
MMM	EARL F PARSONS & G A PARSONS	3-L14-15	51.71
NNN	NANCY MAE CUSTER	6-T4-5	8.81
OOO	ERNEST R. BURKY & JOYCE A. BURKY	6-T4-4.12	0.65
PPP	CLARA CLIFTON	6-T4-4.35	0.19
QQQ	CLARA M CLIFTON	6-T4-4.16	0.85
RRR	ROBERT L. CLIFTON & CLARA M. CLIFTON	6-T4-4.1	1.06
SSS	ALBERT B LEECH & JENIFER A LEECH	6-T4-4.32	0.96
TTT	C EDWARD BELCHER	6-T4-4.17	1.12
UUU	RAYMOND H. MCCAUSLAND & SHARON L. MCCAUSLAND	6-T4-9	13.51
VVV	H ELAINE THOMS & SCHNEIDER T THOMS	6-T4-9.2	1.23
WWW	UNITED STATES OF AMERICA	6-T9-31.3	18.65
XXX	VALLEY FOREST PRODUCTS INC	6-T9-31	5.23
YYY	BEYBA INC	6-T9-31.2	4.18
ZZZ	CONTINENTAL PLASTICS INC	6-T9-31.5	7.97
AAAA	RXI PLASTIC INC	6-T9-6	1.32
BBBB	JAMES W JOHNSON & B A JOHNSON	6-T9-6.4	0.85
CCCC	JAMES W JOHNSON & BARBARA A JOHNSON	6-T9-6.2	0.73
DDDD	JOANN T MOFFETT	6-T9-6	5.01

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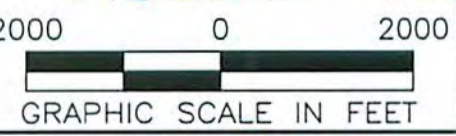
Received
 Office of Oil & Gas
 SEP 24 2015

10/30/2015

COMPANY:	
REVISIONS:	DATE: 09-01-2015
	INSET FROM SHEET 1
	DRAWN BY: S. HUTSON
	SCALE: N/A
	DRAWING NO: 59092
	WELL LOCATION PLAT



Received
Office of WELL: G W RENTALS LLC OHI 605H
QUAD: VALLEY GROVE, WV



NAME AND DISTANCE TO THE NEAREST STREAM: AN UNNAMED TRIBUTARY OF POINT RUN IS LOCATED ±0.15 MILES NORTHWEST OF THE CENTER OF THE DRILL PAD.		STREAM CROSSING COORDINATES (NAD 83): NO NEW CROSSINGS		COMPANY: 	
WELL RESTRICTIONS: WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >625 FEET		OPERATOR'S G W RENTALS LLC OHI		WELL #: 605H	
FEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY FEMA FIRM UNINCORPORATED AREA OF OHIO COUNTY, WEST VIRGINIA; MAP NUMBER 54069C0080D; EFFECTIVE JULY 17, 2006.		LOCATION: TRIADELPHIA DISTRICT, OHIO COUNTY, WEST VIRGINIA		SURFACE HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.074378° LONGITUDE: -80.565528°	
LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ● EXISTING / PRODUCING WELLHEAD ⊗ ABANDONED WELL ⊕ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR (S) EXISTING SPRING (W) EXISTING WATER WELL — ACCESS ROAD — ACCESS ROAD TO PREV. SITE — HIGHWAY/INTERSTATE — COUNTY ROAD		BOTTOM HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.096027° LONGITUDE: -80.567468°		REVISIONS: △ REVISED DIRECTIONAL PATH, 08-06-2015	
				DATE: 09-01-2015	
				DRAWN BY: S. HUTSON	
				SCALE: 1" = 2000'	
				DRAWING NO: 59092	
				TOPOGRAPHIC MAP	

10/30/2015

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION

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

Date of Notice: 9/23/15 Date Permit Application Filed: 9/23/15

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

4706900201

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
Name: G W Rentals LLC
Address: 2084 National Road
Wheeling, WV 26003

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: _____
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: Alliance Resources GP, LLC %Christine St. John
Address: 2596 Battle Run Road
Triadelphia, WV 26059

COAL OPERATOR
Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: *** See Attachment #1
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

*Please attach additional forms if necessary

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Attachment #1

G W Rentals LLC OHI Water Purveyors

Name	Address	City	State	Zip
G W Rentals LLC	2084 National Road x2	Wheeling	WV	26003
Windmill Truckers Center, INC.	2084 National Road x3	Wheeling	WV	26003
James & Barbara Johnson	629 West Alexander Road x2	Valley Grove	WV	26060
JVB Restaurant Enterprises, LLC	3 Pavilack Ct.	Wheeling	WV	26003
Robert Edward Lee & Samuel Lee Harris, Jr.	100 Circile Drive x2	Wheeling	WV	26003
Jack E. Corbitt, Jr.	33 Hubbard Lane	Wheeling	WV	26003
Robert J. McConnell	824 West Alexander Road	Valley Grove	WV	26060
Gary W. Glessner	P.O. Box 128	Valley Grove	WV	26060
Robert K. & V J Scott	858 West Alexander Road	Valley Grove	WV	26060
RXI Plastic INC C/O Silgan Plastics Corp- Pratt	14515 N. Outer 40 Suite 210	Chesterfield	MO	63017

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SEP 24 2015

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Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

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Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring of the department, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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Office of Oil & Gas
SEP 11 2015

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary **47069002**

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

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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SEP 24 2015

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) 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.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and 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.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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SEP 24 2015

WW-6A
(8-13)

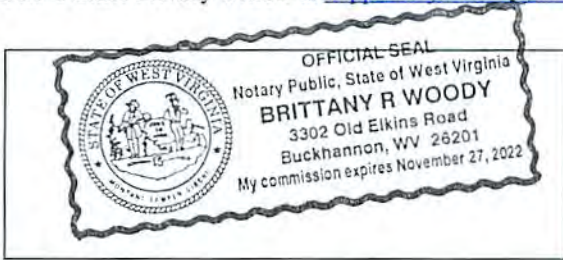
API NO. 47- 69 -
OPERATOR WELL NO. G W Rentals LLC OHI 605H
Well Pad Name: G W Rentals LLC OHI Pad

Notice is hereby given by:
Well Operator: SWN Production Co., LLC
Telephone: 304-864-1618
Email: Dee_Southall@swn.com

Address: P.O. Box 1300
Jane Lew, WV 26378
Facsimile: 304-471-2497

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.



Subscribed and sworn before me this 20th day of April 2015.
Brittany R Woody Notary Public
My Commission Expires 11/27/22

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Office of Oil & Gas
SEP 24 2015

10/30/2015

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least TEN (10) days prior to filing a permit application.
Date of Notice: 03/26/2015 **Date Permit Application Filed:** 9/23/15

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

HAND DELIVERY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

4706900201

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

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

Name: GW Rentals LLC
Address: 2084 National Road
Wheeling, WV 26003

Name: _____
Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon 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>537046.2</u>
County:	<u>Ohio</u>		Northing:	<u>4436102.9</u>
District:	<u>Tridelphia</u>	Public Road Access:	<u>West Alexander Road</u>	
Quadrangle:	<u>Valley Grove</u>	Generally used farm name:	<u>GW Rentals</u>	
Watershed:	<u>Upper Ohio South</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: SWN Production Company, LLC
Address: 179 Innovation Drive
Jane Lew, WV 26378
Telephone: 304-517-6603
Email: steve_perkins@swn.com
Facsimile: 304-461-2497

Authorized Representative: Steve Perkins
Address: 179 Innovation Drive
Jane Lew, WV 26378
Telephone: 304-517-6603
Email: steve_perkins@swn.com
Facsimile: 304-461-2497

Received
Office of Oil & Gas

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.

SEP 24 2015

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: 03/26/2015 **Date Permit Application Filed:** 9/25/15

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

CERTIFIED MAIL HAND DELIVERY
RETURN RECEIPT REQUESTED DELIVERY

4706900201

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: GW Rentals LLC
Address: 2084 National Road
Wheeling, WV 26003

Name: _____
Address: _____

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>537046.2</u>
County:	<u>Ohio</u>	Northing:	<u>4436102.9</u>
District:	<u>Tridelpnia</u>	Public Road Access:	<u>West Alexander Road</u>
Quadrangle:	<u>Valley Grove</u>	Generally used farm name:	<u>GW Rentals</u>
Watershed:	<u>Upper Ohio South</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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: SWN Production Company, LLC
Telephone: 304-517-6603
Email: steve_perkins@swn.com

Address: 179 Innovation Drive
Jane Lew, WV 26378
Facsimile: 304-461-2497

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.

Received
Office of Oil & Gas
SEP 24 2015



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

April 24, 2015

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

470690020

Subject: DOH Permit for the GW Rentals Well Pad Site, Ohio County

G W Rentals LLC OHI 605H

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permit 06-2013-0030 for the subject site to Southwestern Energy for access to the State Road for the well site located off of Ohio County Route 41/3 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.

Received
Office of Oil & Gas
SEP 24 2015

Very Truly Yours,

Gary K. Clayton
Regional Maintenance Engineer
Central Office Oil & Gas Coordinator

Cc: Brittany Woody
Southwestern Energy
CH, OM, D-6
File

10/30/2015

Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
NALCO ONESOURCE	EC6110A	Biocide	Ethanol	000064-17-5
			Glutaraldehyde (Pentenediol)	000111-30-8
			Quaternary Ammonium Compounds	N/A-063
	EC6629A	Biocide	No Hazardous Components	NONE
WEATHERFORD	WBK-133 OXIDIZER	Breaker	Ammonium Persulfate	007727-54-0
	WBK-134	Breaker	Ammonium Persulfate	007727-54-0
			Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7
	WCS-631LC	Clay Stabilizer	Proprietary Non Hazardous Salt	N/A-229
			Water	007732-18-5
	WFR-55LA	Friction Reducer	No Hazardous Components	NONE
	WGA-15L	Gel	Petroleum Distillate Hydrotreated Light	064742-47-8
	WPB-584-L	Buffer	Potassium Carbonate	000584-08-7
			Potassium Hydroxide	001310-58-3
	WXL-101LE	Corsslinker	No Hazardous Components	NONE
	WXL-101LM	Crosslinker	Petroleum Distillate Hydrotreated Light	064742-47-8
	WXL-105L	Crosslinker	Water	007732-18-5
Ethylene Glycol			000107-21-1	
Boric Acid			010043-35-3	
Ethanolamine			000141-43-5	
SCHLUMBERGER	B244 Green-Cide 25G	Biocide	Glutaraldehyde	111-30-8
	L071 Temporary Clay Stabilizer	Clay Stabilizer	Cholinium Chloride	67-48-1
	Breaker J218	Breaker	Diammonium Peroxidisulphate	7727-54-0
	EB-Clean* J475 Breaker		Diammonium Peroxidisulphate	7727-54-0
	Friction Reducer B315	Friction Reducer	Distillates (petroleum), Hydrotreated light Aliphatic Alcohol Glycol Ether	64742-47-8 Proprietary
	Friction Reducer J609		Ammonium Sulfate	7783-20-2

4706900201

Received
Office of Oil & Gas
SEP 24 2015

10/30/2015

Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
SCHLUMBERGER	Water Gelling Agent J580	Gel	Carbohydrate Polymer	Proprietary
	Scale Inhibitor B317	Scale Inhibitor	Trisodium ortho phosphate Ethane-1, 2-diol	7601-54-9 107-21-1
	Borate Crosslinker J532	Crosslinker	Aliphatic polyol Sodium tetraborate decahydrate	Proprietary 1303 96-4
	Crosslinker J610		Aliphatic polyol Potassium hydroxide	Proprietary 1310 58-3

4706900201

Received
Office of Oil & Gas
SEP 24 2015

10/30/2015

Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
BAKER HUGHES	ALPHA 1427	Biocide	Didecyl Dimethyl Ammonium Chloride	007173-51-1
			Ethanol	000064-17-5
			Glutaraldehyde (Pentanediol)	000111-30-8
			Quaternary Ammonium Compound	068424-85-1
			Water	007732-18-5
	BF-7L	Buffer	Potassium Carbonate	000584-08-7
	ClayCare	Clay Stabilizer	Choline Chloride	000067-48-1
			Water	007732-18-5
	Enzyme G-I	Breaker	No Hazardous Components	NONE
	ENZYME G-NE	Breaker	No Hazardous Components	NONE
	FRW-18	Friction Reducer	Petroleum Distillate Hydrotreated Light	064742-47-8
	GW-3LDF	Gel	Petroleum Distillate Blend	N/A-014
			Polysaccharide Blend	N/A-021
	SCALETROL 720	Scale Inhibitor	Diethylene Glycol	000111-46-6
Ethylene Glycol			000107-21-1	
XLW-32	Crosslinker	Boric Acid	010043-35-3	
		Methanol (Methyl Alcohol)	000067-56-1	
FRAC TECH SERVICES	APB01 (AMMONIUM PERSUFATE BREAKER)	Breaker	Ammonium Persulfate	007727-54-0
	B05 (LOW PH BUFFER)	Buffer	Acetic acid	000064-19-7
	BXL03 Borate XL Delayed High Temp	Crosslinker	No Hazardous Components	NONE
	FRW-200	Friction Reducer	No Hazardous Components	NONE
	HVG01 (TURQUOISE-1 BULK)	Gelling Agent	Petroleum Distillate Hydrotreated Light	064742-47-8
	KCLS-4	Clay Stabilizer	No Hazardous Components	NONE
	LTB-1	Breaker	Ammonium Persulfate	N/A

Received
Office of Oil & Gas
SEP 24 2015

4706900201

10/30/2015



TWO WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR MUST CONTACT THE WV ONE CALL SYSTEM, INC., 1-800-245-4848
WV ONE CALL SERIAL #: 1213740331

OWNER



SWN PRODUCTION CO., LLC.
P.O. BOX 1300
JANE LEW, WV 26378
(832)-796-1610



G. W. RENTALS LLC OHI PAD "A" AS-BUILT & RECLAMATION PLAN TRIADELPHIA DISTRICT, OHIO COUNTY, WV MARCH 2015

PLANS PREPARED BY:

BOORD BENCHEK & ASSOCIATES, INC.
ENGINEERING, SURVEYING, CONSTRUCTION AND MINING SERVICES
SOUTHPOINTE, PA 15317 PHONE: 724-746-1055

SHEET INDEX
1. TITLE SHEET
2-3. EVACUATION ROUTE/PREVAILING WINDS
4. AS-BUILT OVERVIEW
5-6. AS-BUILT
7. ACCESS ROAD PROFILE
8. RECLAMATION PLAN OVERVIEW
9-10. RECLAMATION PLAN
11-12. DETAILS

TOTAL DISTURBED AREA: 10.8 AC.
ROAD DISTURBED AREA: 3.9 AC.
WELL PAD DISTURBED AREA: 6.9 AC.

LENGTH OF ACCESS ROAD: 1,007'
AVG. WIDTH OF ACCESS ROAD: 15'
WELL PAD ELEVATION: 1247'

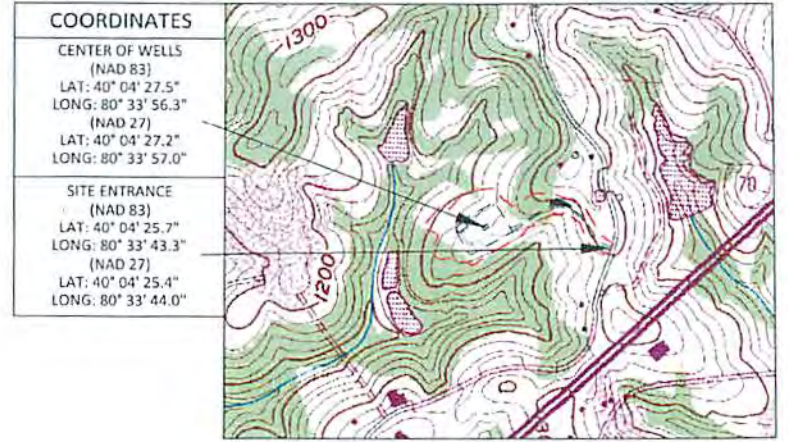
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API# 6900173
API# 6900193
API# 6900194
API# 6900195
API# 6900196



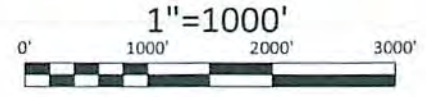
Andrew Benchek 3-18-15
ANDREW BENCHEK DATE
P.E.



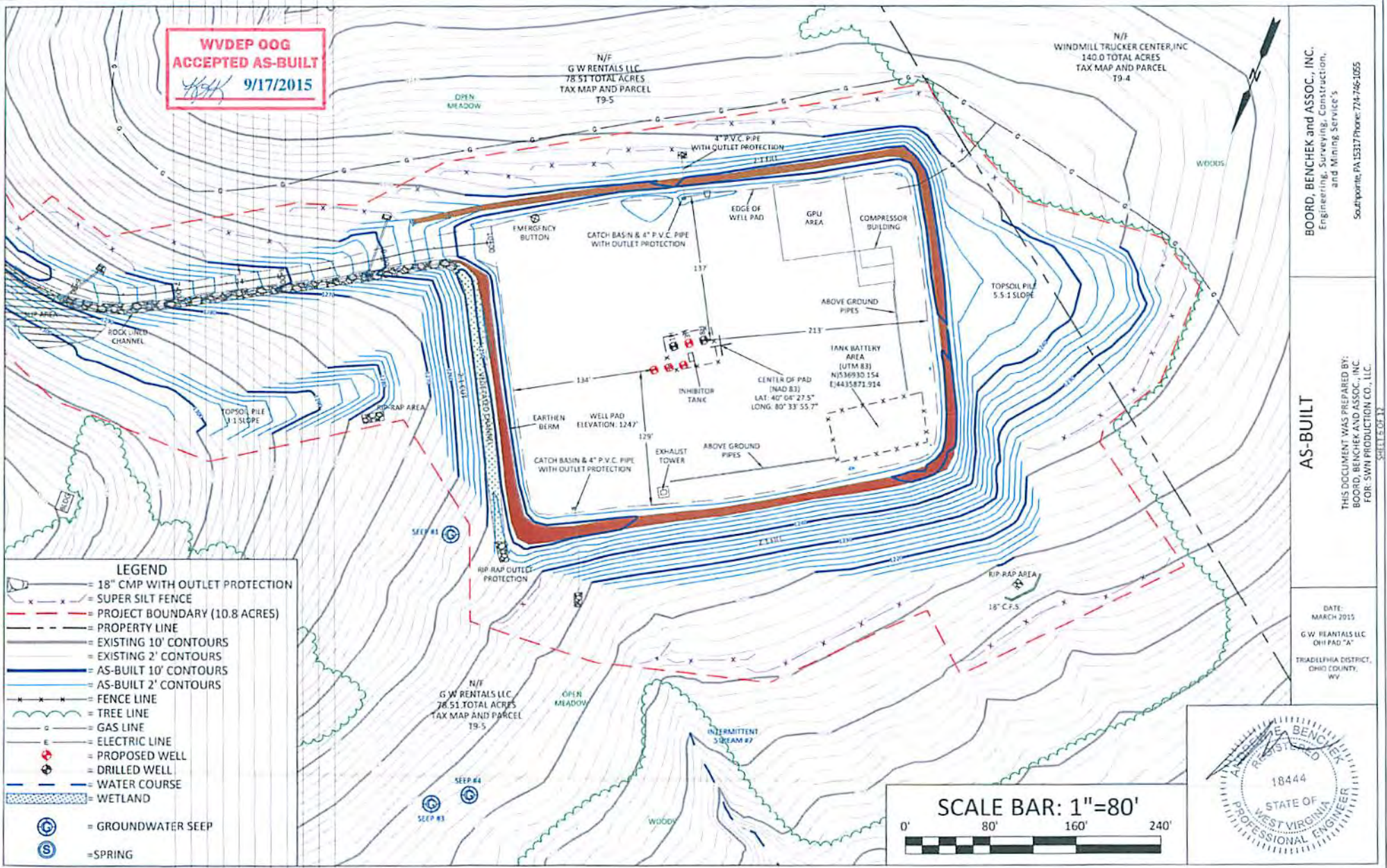
PROJECT LOCATION



TITLE SHEET G.W. RENTALS LLC OHI PAD "A" TRIADELPHIA DISTRICT, OHIO COUNTY, WV	SHEET 1 OF 12
--	------------------------



**WVDEP OOG
ACCEPTED AS-BUILT**
9/17/2015



N/F
G W RENTALS LLC
78.51 TOTAL ACRES
TAX MAP AND PARCEL
T9-5

N/F
WINDMILL TRUCKER CENTER, INC
140.0 TOTAL ACRES
TAX MAP AND PARCEL
T9-4

BOARD, BENCHEK and ASSOC., INC.
Engineering, Surveying, Construction,
and Mining Services
Southpointe, PA 15317 Phone: 724-746-1055

AS-BUILT
THIS DOCUMENT WAS PREPARED BY:
BOARD, BENCHEK AND ASSOC., INC.
FOR: SWN PRODUCTION CO., LLC.

DATE:
MARCH 2015
G.W. RENTALS LLC
OH PAD "A"
TRIADAPLHIA DISTRICT,
OHIO COUNTY,
WV





● SITE LOCATION

WEST VIRGINIA COUNTY MAP

TRIADELPHIA DISTRICT, OHIO COUNTY,
WEST VIRGINIA
SCALE: N.T.S.

PROJECT CONTACTS

SOUTHWESTERN ENERGY

Tom Chambers - Facilities Engineer
501-548-3753

John Angiulli, Field Regulatory Specialist
304-884-1644

Jimmy Johnson, Construction Superintendent
304-997-9403

ENGINEER & SURVEYOR

Anthony Baumgard, PE
Triple H Enterprises
304-873-3260

Darrell Boice, PS
Triple H Enterprises
304-873-3260



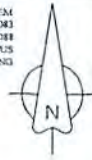
ANTHONY BAUMGARD, P.E. NO. WV 14049

MSX Utility of West Virginia
1-800-243-4848
West Virginia State Law
(Section XXV, Chapter 24-2)
Requires that you call two business days before you dig in
the state of West Virginia
IT'S THE LAW!!!



G.W. RENTALS LLC - OHI AS-BUILT
AS-BUILT/PRODUCTION PLAN
TRIADELPHIA DISTRICT, OHIO COUNTY, WEST VIRGINIA
SOUTHWESTERN ENERGY

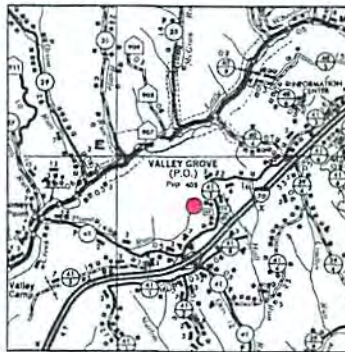
WEST VIRGINIA STATE PLANE COORDINATE SYSTEM
NORTH EDGE, NAD83
ELEVATIONS BASED ON NAVD83
ESTABLISHED BY SURVEY GRADE GPS & OPUS
POST-PROCESSING



DRAWING INDEX

- 01 - COVER SHEET
- 02-03 - EVACUATION SHEETS
- 04 - PLAN SHEET
- 05 - ACCESS ROAD PROFILE SHEET
- 06 - DETAIL SHEET

USGS VALLEY GROVE, WV QUAD MAP



**TRIADELPHIA DISTRICT, OHIO COUNTY,
WEST VIRGINIA**

WVDOH COUNTY ROAD MAP
● PROJECT LOCATION
SCALE: N.T.S.

0690020

AS-BUILT CERTIFICATION:
THE DRAWINGS, CONSTRUCTION NOTES, AND
REFERENCE DIAGRAM ATTACHED HERETO HAVE
BEEN PREPARED IN ACCORDANCE WITH THE WEST
VIRGINIA CODE OF STATE RULES, DIVISION OF
ENVIRONMENTAL, OFFICE OF OIL AND GAS CRS 35-8.

NOTES:

1. THE AS-BUILT INFORMATION SHOWN HEREON REFLECTS FIELD DATA COLLECTED RELATING TO THE FINAL GRADING OF THE DISTURBED AREA AS OF JULY 22, 2015. TRIPLE H ENTERPRISES IS NOT RESPONSIBLE FOR ANY CHANGES MADE TO THE SITE AFTER THE ABOVE MENTIONED DATE.
2. THE EXISTING CONTAINMENT BERM AROUND THE WELL PAD SHALL BE REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS PRIOR TO DRILLING OPERATIONS.
3. THE EXISTING FENCE TO THE WELL PAD SHALL HAVE THE MOUNTABLE BERMS REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS PRIOR TO DRILLING OPERATIONS.

REVISION

DATE



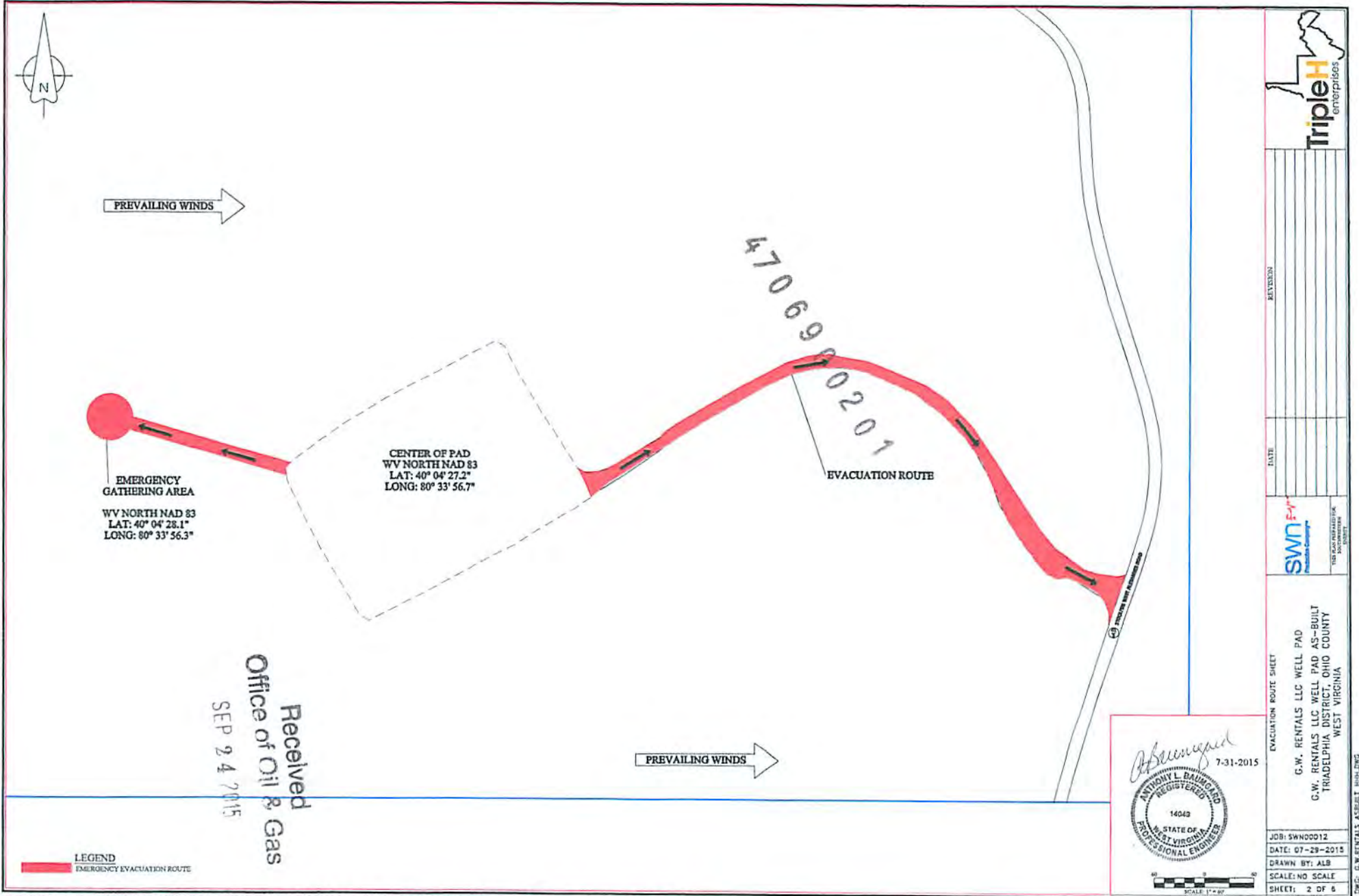
G.W. RENTALS LLC WELL PAD
G.W. RENTALS LLC WELL PAD AS-BUILT
TRIADELPHIA DISTRICT, OHIO COUNTY
WEST VIRGINIA

COVER SHEET

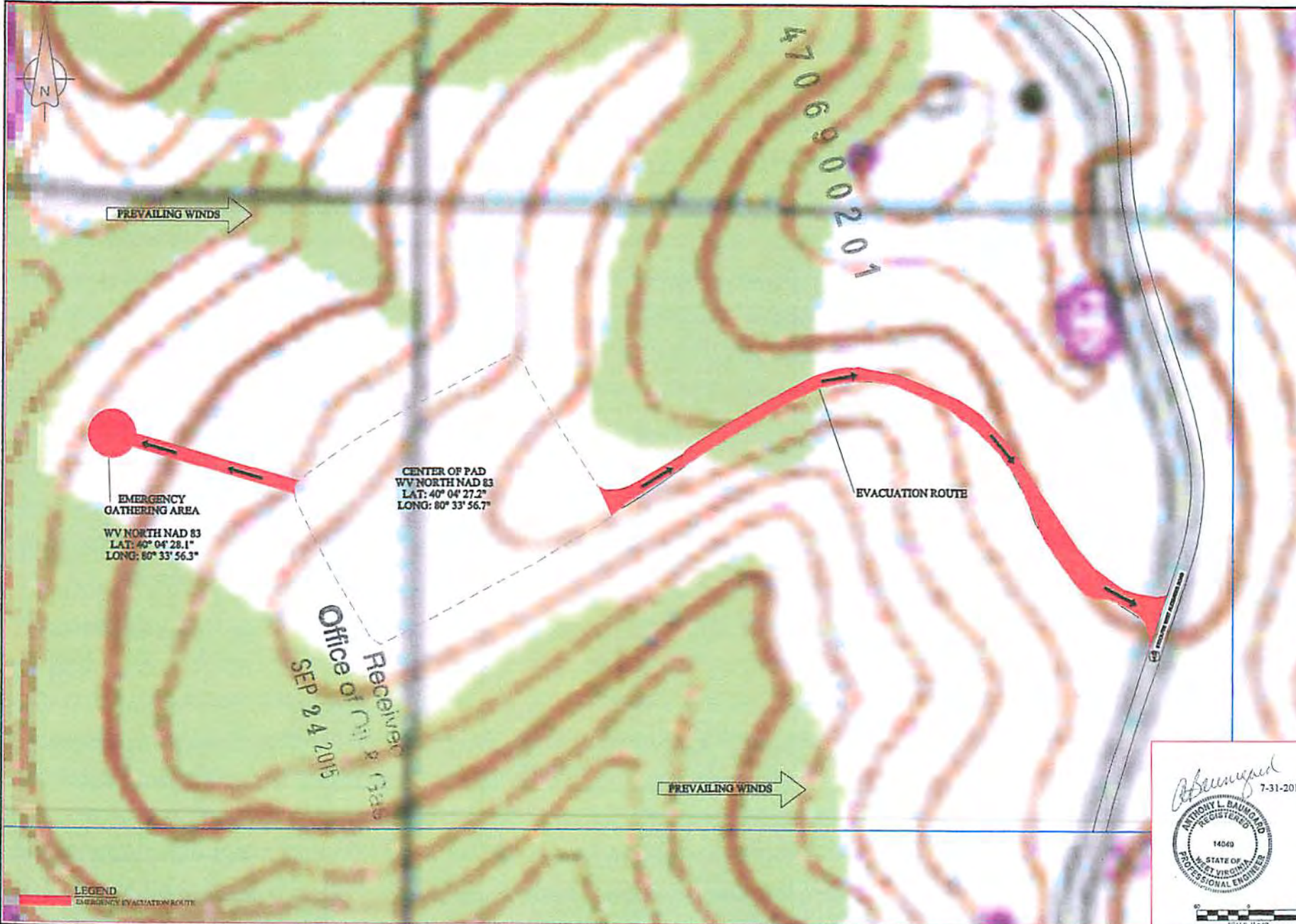
JOB: SWN00012
DATE: 07-29-2015
DRAWN BY: ALB
SCALE: NO SCALE
SHEET: 1 OF 6

DWG: G.W.RENTALS ASBUILT 081015

Handwritten signature and date: 8.10.15



E. BLW 8.10.15



PREVAILING WINDS →

EMERGENCY GATHERING AREA
 WV NORTH NAD 83
 LAT: 40° 04' 28.1"
 LONG: 80° 33' 56.3"

CENTER OF PAD
 WV NORTH NAD 83
 LAT: 40° 04' 27.2"
 LONG: 80° 33' 56.7"

EVACUATION ROUTE

4706900201

PREVAILING WINDS →

Office of Receiver
 SEP 24 2015

Anthony L. Baumgard
 7-31-2015
 ANTHONY L. BAUMGARD
 REGISTERED
 14040
 STATE OF WEST VIRGINIA
 PROFESSIONAL ENGINEER



TripleH enterprises

REVISION	DATE

SWN Professional Engineering

EVACUATION ROUTE SHEET

G.W. RENTALS LLC WELL PAD
 G.W. RENTALS LLC WELL PAD AS-BUILT
 TRIADELPHIA DISTRICT, OHIO COUNTY
 WEST VIRGINIA

JOB: SWN00012
 DATE: 07-29-2015
 DRAWN BY: ALB
 SCALE: NO SCALE
 SHEET: 3 OF 6

DWG: G.W.RENTALS ASBUILT HHH.DWG

E. BLO 8.10.15

WELL INFORMATION	
WELL NO.	API NO.
1H	069-00173
3H	N/A
5H	N/A
8H	069-00166
205H	N/A
405H	N/A
605H	N/A

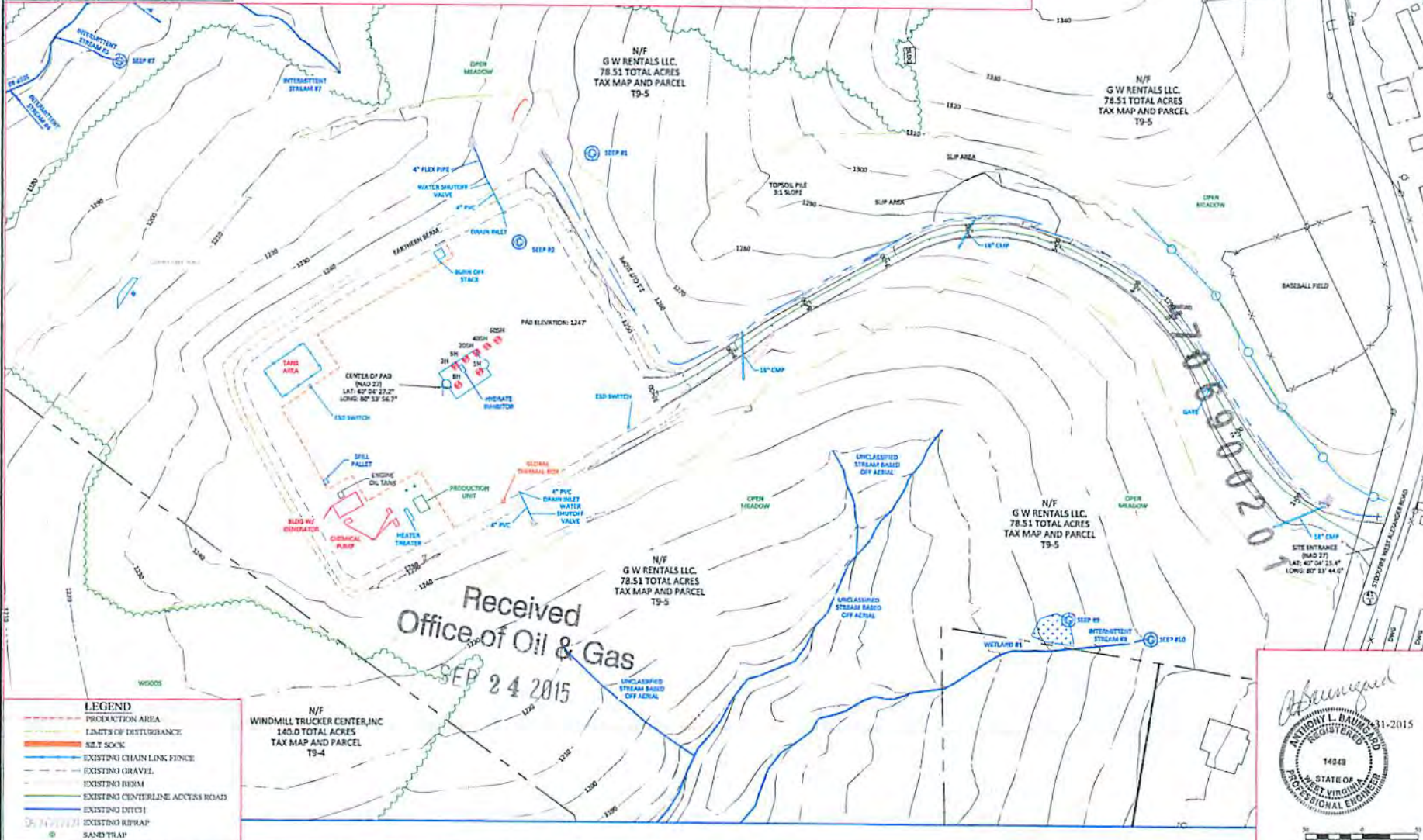
RECLAMATION SEQUENCE:

1. INSPECT EXISTING E&S BMP'S IN ACCORDANCE WITH MAINTENANCE AND INSPECTION PROCEDURES AS OUTLINED IN E&S CONTROL AND SITE PLAN. REPAIR & REPLACE AS NEEDED.
2. RECLAIM SITE AS PER RECLAMATION PLAN.
3. SEED AND MULCH ALL DISTURBED AREAS.
4. DO NOT REMOVE E&S BMP'S UNTIL 70% UNIFORM PERENNIAL GROWTH IS ACHIEVED.
5. IF DISTURBANCE OCCURS DURING REMOVAL OF E&S BMP'S IMMEDIATELY SEED AND MULCH DISTURBED AREAS.

*PLACE STRUCTURAL SOIL FILL IN 9 INCH LAYER LIFTS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY.

NOTES:
 SUMP DRAIN INLET GRATE ALONG NORTH BURN SIDE DOES NOT SET FLUSH WITH PAD GRADE. IT IS APPROX. 4" DEEPER. SUMP DRAIN ALONG THE SOUTHERN SIDE DOES NOT HAVE AN INLET STRUCTURE AS SHOWN IN THE ORIGINAL PLANS, BUT ONLY A 4" PVC PIPE THAT IS FLUSH WITH THE PAD. BOTH SUMPS HAVE SHUT OFF VALVES. THE ACCESS ROAD DOES NOT NEED A MOUNTAIN BERM BECAUSE THE ROAD IS ON A POSITIVE GRADE GOING OUT OF THE PAD.

- NOTES:
1. THE EXISTING CONTAINMENT BERM AROUND THE WELL PAD SHALL BE REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS PRIOR TO DRILLING OPERATIONS.
 2. THE EXISTING FENCE TO THE WELL PAD SHALL HAVE THE MOUNTAIN BERMS REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS PRIOR TO DRILLING OPERATIONS.



LEGEND

- PRODUCTION AREA
- LIMITS OF DISTURBANCE
- SELT SOCK
- EXISTING CHAIN LINK FENCE
- EXISTING GRAVEL
- EXISTING BERM
- EXISTING CENTERLINE ACCESS ROAD
- EXISTING DITCH
- EXISTING REWRAP
- SAND TRAP

Received
 Office of Oil & Gas
 SEP 24 2015



G.W. RENTALS LLC WELL PAD
 G.W. RENTALS LLC WELL PAD AS-BUILT
 TRIADAPHA DISTRICT, OHIO COUNTY
 WEST VIRGINIA

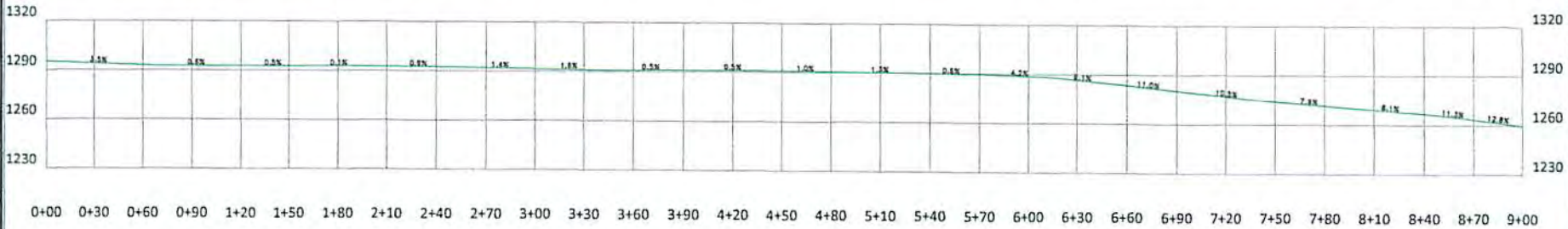
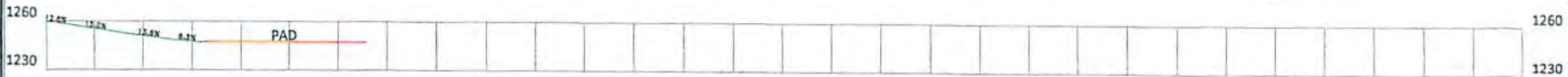
JOB: SWN0012
 DATE: 07-29-2015
 DRAWN BY: ALB
 SCALE: NO SCALE
 SHEET: 4 OF 6



C. 7820 8-10-15



4706900201



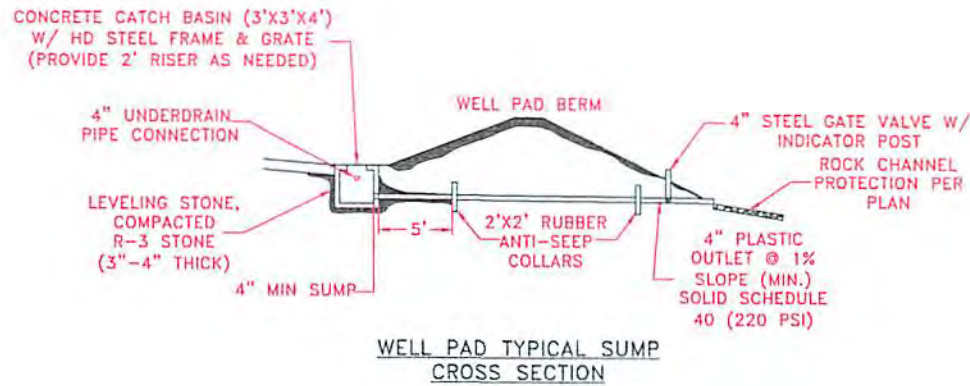
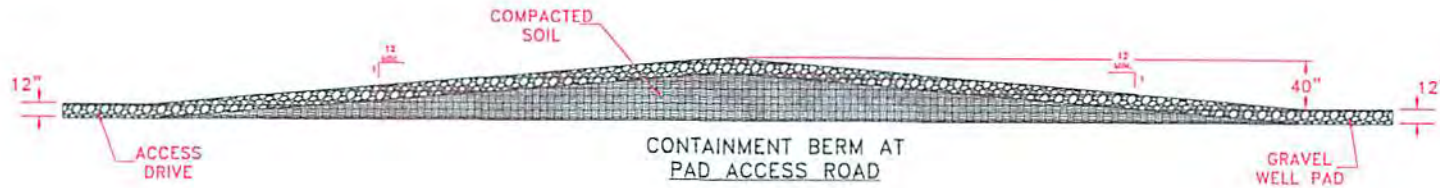
Received
Office of Oil & Gas
SEP 24 2015

Anthony L. Baugland
7-31-2015

ACCESS ROAD PROFILE SHEET
 G.W. RENTALS LLC WELL PAD
 G.W. RENTALS LLC WELL PAD AS-BUILT
 TRIADLPHIA DISTRICT, OHIO COUNTY
 WEST VIRGINIA

JOB: 5WN00012
 DATE: 07-29-2015
 DRAWN BY: ALB
 SCALE: NO SCALE
 SHEET: 5 OF 8

E. ALB
8.10.15



**WELL PAD TYPICAL SUMP
CROSS SECTION**

NOTE!
THERE SHALL BE NO DISCHARGE FROM THE SUMP
DURING DRILLING OPERATIONS.

Received
 Office of Oil & Gas
 SEP 24 2015

470690020



REVISION	
DATE	
DETAIL SHEET	G.W. RENTALS LLC WELL PAD G.W. RENTALS LLC WELL PAD AS-BUILT TRIADELPHIA DISTRICT, OHIO COUNTY WEST VIRGINIA
JOB:	SWN00012
DATE:	07-29-2015
DRAWN BY:	ALB
SCALE:	NO SCALE
SHEET:	5 OF 5

C. BLO
 8.10.15

G. W. RENTALS AS-BUILT & RECONSTRUCTION TRIADDELPHIA DISTRICT MARCO



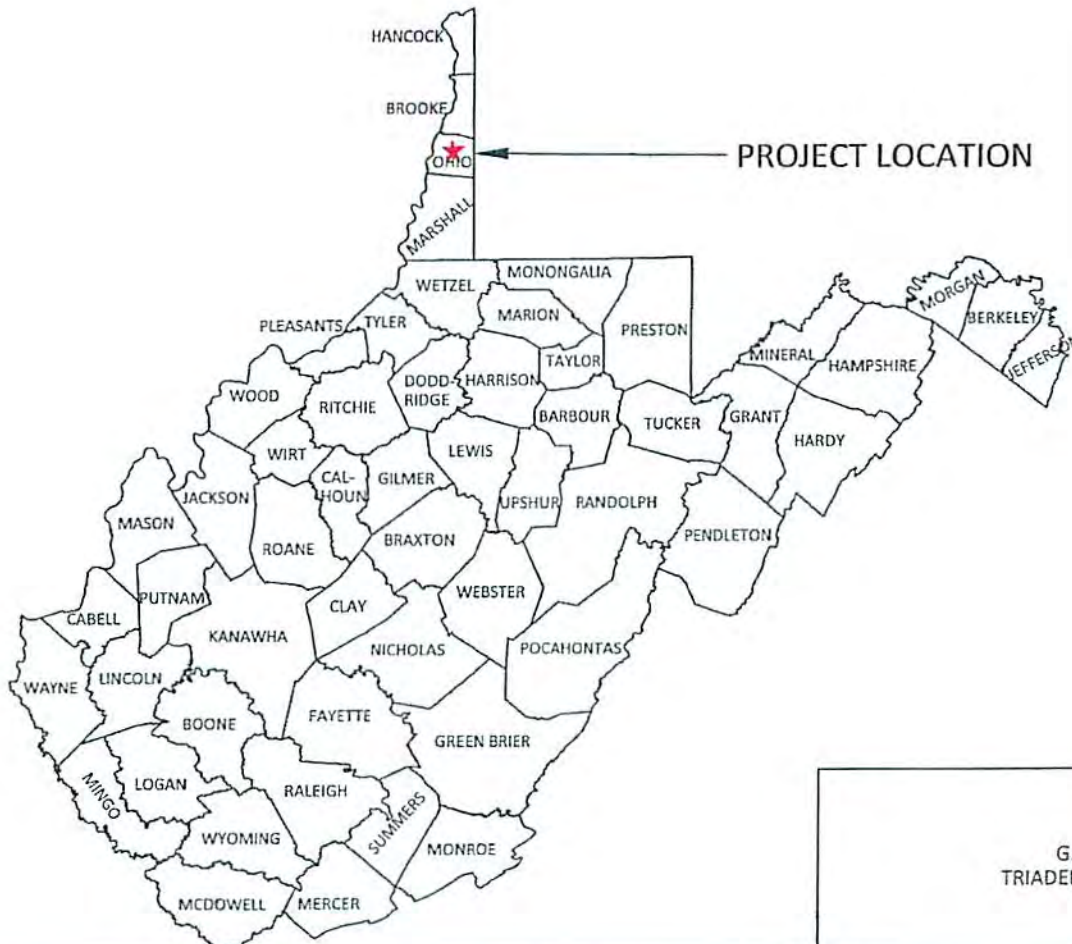
TWO WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR MUST CONTACT THE WV ONE CALL SYSTEM, INC., 1-800-245-4848
WV ONE CALL SERIAL #: 1213740331

OWNER



SWN PRODUCTION CO., LLC.
P.O. BOX 1300
JANE LEW, WV 26378
(832)-796-1610

SHEET 1
1. TITLE
2-3. EVACUATION ROUTE
WIN
4. AS-BUILT
5-6. AS-
7. ACCESS ROAD
8. RECLAMATION
9-10. RECLAM
11-12. D
TOTAL DISTURBED
ROAD DISTURBED
WELL PAD DISTURBED
LENGTH OF ACCESS
AVG. WIDTH OF ACCESS
WELL PAD ELEVATION



TITLE SHEET
G.W. RENTALS LLC OHI PAD "A"
TRIADDELPHIA DISTRICT, OHIO COUNTY, WV

10/30/2015

LC OHI PAD "A" LAMINATION PLAN T, OHIO COUNTY, WV H 2015

PLANS PREPARED BY:

BOORD BENCHEK & ASSOCIATES, INC.
 ENGINEERING, SURVEYING, CONSTRUCTION AND MINING SERVICES
 SOUTHPOINTE, PA 15317 PHONE: 724-746-1055

INDEX
SHEET
ADJACENT/PREVAILING
ROADS
OVERVIEW
ADJUTANT
AND PROFILE
GENERAL OVERVIEW
LOCATION PLAN
DETAILS
AREA: 10.8 AC.
AREA: 3.9 AC.
ADJACENT AREA: 6.9 AC.

ROAD: 1,007'
 ACCESS ROAD: 15'
 WIDTH: 1247'

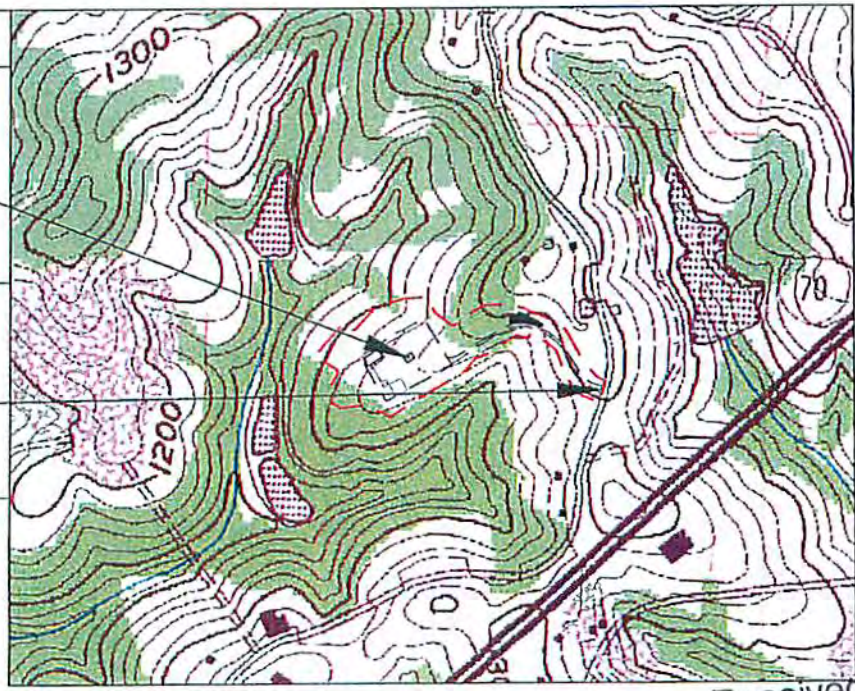


af 4/22/15
ju 4/22/15

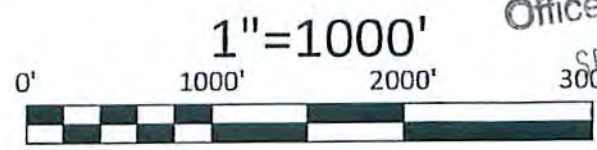
[Signature]
 ANDREW BENCHEK
 P.E.

3-18-15
 DATE

COORDINATES
CENTER OF WELLS (NAD 83) LAT: 40° 04' 27.5" LONG: 80° 33' 56.3" (NAD 27) LAT: 40° 04' 27.2" LONG: 80° 33' 57.0"
SITE ENTRANCE (NAD 83) LAT: 40° 04' 25.7" LONG: 80° 33' 43.3" (NAD 27) LAT: 40° 04' 25.4" LONG: 80° 33' 44.0"



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SHEET
1
OF
12



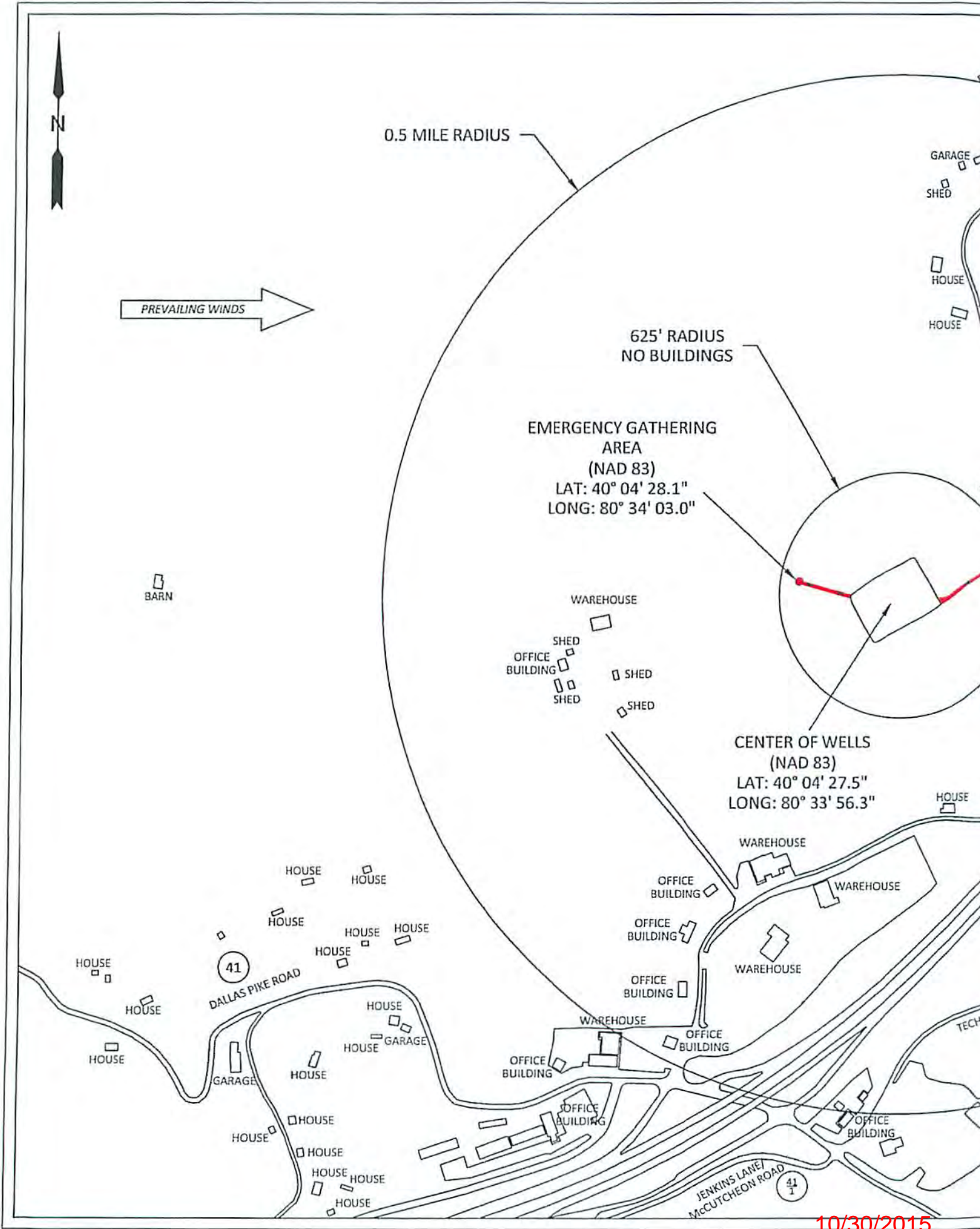
0.5 MILE RADIUS

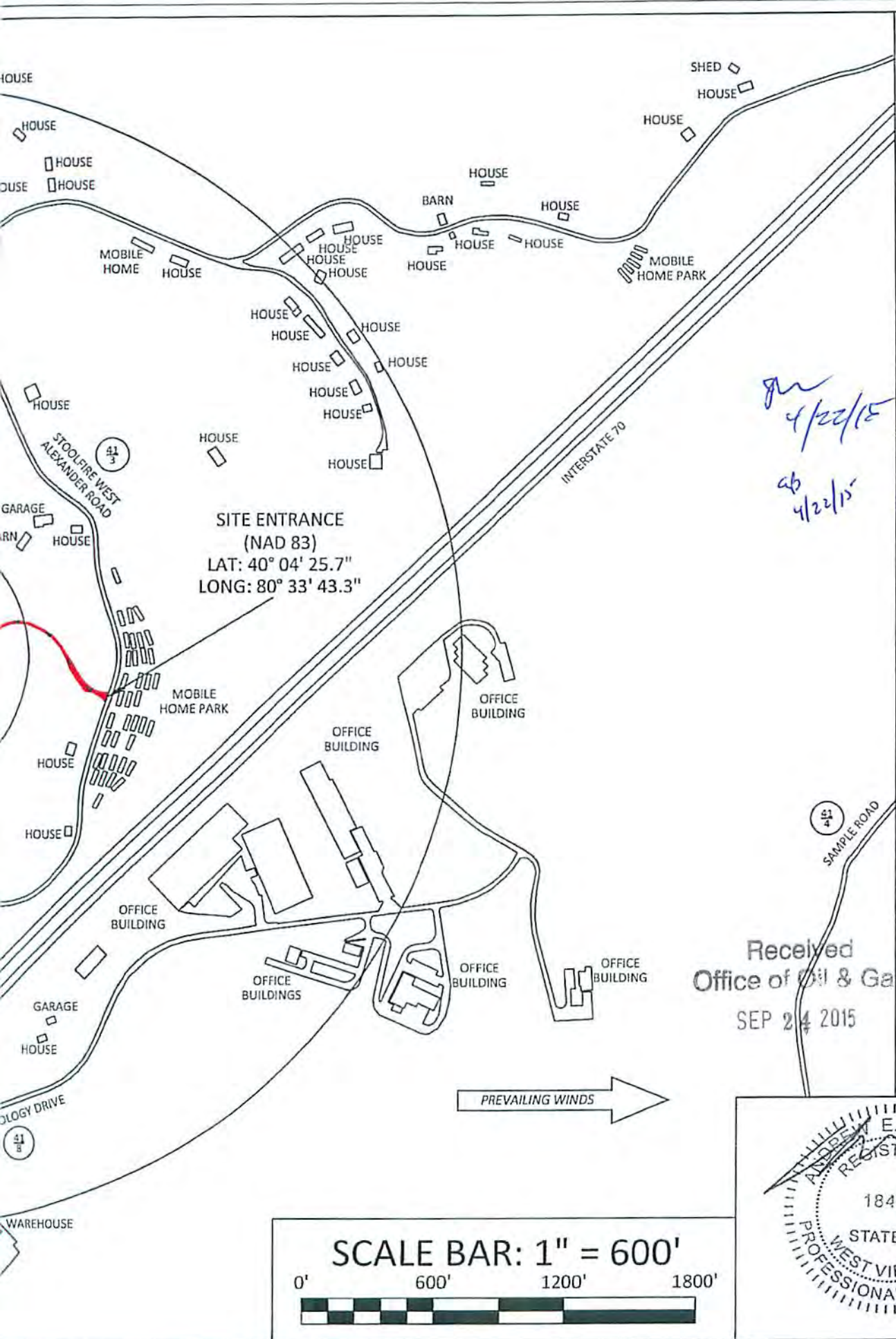


625' RADIUS
NO BUILDINGS

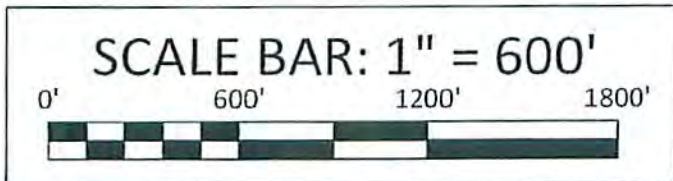
EMERGENCY GATHERING
AREA
(NAD 83)
LAT: 40° 04' 28.1"
LONG: 80° 34' 03.0"

CENTER OF WELLS
(NAD 83)
LAT: 40° 04' 27.5"
LONG: 80° 33' 56.3"





SITE ENTRANCE
(NAD 83)
LAT: 40° 04' 25.7"
LONG: 80° 33' 43.3"



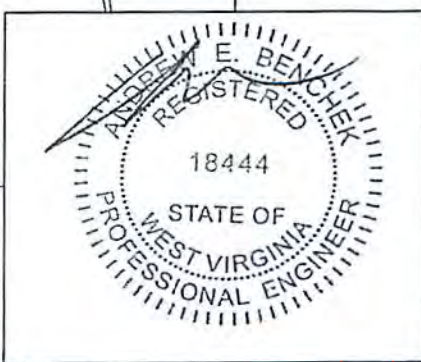
ju
4/22/15
ab
4/22/15

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BOORD, BENCHEK and ASSOC., INC.
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and Mining Service's
Southpointe, PA 15317 Phone: 724-746-1055

**EVACUATION ROUTE/
PREVAILING WINDS**
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FOR: SWN PRODUCTION CO., LLC.

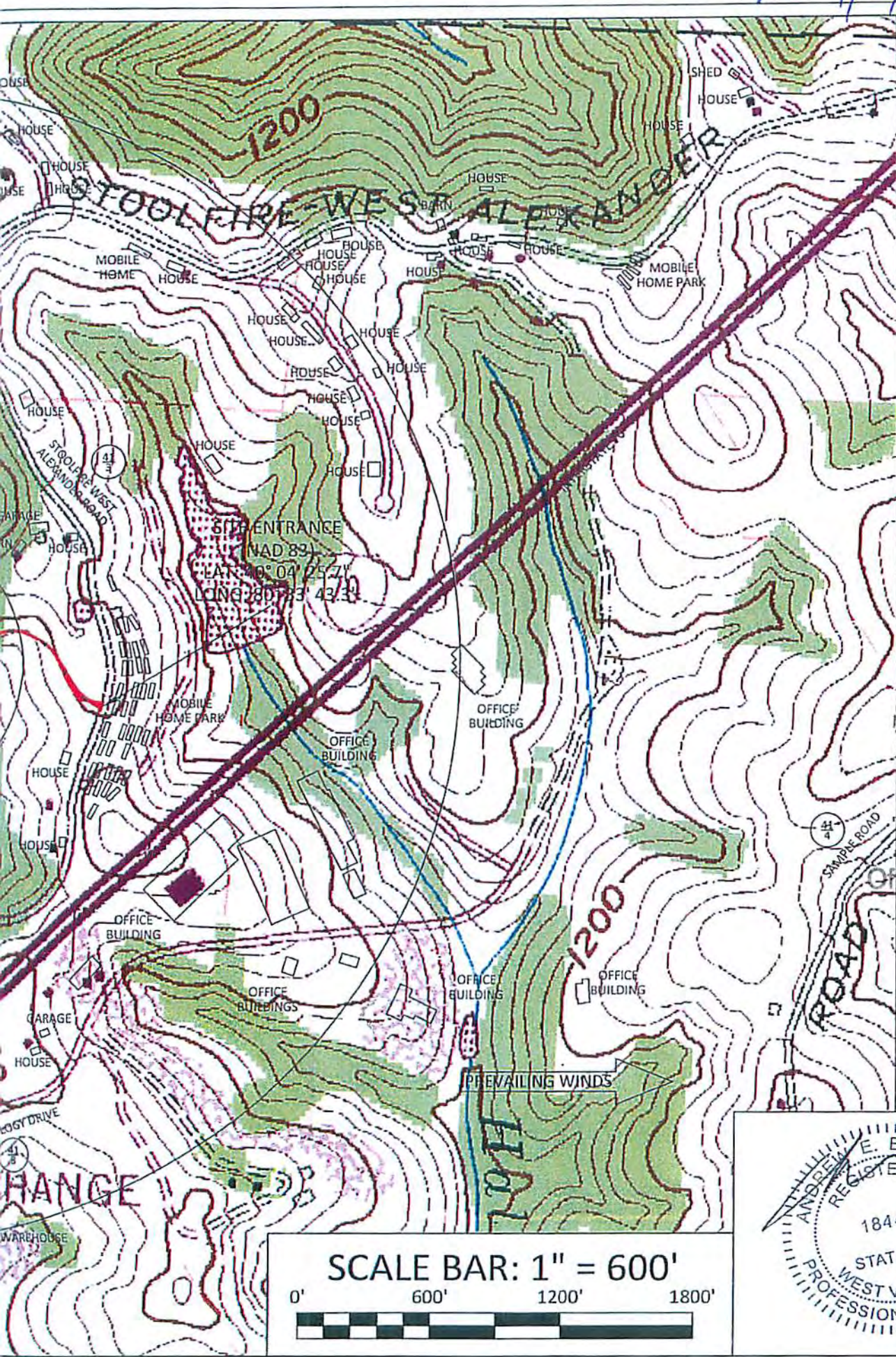
DATE: MARCH 2015
G.W. REANTALS LLC
OHI PAD "A"
TRIADELPHIA DISTRICT,
OHIO COUNTY,
WV



SHEET 2 OF 12

10/30/2015

gabzels
for effect/15



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LEGEND

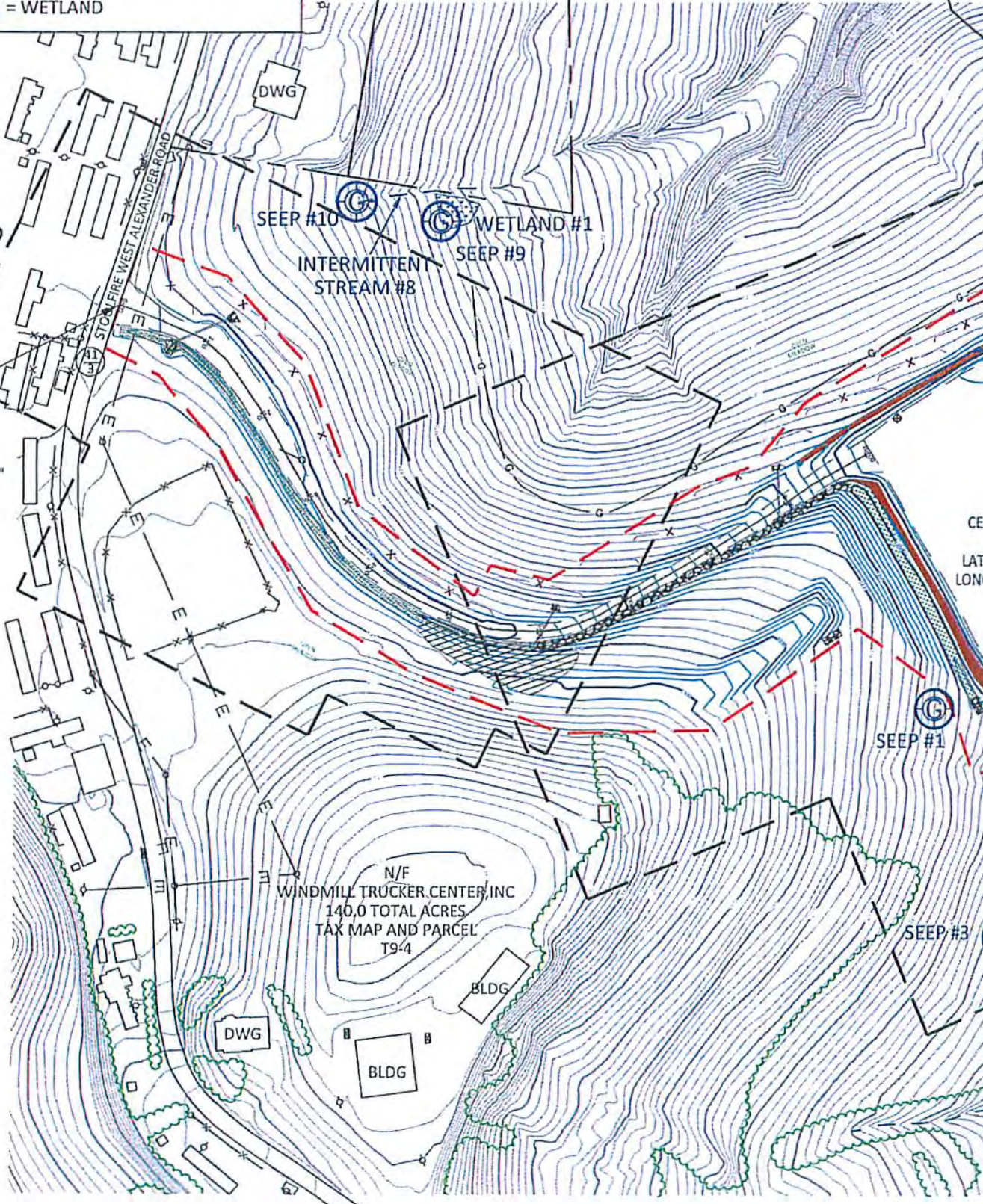
-  = PROJECT BOUNDARY(10.8 ACRES)
-  = PROPERTY LINE
-  = WATER COURSE
-  = GROUNDWATER SEEP
-  = SPRING
-  = WETLAND

N/F
JAMES W. AND BARBARA
AYNN JOHNSON
0.846 TOTAL ACRES
TAX MAP AND PARCEL
T9-6.4

N/F
JOHN J. MOFFETT
5.013 TOTAL ACRES
TAX MAP AND PARCEL
T9-6

SHEET #5

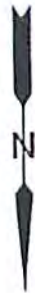
SITE ENTRANCE
(NAD 83)
LAT: 40° 04' 25.7"
LONG: 80° 33' 43.3"



4/22/15
4/22/15

N/F
WINDMILL TRUCKER CENTER, INC
140.0 TOTAL ACRES
TAX MAP AND PARCEL
T9-4

POND



BOORD, BENCHEK and ASSOC., INC.
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SHEET #6

POND

GPU

COMPRESSOR

TANK
BATTERIES

F PAD
(3)
27.5"
3' 56.3"

INTERMITTENT
STREAM #1

SPRING #1
INTERMITTENT
STREAM #2

SEEP #5

POINT RUN

INTERMITTENT
STREAM #4

SEEP #6

SEEP #7

SEEP #8

INTERMITTENT
STREAM #3

UNNAMED TRIBUTARY
TO POINT RUN

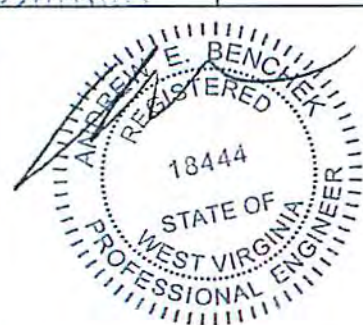
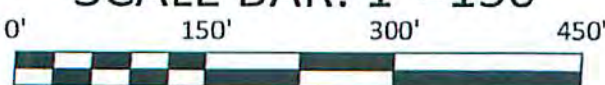
INTERMITTENT
STREAM #7

INTERMITTENT
STREAM #5

INTERMITTENT
STREAM #6

POND

SCALE BAR: 1" = 150'



AS-BUILT OVERVIEW

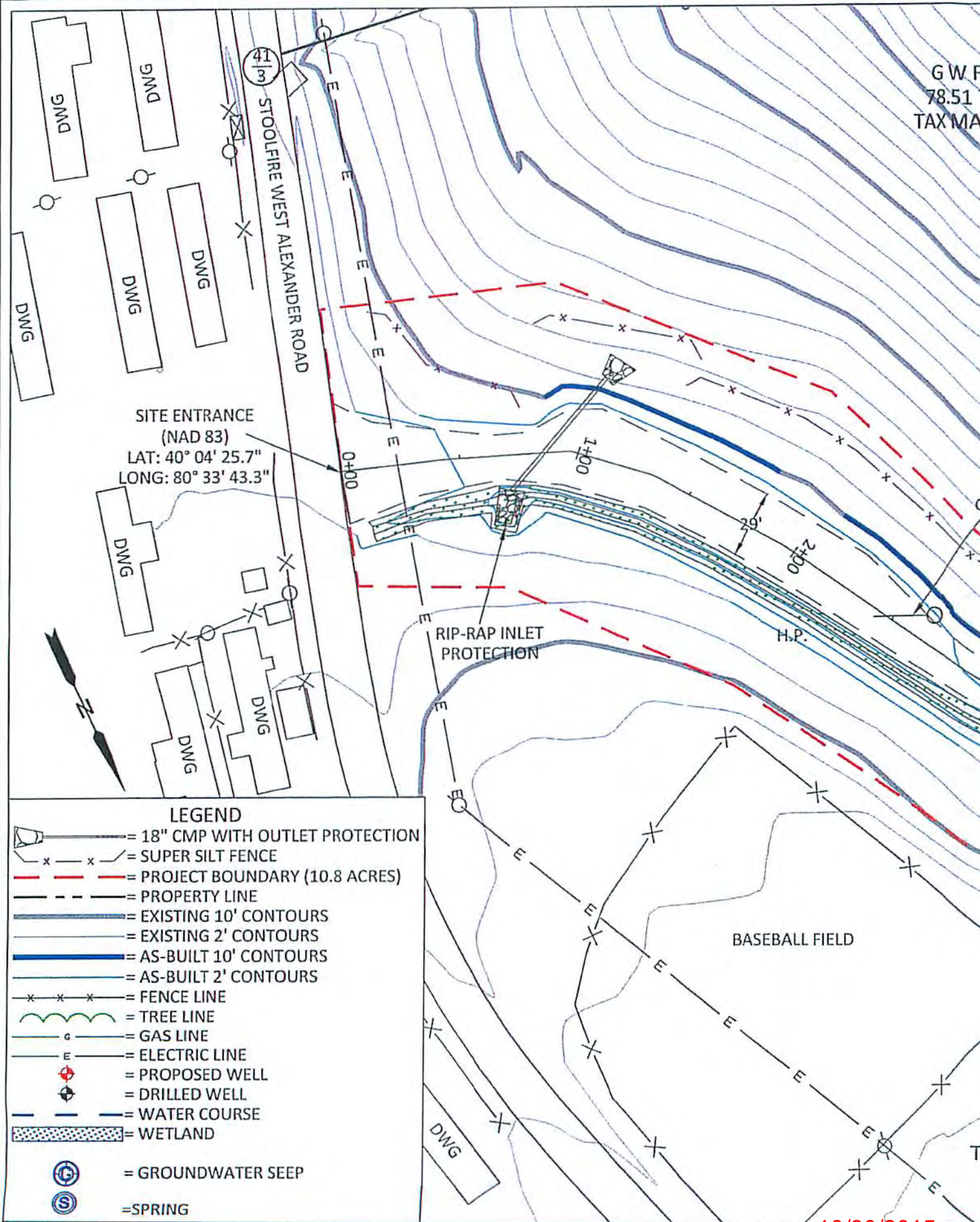
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OHIO COUNTY,
WV

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


















SITE ENTRANCE
(NAD 83)
LAT: 40° 04' 25.7"
LONG: 80° 33' 43.3"

RIP-RAP INLET
PROTECTION

BASEBALL FIELD

LEGEND

-  = 18" CMP WITH OUTLET PROTECTION
-  = SUPER SILT FENCE
-  = PROJECT BOUNDARY (10.8 ACRES)
-  = PROPERTY LINE
-  = EXISTING 10' CONTOURS
-  = EXISTING 2' CONTOURS
-  = AS-BUILT 10' CONTOURS
-  = AS-BUILT 2' CONTOURS
-  = FENCE LINE
-  = TREE LINE
-  = GAS LINE
-  = ELECTRIC LINE
-  = PROPOSED WELL
-  = DRILLED WELL
-  = WATER COURSE
-  = WETLAND
-  = GROUNDWATER SEEP
-  = SPRING

ab 4/22/15
K 4/22/15

N/F
RENTALS LLC.
TOTAL ACRES
P AND PARCEL
T9-5

OPEN
MEADOW

ATE

BOORD, BENCHEK and ASSOC., INC.
Engineering, Surveying, Construction,
and Mining Service's

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AS-BUILT

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FOR: SWN PRODUCTION CO., LLC.

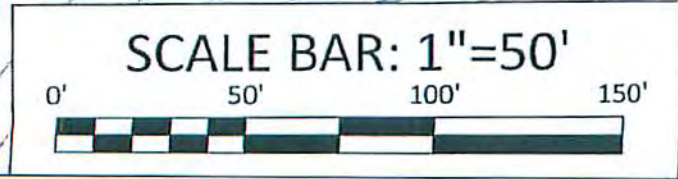
SHEET 5 OF 12

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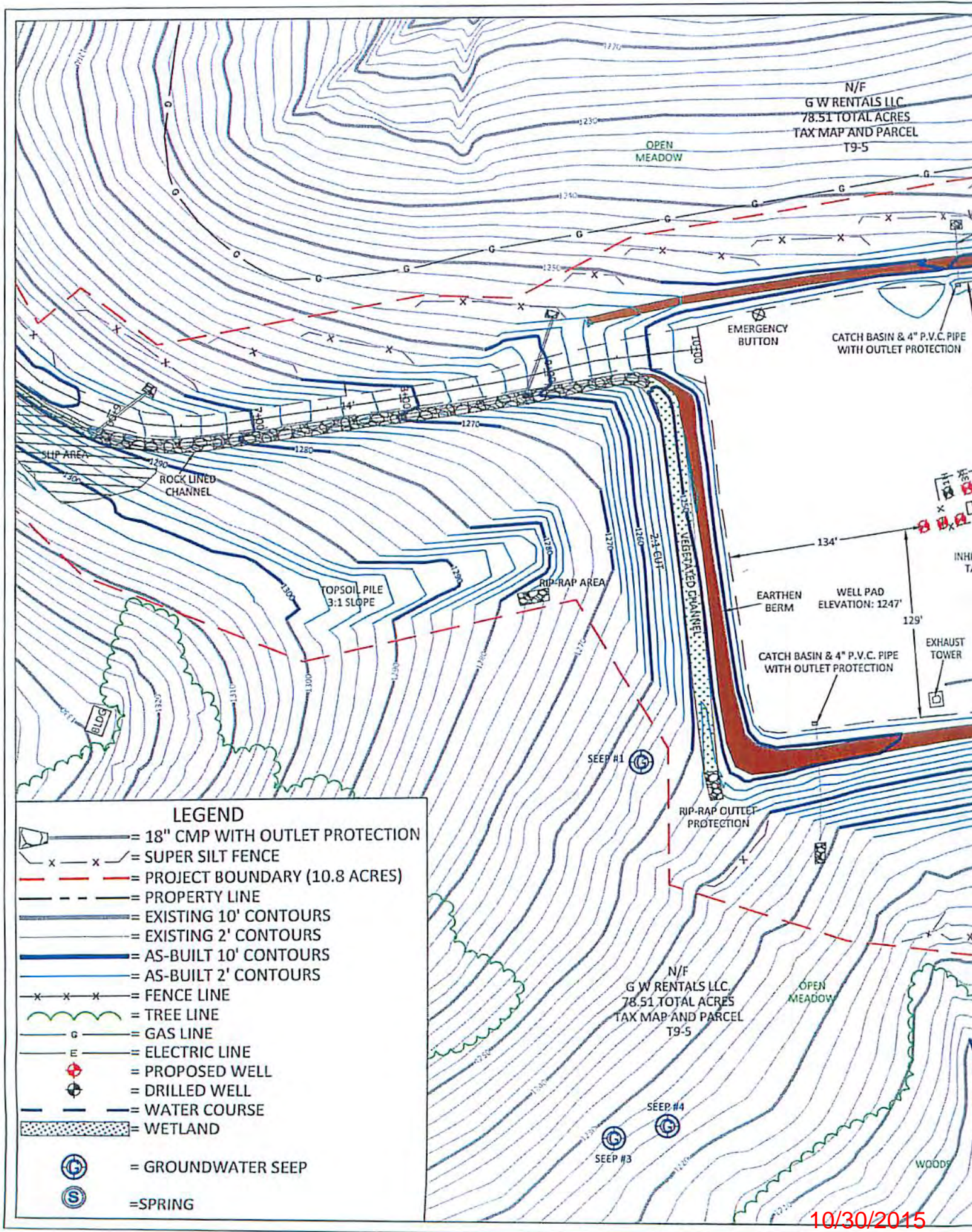
DATE:
MARCH 2015
G.W. RENTALS LLC
OHI PAD "A"
TRIADELPHIA DISTRICT,
OHIO COUNTY,
WV

N/F
G W RENTALS LLC.
78.51 TOTAL ACRES
AX MAP AND PARCEL
T9-5

OPEN
MEADOW



10/30/2015



N/F
G W RENTALS LLC
78.51 TOTAL ACRES
TAX MAP AND PARCEL
T9-5

OPEN
MEADOW

EMERGENCY
BUTTON

CATCH BASIN & 4" P.V.C. PIPE
WITH OUTLET PROTECTION

SLIP AREA

ROCK LINED
CHANNEL

TOPSOIL PILE
3:1 SLOPE

RIP-RAP AREA

EARTHEN
BERM

WELL PAD
ELEVATION: 1247'

CATCH BASIN & 4" P.V.C. PIPE
WITH OUTLET PROTECTION

INHIBIT
TANK

EXHAUST
TOWER

SEEP #1

RIP-RAP OUTLET
PROTECTION

N/F
G W RENTALS LLC
78.51 TOTAL ACRES
TAX MAP AND PARCEL
T9-5



















OPEN
MEADOW

SEEP #4

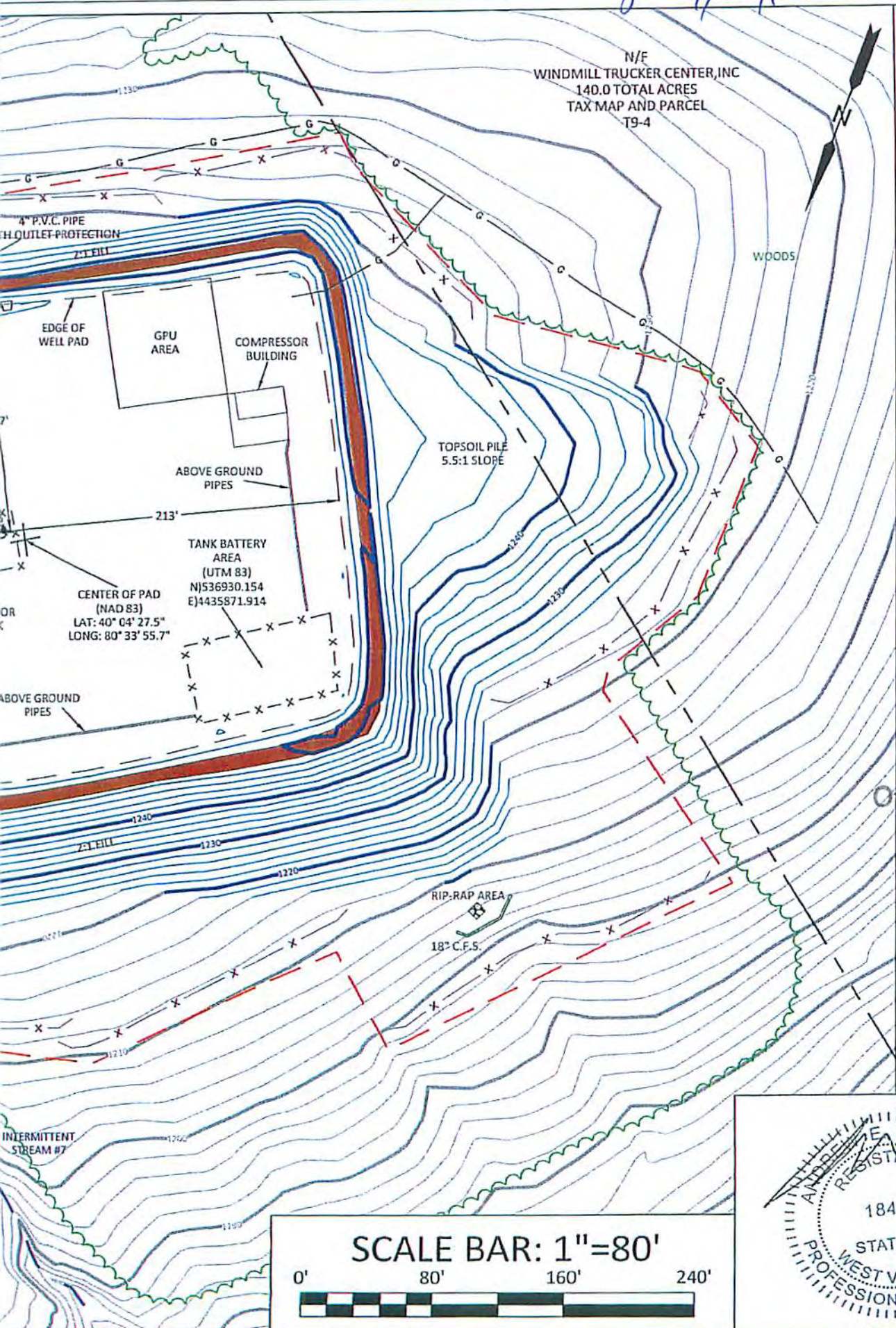
SEEP #3

WOODS

LEGEND

-  = 18" CMP WITH OUTLET PROTECTION
-  = SUPER SILT FENCE
-  = PROJECT BOUNDARY (10.8 ACRES)
-  = PROPERTY LINE
-  = EXISTING 10' CONTOURS
-  = EXISTING 2' CONTOURS
-  = AS-BUILT 10' CONTOURS
-  = AS-BUILT 2' CONTOURS
-  = FENCE LINE
-  = TREE LINE
-  = GAS LINE
-  = ELECTRIC LINE
-  = PROPOSED WELL
-  = DRILLED WELL
-  = WATER COURSE
-  = WETLAND
-  = GROUNDWATER SEEP
-  = SPRING

John 4/22/15 AB 4/22/15



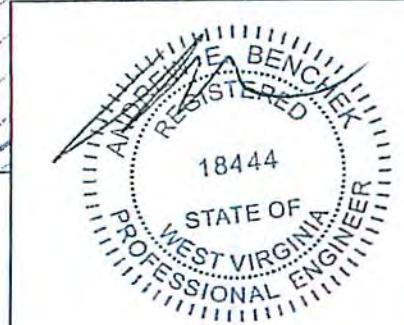
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AS-BUILT

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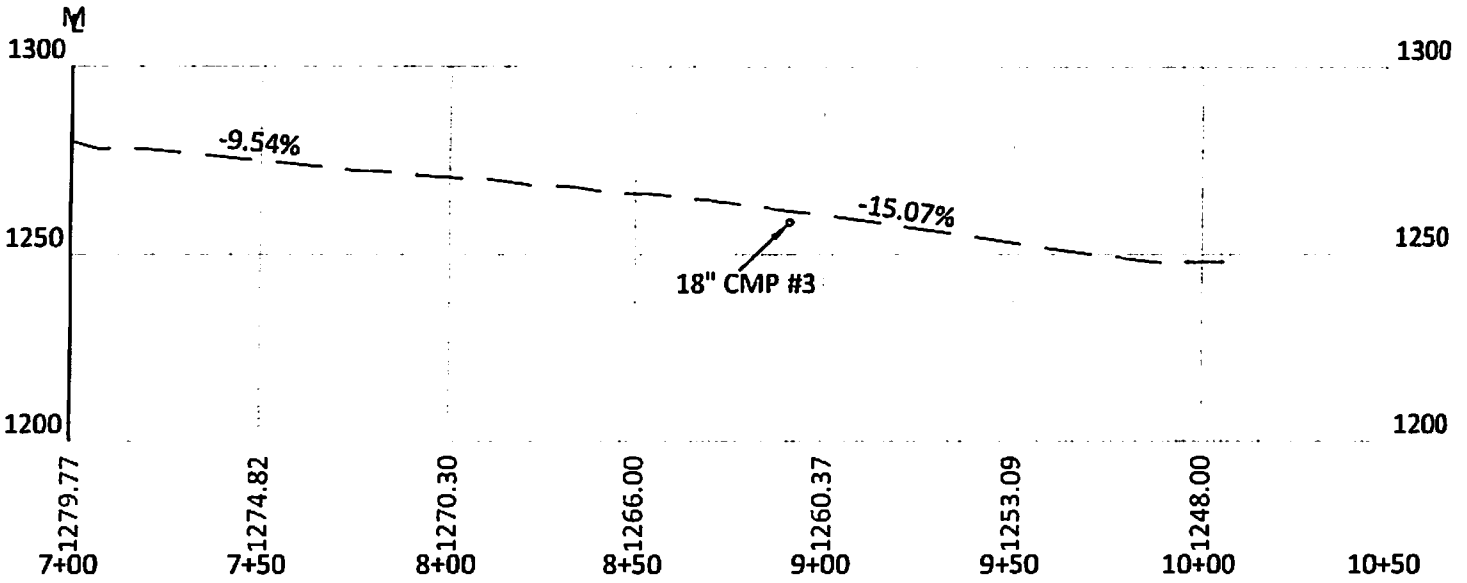
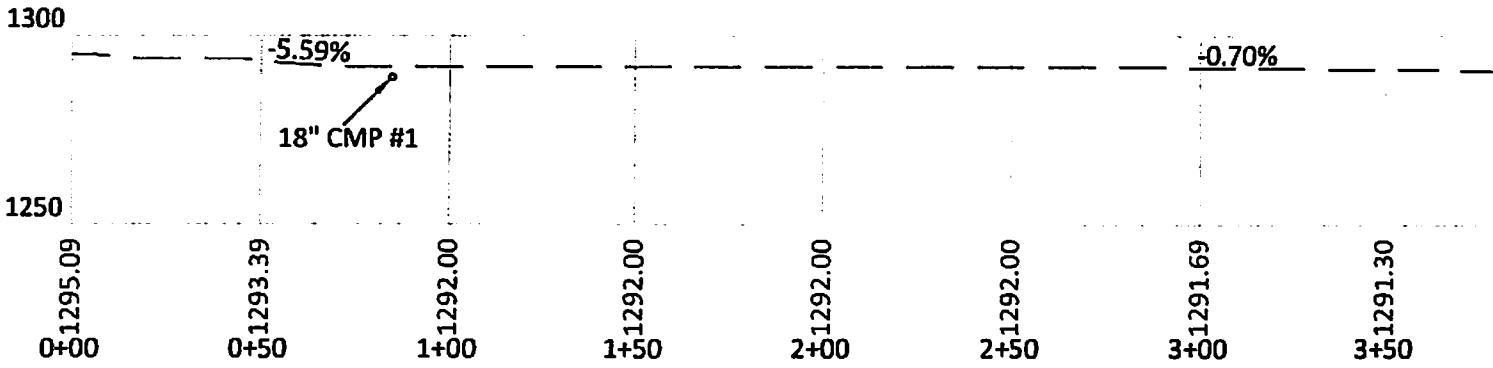
Recorded
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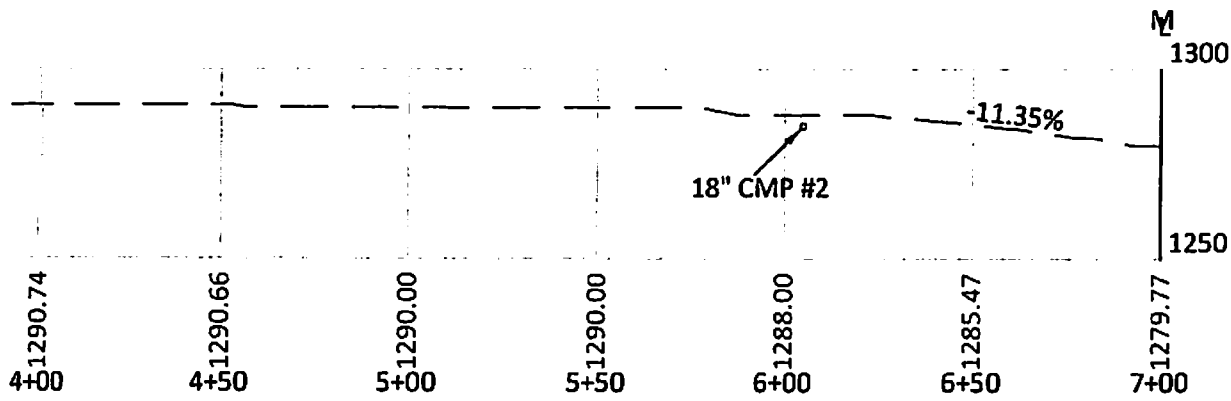
DATE:
 MARCH 2015
 G.W. REANTALS LLC
 OHI PAD "A"
 TRIADELPHIA DISTRICT,
 OHIO COUNTY,
 WV



10/30/2015

ACCESS ROAD PROFILE
SCALE: 1" = 50'





LEGEND
 --- = EXISTING GRADE

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ACCESS ROAD PROFILE

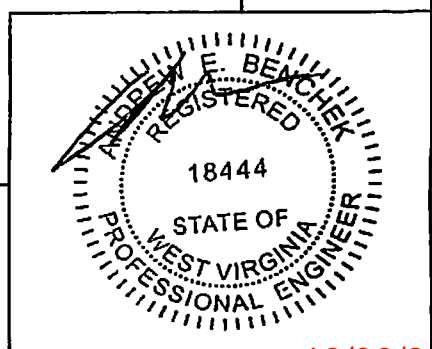
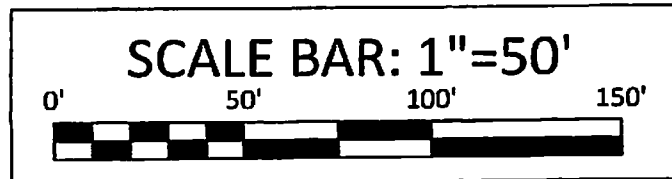
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 TRIADELPHIA DISTRICT,
 OHIO COUNTY,
 WV



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LEGEND

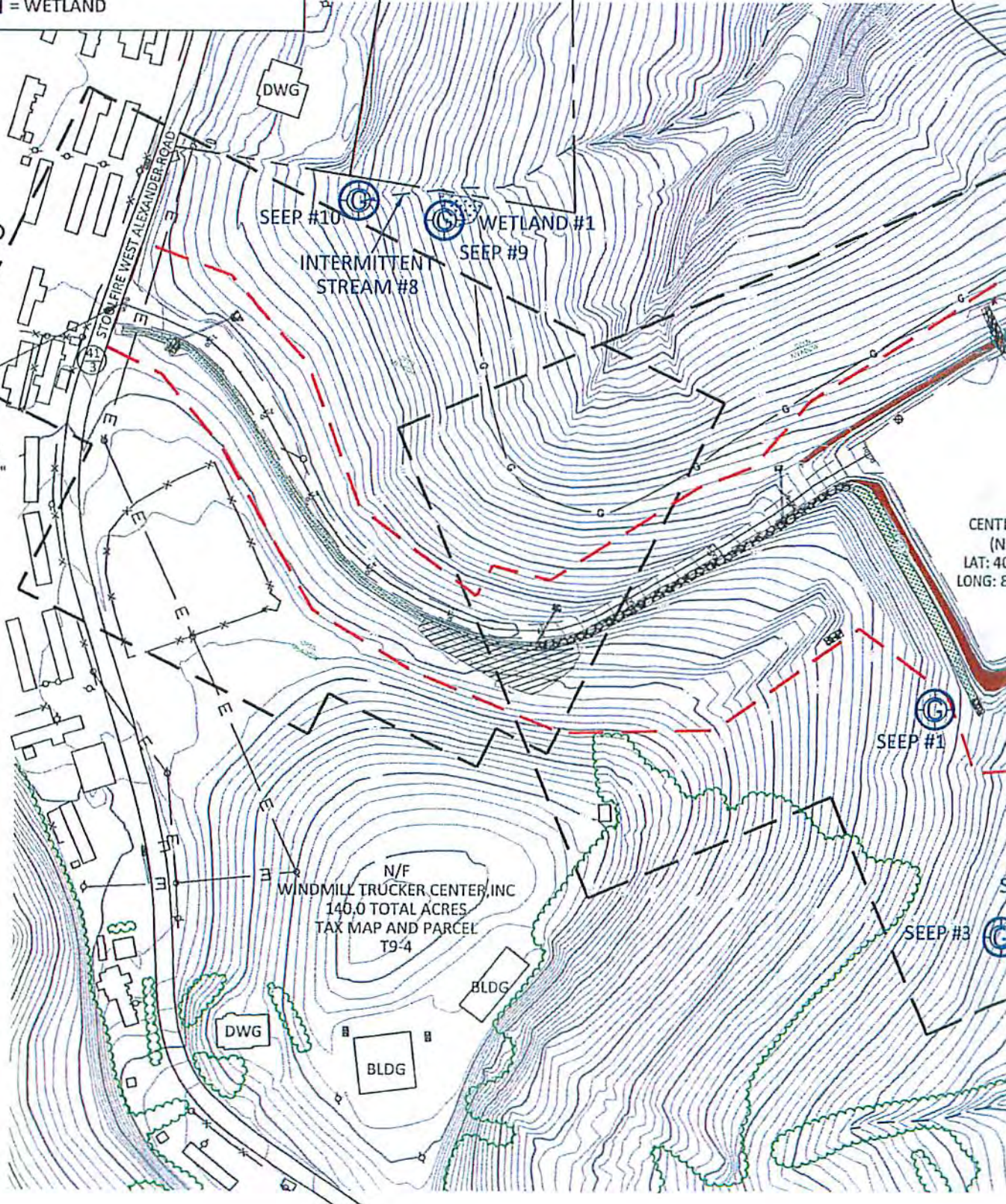
- = PROJECT BOUNDARY(10.8 ACRES)
- = PROPERTY LINE
- = WATER COURSE
-  = GROUNDWATER SEEP
-  = SPRING
- = WETLAND

N/F
 JAMES W. AND BARBARA
 AYN N JOHNSON
 0.846 TOTAL ACRES
 TAX MAP AND PARCEL
 T9-6.4

N/F
 JOHN J. MOFFETT
 5.013 TOTAL ACRES
 TAX MAP AND PARCEL
 T9-6

SHEET #9

SITE ENTRANCE
 (NAD 83)
 LAT: 40° 04' 25.7"
 LONG: 80° 33' 43.3"



CENTRE
 (NAD 83)
 LAT: 40°
 LONG: 80°

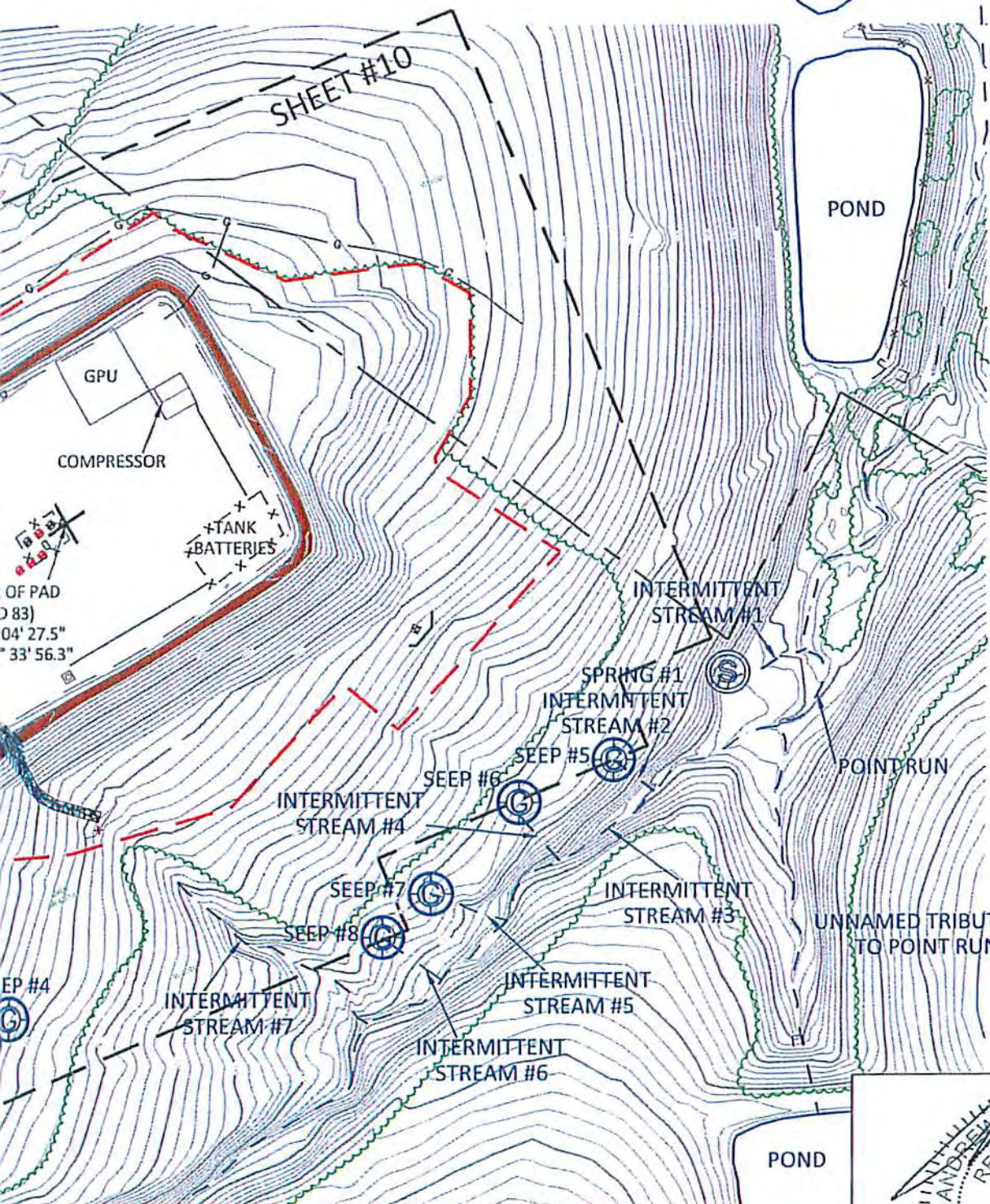
AB 4/22/15

N/F
WINDMILL TRUCKER CENTER, INC
140.0 TOTAL ACRES
TAX MAP AND PARCEL
T9-4

AB 4/22/15
N

BOORD, BENCHEK and ASSOC., INC.
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and Mining Service's

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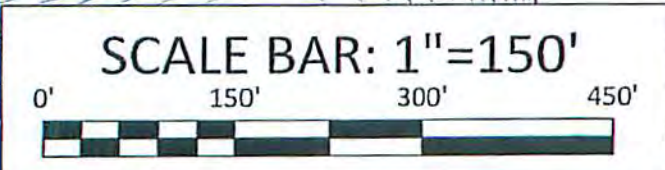


RECLAMATION PLAN OVERVIEW

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SEP 24 2015

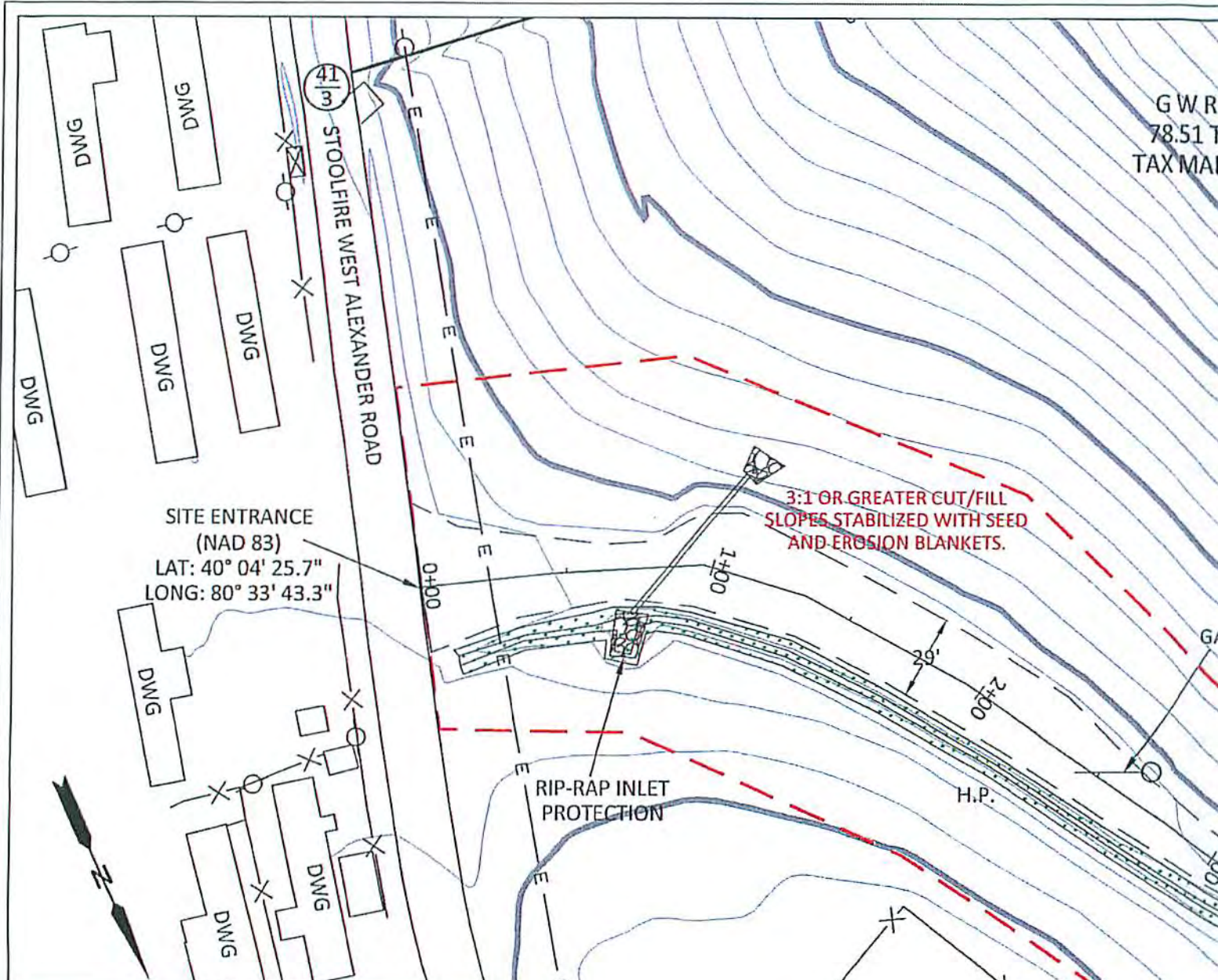
DATE:
MARCH 2015
G.W. REANTALS LLC
OHI PAD "A"
TRIADELPHIA DISTRICT,
OHIO COUNTY,
WV



SHEET 8 OF 12

10/30/2015

GW R
78.51 T
TAX MA



SITE ENTRANCE
(NAD 83)
LAT: 40° 04' 25.7"
LONG: 80° 33' 43.3"

3:1 OR GREATER CUT/FILL
SLOPES STABILIZED WITH SEED
AND EROSION BLANKETS.

RIP-RAP INLET
PROTECTION

BASEBALL FIELD

LEGEND

- = 18" CMP WITH OUTLET PROTECTION
- = SUPER SILT FENCE
- = PROJECT BOUNDARY (10.8 ACRES)
- = PROPERTY LINE
- = EXISTING 10' CONTOURS
- = EXISTING 2' CONTOURS
- = PROPOSED 10' CONTOURS
- = PROPOSED 2' CONTOURS
- = FENCE LINE
- = TREE LINE
- = GAS LINE
- = ELECTRIC LINE
- = PROPOSED WELL
- = DRILLED WELL
- = WATER COURSE
- = WETLAND
- = GROUNDWATER SEEP
- = SPRING

RECLAMATION SEQUENCE:

1. INSPECT EXISTING E&S BMP'S IN ACCORDANCE WITH MAINTENANCE AND INSPECTION PROCEDURES AS OUTLINED IN E&S CONTROL AND SITE PLAN. REPAIR & REPLACE AS NEEDED.
2. INSTALL SUPER SILT FENCE #1 & #2 ALONG WITH DISCHARGE CHANNELS #1 & #2.
3. RECLAIM SITE AS PER RECLAMATION PLAN.
4. SEED AND MULCH ALL DISTURBED AREAS.
5. DO NOT REMOVE E&S BMP'S UNTIL 70% UNIFORM PERENNIAL GROWTH IS ACHIEVED.
6. IF DISTURBANCE OCCURS DURING REMOVAL OF E&S BMP'S IMMEDIATELY SEED AND MULCH DISTURBED AREAS.

*PLACE STRUCTURAL SOIL FILL IN 9 INCH LOOSE LIFTS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY.

10/30/2015

4/24/15
JL 4/24/15

N/F
RENTALS LLC.
.51 TOTAL ACRES
MAP AND PARCEL
T9-5

OPEN
MEADOW

E

VEGETATED
CHANNEL

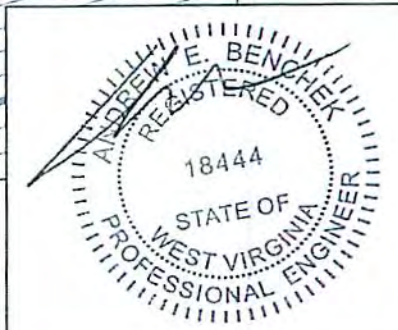
**SITE RESTORATION AND RE-GRADING
OF THE SITE SHALL BE DONE AFTER
COMPLETION OF ALL PROPOSED
DRILLING ACTIVITIES.**

**MAINTAIN STABILIZED
VEGETATED SLOPES**

SLIP AREA

N/F
RENTALS LLC.
.51 TOTAL ACRES
MAP AND PARCEL
T9-5

OPEN
MEADOW



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Engineering, Surveying, Construction,
and Mining Service's

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RECLAMATION PLAN

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FOR: SWN PRODUCTION CO., LLC.

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DATE:
MARCH 2015
G.W. REANTALS LLC
OHI PAD "A"
TRIADELPHIA DISTRICT,
OHIO COUNTY,
WV

10/30/2015

N/F
G W RENTALS LLC
78.51 TOTAL ACRES
TAX MAP AND PARCEL
T9-5

OPEN
MEADOW

EMERGENCY
BUTTON

DISCHARGE CHANNEL #2
WITH ROCK SPREADER #2
SEE DETAILS ON SHEET #12

WELL PAD DISCHARGE CHANNELS
SHALL NOT BE INSTALLED THROUGH
CONTAINMENT BERM ON WELL PAD UNTIL
ALL DRILLING ACTIVITIES ARE COMPLETE
AND WELL PAD WATER IS TESTED TO WV
DEP'S SATISFACTION AND SUPER SILT FENCE
IS IN PLACE AT DISCHARGE CHANNEL.

**3:1 OR GREATER CUT/FILL
SLOPES STABILIZED WITH SEED
AND EROSION BLANKETS.**

TOPSOIL PILE
3:1 SLOPE

RIP-RAP AREA

WELL PAD
ELEVATION: 1247'











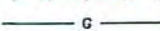
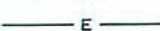



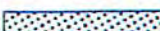


EXHAUST
TOWER

SEEP #1

RIP-RAP OUTLET
PROTECTION

DISCHARGE CHANNEL #1
WITH ROCK SPREADER #1
SEE DETAILS ON SHEET #11

LEGEND

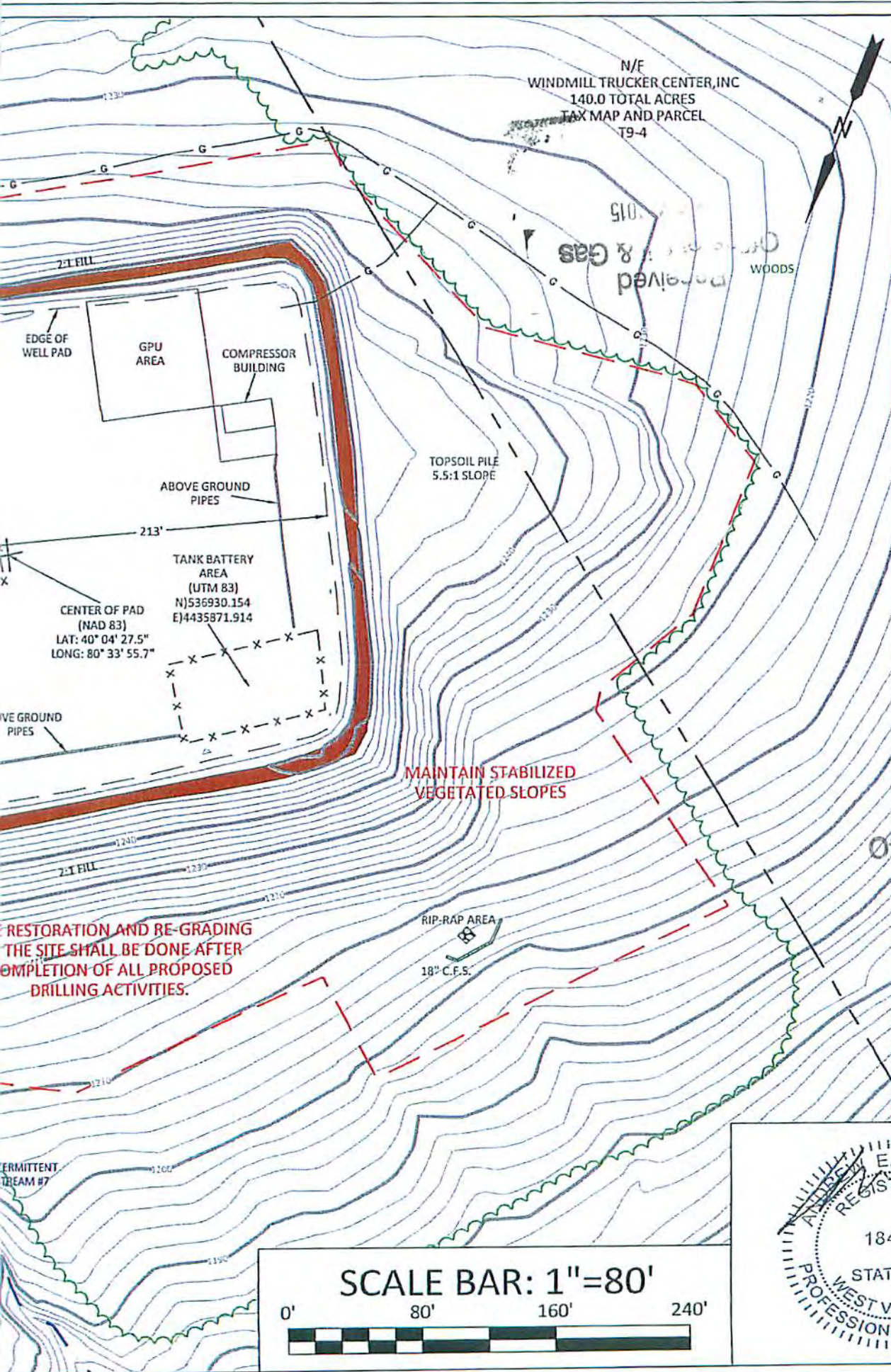
-  = 18" CMP WITH OUTLET PROTECTION
-  = SUPER SILT FENCE
-  = PROJECT BOUNDARY (10.8 ACRES)
-  = PROPERTY LINE
-  = EXISTING 10' CONTOURS
-  = EXISTING 2' CONTOURS
-  = PROPOSED 10' CONTOURS
-  = PROPOSED 2' CONTOURS
-  = FENCE LINE
-  = TREE LINE
-  = GAS LINE
-  = ELECTRIC LINE
-  = PROPOSED WELL
-  = DRILLED WELL
-  = WATER COURSE
-  = WETLAND
-  = GROUNDWATER SEEP
-  = SPRING

RECLAMATION SEQUENCE:

1. INSPECT EXISTING E&S BMP'S IN ACCORDANCE WITH MAINTENANCE AND INSPECTION PROCEDURES AS OUTLINED IN E&S CONTROL AND SITE PLAN. REPAIR & REPLACE AS NEEDED.
2. INSTALL SUPER SILT FENCE #1 & #2 ALONG WITH DISCHARGE CHANNELS #1 & #2.
3. RECLAIM SITE AS PER RECLAMATION PLAN.
4. SEED AND MULCH ALL DISTURBED AREAS.
5. DO NOT REMOVE E&S BMP'S UNTIL 70% UNIFORM PERENNIAL GROWTH IS ACHIEVED.
6. IF DISTURBANCE OCCURS DURING REMOVAL OF E&S BMP'S IMMEDIATELY SEED AND MULCH DISTURBED AREAS.

*PLACE STRUCTURAL SOIL FILL IN 9 INCH LOOSE LIFTS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY.

10/30/2015



N/E
WINDMILL TRUCKER CENTER, INC
140.0 TOTAL ACRES
TAX MAP AND PARCEL
T9-4

BOORD, BENCHEK and ASSOC., INC.
Engineering, Surveying, Construction,
and Mining Service's
Southpointe, PA 15317 Phone: 724-746-1055

4/24/15

4/24/15

RECLAMATION PLAN

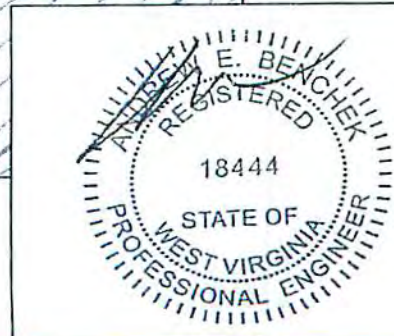
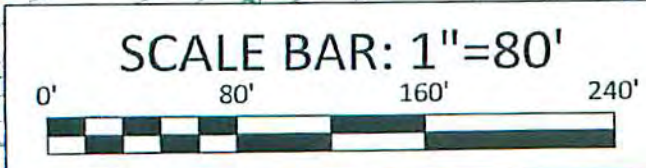
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BOORD, BENCHEK AND ASSOC., INC.
FOR: SWN PRODUCTION CO., LLC.

Office of Oil & Gas
SEP 24 2015

DATE:
MARCH 2015
G.W. REANTALS LLC
OHI PAD "A"
TRIADELPHIA DISTRICT,
OHIO COUNTY,
WV

**RESTORATION AND RE-GRADING
THE SITE SHALL BE DONE AFTER
COMPLETION OF ALL PROPOSED
DRILLING ACTIVITIES.**

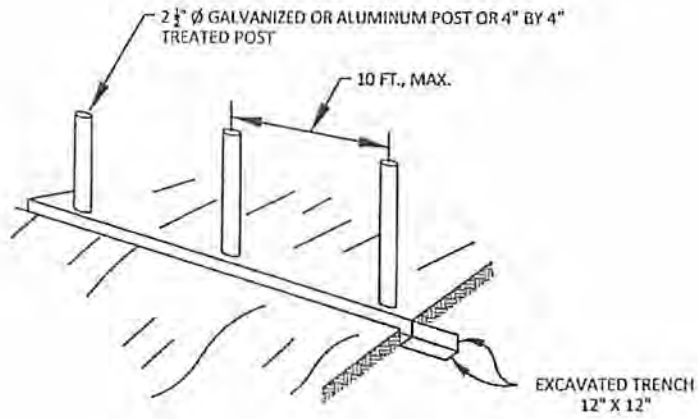
**MAINTAIN STABILIZED
VEGETATED SLOPES**



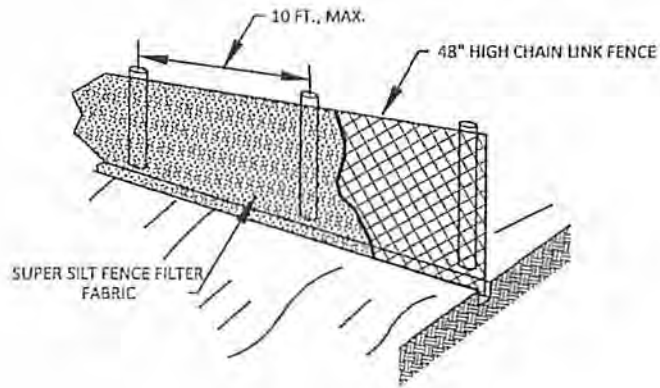
SHEET 10 OF 12

10/30/2015

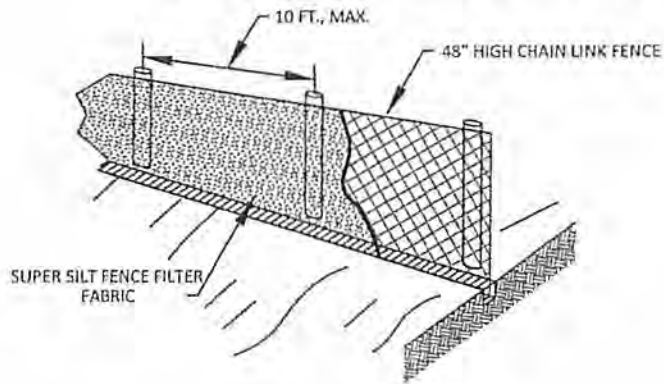
1. SET POSTS ALONG CONTOUR OF THE LAND AND EXCAVATE TRENCH UPSLOPE ALONG THE LINE OF POSTS.



2. ATTACH THE CHAIN LINK FENCE AND FILTER FABRIC TO THE FENCE POSTS AND EXTEND THEM 12", MIN., INTO THE DITCH.



3. BACKFILL AND COMPACT THE TRENCH WITH EXCAVATED SOILS.



2 1/2" Ø GALVANIZED ALUMINUM POST OR 4" TREATED POST

SUPER SILT FENCE FILTER FABRIC

48" HIGH CHAIN LINK FENCE

FLOW →

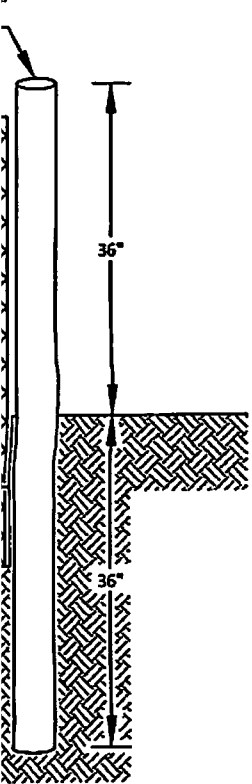


EMBED FILTER FABRIC AND CHAIN LINK FENCE 12", MIN., INTO GROUND

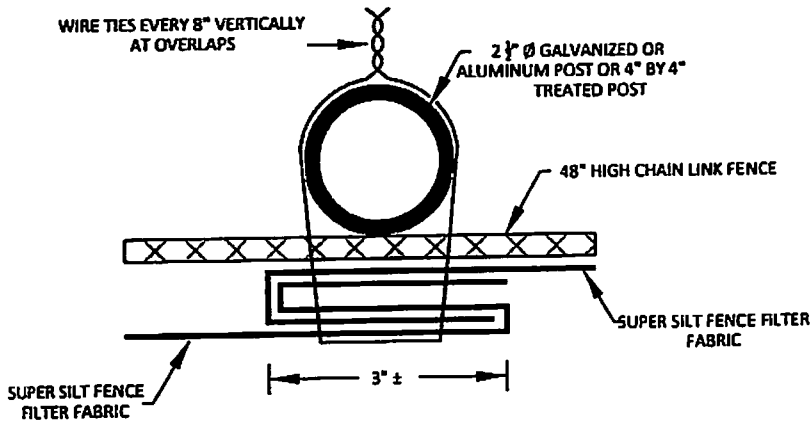
SUPER SILT FENCE
NTS

SUPER SILT FENCE NOTES:

1. CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 608 OF THE WVDOT SPECIFICATIONS. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE POSTS WITH WIRE TIES OR STAPLES.
2. POSTS NEED NOT BE SET IN CONCRETE.
3. THE FILTER FABRIC SHALL BE FASTENED TO THE CHAIN LINK FENCE WITH TIES EVERY 24" AT THE TOP AND MID SECTION.
4. FABRIC AND FENCE SHALL BE EMBEDDED 12", MINIMUM, INTO THE GROUND.
5. A 6", MINIMUM, OVERLAP SHALL BE PROVIDED WHERE TWO SECTIONS OF FABRIC ADJOIN. THE OVERLAPPED FABRIC SHALL BE FOLDED TOGETHER AND ATTACHED TO THE CHAIN LINK FENCE.
6. 4" BY 4" PRESSURE TREATED POSTS MAY BE SUBSTITUTED FOR METAL FENCE POSTS WITH THE APPROVAL OF THE ENGINEER.
7. THE LENGTH OF SLOPE ABOVE THE FENCE SHALL NOT EXCEED 400 FEET IN STEEP TERRAIN. IN FLATTER AREAS THE LENGTH CAN BE EXTENDED WITH THE APPROVAL OF THE ENGINEER.



SIDE VIEW
NTS



END LAP TOP VIEW
NTS

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DETAILS

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SHEET 11 OF 12

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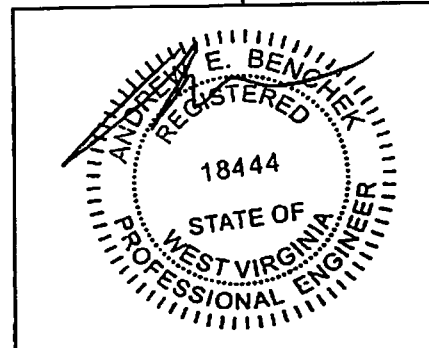


Table 4a. Permanent seeding mixtures suitable for establishment in WV.

Species Mixture	Seeding Rate (lbs/acre)	Soil Drainage Preference	pH Range
Crownvetch/ Tall Fescue	10 - 15	Well - Mod. Well	5.0 - 7.5
Crownvetch/ Perennial Ryegrass	10 - 15	Well - Mod. Well	5.0 - 7.5
Flatpea or Perennial Pea/ Tall Fescue	20	Well - Mod. Well	4.0 - 8.0
Ladino Clover/ Sericea Lespedeza/ Tall Fescue	25	Well - Mod. Well	4.5 - 7.5
Tall Fescue/ Ladino Clover/ Redtop	30	Well - Mod. Well	5.0 - 7.5
Crownvetch/ Tall Fescue/ Redtop	40	Well - Mod. Well	5.0 - 7.5
Tall Fescue/ Birdfoot Trefoil/ Redtop	40	Well - Mod. Well	5.0 - 7.5
Tall Fescue/ Sericea Lespedeza/ Tall Fescue/ Redtop	50	Well - Mod. Well	5.0 - 7.5
Perennial Ryegrass/ Tall Fescue/ Lathco Flatpea *	20	Well - Poorly	5.0 - 8.0

Tables IV 1-4 taken from Natural Resources Conservation Service Manual Critical Area Planting

Table 4b. Mixtures in the table below are more wildlife and farm friendly.

Species Mixture	Seeding Rate (lbs/acre)	Soil Drainage Preference	pH Range
KY Bluegrass/ Redtop	20	Well - Mod. Well	5.5 - 7.5
Ladino Clover or Birdfoot Trefoil/ Timothy/ Alfalfa	2/10	Well - Mod. Well	6.5 - 8.0
Timothy/ Birdfoot Trefoil	5	Well - Poorly	5.5 - 7.5
Orchardgrass/ Ladino Clover/ Redtop	10	Well - Mod. Well	5.5 - 7.5
Orchardgrass/ Ladino Clover	30	Well - Mod. Well	5.5 - 7.5
Orchardgrass/ Perennial Ryegrass	10	Well - Mod. Well	5.5 - 7.5
Creeping Red Fescue/ Perennial Ryegrass	38	Well - Mod. Well	5.5 - 7.5
Orchardgrass or Kentucky Bluegrass	20	Well - Mod. Well	6.0 - 7.5
Birdfoot Trefoil/ Redtop/ Orchardgrass	10	Well - Mod. Well	5.5 - 7.5
Lathco Flat Pea/ Perennial Ryegrass	30	Well - Mod. Well	5.5 - 7.5
Lathco Flat Pea/ Orchardgrass	20	Well - Mod. Well	5.5 - 7.5

* Lathco Flatpea is potentially poisonous to some livestock. All legumes should be planted with proper precautions prior to seeding. For ungrazed seedbeds or seeding outside the optimum timeframes, add 50% more seed to the specified rate.

Table IV-5 Lime and Fertilizer Application Table

pH of Soil	Lime in Tons Per Acre	Fertilizer, Lbs. per Acre	10-20-20 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 pH testing kit or by sending the soil samples to a soil testing laboratory. When 4 tons of lime per acre are applied it must be incorporated into the soil by disking, backhoeing or tilling up and down the slope.

Table IV-6 Mulch Materials Rates and Uses

Material	Maximum Rates Per Acre	Coverage	Remarks
Hay or Straw	2 to 3 Tons	Cover 75% to 90% of Surface	Subject to Wind blowing or washing unless tied down
Wood Fiber	1000 to 1500 lbs.	Cover all	For Hydroseeding
Pulp Fiber		Disturbed Areas	
Wood Cellulose			
Recycled Paper			

Table IV-1 Recommended seeding dates for permanent and temporary cover unless otherwise noted.

Planting Dates	Suitability
March 1 - April 15 and August 1 - October 1	Best seeding periods
April 15 - August 1	HIGH RISK - moisture stress likely
October 1 - Dec. 1	HIGH RISK - Freeze damage to young seedlings
Dec. 1 - March 1	Good seeding period. Dormant seeding.

Table 2. Acceptable fertilization recommendation in absence of a soil test.

Species	N (lbs/ac)	P2O5 (lbs/ac)	K2O (lbs/ac)	Example Rec. (per acre)
Cool Season Grass	40	80	80	400 lbs. 10-20-20
CS Grass & Legume	30	60	60	300 lbs. 10-20-20
Temporary Cover	40	40	40	200 lbs. 19-19-19

Table 3. Temporary cover suitable for establishment in West Virginia.

Species	Seeding Rate (lbs/acre)	Optimum Seeding Dates	Drainage	pH
Annual Ryegrass	40	3/1 - 6/15 or 8/15 - 9/15	Well - Poorly	5.5
Field Bromegrass	40	3/1 - 6/15 or 8/15 - 9/15	Well - Mod. Well	6.0
Spring Oats	96	3/1 - 6/15	Well - Poorly	5.5
Sudangrass	40	5/15 - 8/15	Well - Poorly	5.5
Winter Rye	168	8/15 - 10/15	Well - Poorly	5.5
Winter Wheat	180	8/15 - 11/15	Well - Mod. Well	5.5
Japanese Millet	30	6/15 - 8/15	Well	4.5
Redtop	5	3/1 - 6/15	Well	4.0
Annual Ryegrass	26	3/1 - 6/15	Well - Poorly	5.5
Spring Oats	64	3/1 - 6/15	Well - Poorly	5.5

NOTE: These rates should be increased by 50% if planted April 15 - August 1 and October 1 - March 1.

Mulching

1. General Organic Mulches

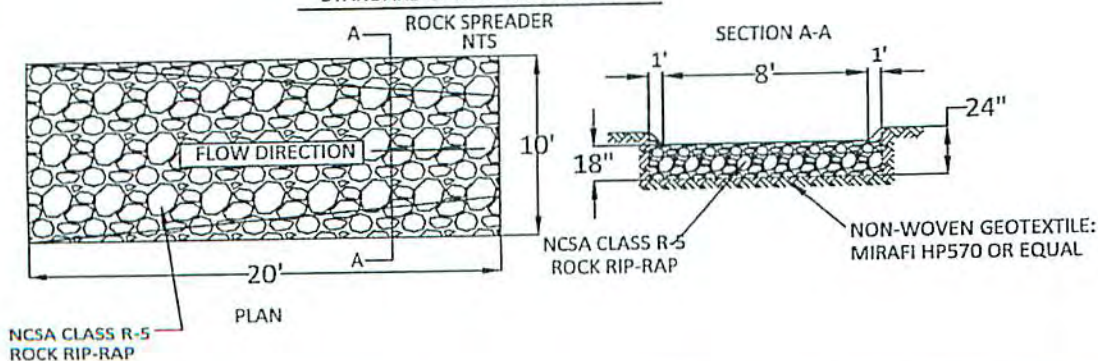
The application of straw, hay or other suitable materials to the soil surface to prevent erosion. Straw made from wheat or oats is the preferred mulch, the use of hay is permissible, but not encouraged due to the risk of spreading invasive species. Mulch must be applied to all temporary and permanent seeding on all disturbed areas. Depending on site conditions, in critical areas such as waterways, or steep slopes, additional or substitute soil protection measures may be used if deemed necessary. Examples include jute mesh, and soil stabilization blankets or erosion control matting.

Areas that have been temporarily or permanently seeded should be mulched immediately following seeding. Mulches conserve desirable soil properties, reduce soil moisture loss, prevent crusting and sealing of the soil surface and provide a suitable microclimate for seed germination.

Areas that cannot be seeded because of the season should be mulched to provide some protection to the soil surface. An organic mulch, straw or hay, should be used and the area then seeded as soon as weather or season conditions permit. Do not use fiber mulch (cellulose-hydroseed) alone for this practice; at normal application rates it will not give the soil protection of other types of mulch.

Wood cellulose fiber mulch, is used in hydroseeding operations and applied as part of the slurry. It creates the best seed-soil contact when applied over top of (as a separate operation) newly seeded areas. Fiber mulch does not alone provide sufficient protection on highly erodible soils, or during less than favorable growing conditions. Fiber mulch should not be used alone during the dry summer months or when used for late fall mulch cover. Straw mulch during these periods, and fiber mulch may be used to tack (anchor) the straw mulch. Fiber mulch is well suited for steep slopes, critical areas, and areas susceptible to wind.

STANDARD CONSTRUCTION DETAIL



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Loading Chart for Profile's GMMs, DFMs, HP-FGMs and ET-FGM												
Tank Size (gal)	# of 50-lb bags	Displacement (cu ft)	2,500 lb/acre		3,000 lb/acre		3,500 lb/acre		4,000 lb/acre		4,500 lb/acre	
			Sq Ft	Acres	Sq Ft	Acres	Sq Ft	Acres	Sq Ft	Acres	Sq Ft	Acres
250	2	150	1,742	0.040	1,452	0.033	1,245	0.029	1,083	0.025	959	0.022
500	4	300	3,485	0.080	2,904	0.067	2,490	0.057	2,173	0.050	1,918	0.044
750	6	450	5,227	0.120	4,356	0.100	3,735	0.086	3,267	0.075	2,904	0.067
1,000	8	600	6,970	0.160	5,808	0.133	4,975	0.114	4,356	0.100	3,872	0.089
1,500	12	900	10,454	0.240	8,712	0.200	7,457	0.171	6,534	0.150	5,808	0.133
2,000	16	1,200	13,939	0.320	11,616	0.267	9,957	0.229	8,712	0.200	7,744	0.178
2,500	20	1,500	17,424	0.400	14,520	0.333	12,448	0.288	10,890	0.250	9,590	0.222
3,000	24	1,800	20,909	0.480	17,424	0.400	14,925	0.343	13,026	0.300	11,618	0.267
3,500	28	2,100	24,394	0.560	20,328	0.467	17,414	0.400	15,140	0.350	13,552	0.311
4,000	32	2,400	27,879	0.640	23,232	0.533	19,913	0.457	17,424	0.400	15,488	0.356

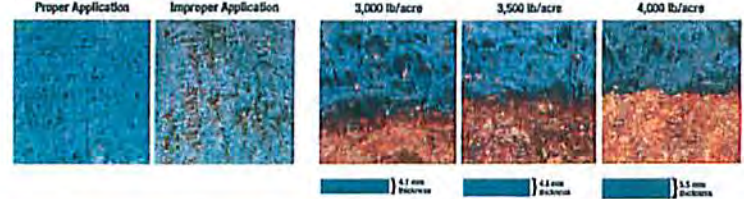
Additional Notes:

- For hose applications, 35 lb/100 gal is recommended.
- Rough surfaces (rocky terrain, cut tracks, ripped soils, etc.) may require additional product to achieve 100% coverage.
- Be sure to allow for residual material in tank on subsequent applications.

Application Rates			Slope Interruption Limits*		
Slope Condition	English	SI	Product Category	Length (ft)	Length (m)
≤ 4% to 1V	2500 lb/acre	2500 kg/hectare	SMB	50	15
> 4% to 1V and ≤ 2% to 1V	3000 lb/acre	3400 kg/hectare	DFM	75	23
> 2% to 1V and ≤ 1% to 1V	2000 lb/acre	2000 kg/hectare	HP-FGM	100	30
> 1% to 1V and ≤ 0% to 1V	4000 lb/acre	4500 kg/hectare	ET-FGM	125	38
> 1% to 1V	4500 lb/acre	5100 kg/hectare			
Below 0% to 1V	1500 lb/acre	1700 kg/hectare			
As called by TDS	3500 lb/acre	3900 kg/hectare			

SMB not recommended for slopes greater than 2% to 1V
DFM not recommended for slopes greater than 1% to 1V
HP-FGM or ET-FGM recommended for slopes greater than 1% to 1V
*As only approved and tested TDS to create the GreenArmor System.

Visual Key for Proper Application
(Flexterra HP-FGM shown below)



DETAILS

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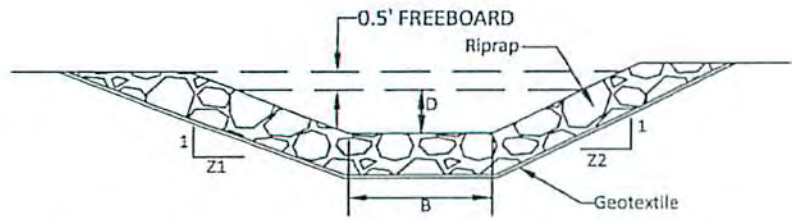
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WV

STANDARD CONSTRUCTION DETAIL

**RIPRAP CHANNEL
NTS**



CHANNEL NO.	TOTAL LENGTH (FT.)	BOTTOM WIDTH B (FT.)	DEPTH D (FT.)	Z1 (FT.)	Z2 (FT.)	LINING
DISCHARGE CHANNEL #1	123	2	1	2	2	18" THICK R-5 RIPRAP
DISCHARGE CHANNEL #2	33	2	1	2	2	18" THICK R-5 RIPRAP



10/30/2015