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 west virginia department of environmental protection
 

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Wednesday, December 19, 2018  
 WELL WORK PERMIT  
 Horizontal 6A / New Drill

CNX GAS COMPANY LLC  
 POST OFFICE BOX 1248

JANE LEW, WV 263786506

Re: Permit approval for MAJ10CHSU  
 47-051-02065-00-00

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

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

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

James A. Martin  
 Chief

Operator's Well Number: MAJ10CHSU  
 Farm Name: CNX LAND, LLC  
 U.S. WELL NUMBER: 47-051-02065-00-00  
 Horizontal 6A New Drill  
 Date Issued: 12/19/2018

# PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

## CONDITIONS

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1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than 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. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. 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.
10. 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.

## PERMIT CONDITIONS

11. 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](mailto:DEPOOGNotify@wv.gov).



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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-926-0499 Ext 1274

Barry K. Lay, Chairman  
dep.wv.gov

September 20, 2018

Department of Environmental Protection  
Office of Oil and Gas  
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-051-02065

COMPANY: CNX Gas Company, LLC

FARM: MAJ10CHSU


COUNTY: Marshall      DISTRICT: Webster      QUAD: Majorsville

The deep well review of the application for the above company is Approved to drill to the Point Pleasant for completion.

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Comments to Notice of Deviation filed? None
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: yes, Docket No. 267-257 Exception Location Hearing; 47-051-02068; 47-051-02070; 47-051-02069; 47-051-02008; 47-051-02009; 47-051-02010; 47-051-01938;
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

  
Susan Rose  
Administrator

WW-6B  
(04/15)

4705102065  
12/21/2018  
API NO. 47- \_\_\_\_\_ - \_\_\_\_\_  
OPERATOR WELL NO. MAJ10CHSU  
Well Pad Name: MAJ10HSU

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

1) Well Operator: CNX Gas Company, LLC  
Operator ID: 494458046    County: Marshall    District: Webster    Quadrangle: Majorsville

2) Operator's Well Number: MAJ10CHSU    Well Pad Name: MAJ10HSU

3) Farm Name/Surface Owner: Majorsville    Public Road Access: Lone Oak Road

4) Elevation, current ground: 1323+/-    Elevation, proposed post-construction: 1317.84

5) Well Type (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_

Other \_\_\_\_\_

(b) If Gas Shallow \_\_\_\_\_ Deep

Horizontal

6) Existing Pad: Yes or No no *JW 9/12/18*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Point Pleasant, 11,890' TVDGL, 78', 10,757psi (0.9 psi/ft. pressure gradient)

8) Proposed Total Vertical Depth: 11,890'

9) Formation at Total Vertical Depth: Point Pleasant

10) Proposed Total Measured Depth: 20,595

11) Proposed Horizontal Leg Length: 8,054

12) Approximate Fresh Water Strata Depths: 378'

13) Method to Determine Fresh Water Depths: 2,500' radius search

14) Approximate Saltwater Depths: N/A

15) Approximate Coal Seam Depths: 779' (Pittsburgh)

16) Approximate Depth to Possible Void (coal mine, karst, other): 778'

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: Bailey Mine

Depth: 779'

Seam: Pittsburgh

Owner: Consol

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Page 1 of 3

WW-6B  
(04/15)

API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. MAJ10CHSU  
Well Pad Name: MAJ10HSU

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	30	N	A-252	99	129	100	188/CTS
Fresh Water							
Coal	18.625	N	J-55	87.5	948	898	667CTS
Intermediate	13.375	N	NT-80LHE	68	3332	3282	2235/CTS
Production	5.5	N	Q-125VAXP	23	20595	20545	2763/TOC@5,000'
Tubing							
Liners	9.625	N	P-110HP	43.5	10723	10673	1653/TOC@5,000'

*JN 9/12/18*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30	36	0.312		50	A	1.18
Fresh Water							
Coal	18.625	22	0.435	2250	1400	A	1.18
Intermediate	13.375	17.5	0.480	4930	3250	A	1.18
Production	5.5	8.5	0.415	19040	9000	A	1.56
Tubing							
Liners	9.625	12.25	0.435	9900	6700	A	2.28

PACKERS

Kind:	NONE			
Sizes:				
Depths Set:				

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WW-6B  
(10/14)

4705102065 12/21/2018  
API NO. 47-  
OPERATOR WELL NO. MAJ10CHSU  
Well Pad Name: MAJ10HSU

JW 9/12/18

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

The general well work will be conducted in a fashion to efficiently place a production string of casing to total depth of the subject well bore. The vertical portion of the wellbore will be drilled with a combination of air percussion hammers, roller cone drill bits, and bent housing motors. Air/mist will be utilized to drill this interval. The horizontal portion of the wellbore will be drilled utilizing a synthetic based mud system with a density capable of suppressing bottom hole pressure at depth. All strings of casing will be permanently cemented in place in accordance with all guidelines and restrictions. No pilot hole will be drilled on this well.

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

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will also be utilized on each stage using sand, water, and chemicals.

Max Pressure - 14,500 psi. Max Rate - 100 bbl/min.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 19.7

22) Area to be disturbed for well pad only, less access road (acres): 12.4

23) Describe centralizer placement for each casing string:

Centralizers will be placed per CNX sop of casing running. Typical surface/intermediate casings will be 1:3 from shoe to surface. Isolation strings will be 1:2 to planned TOC. Production strings will be 1:1 from the shoe to KOP, and 1:2 through the planned TOC.

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

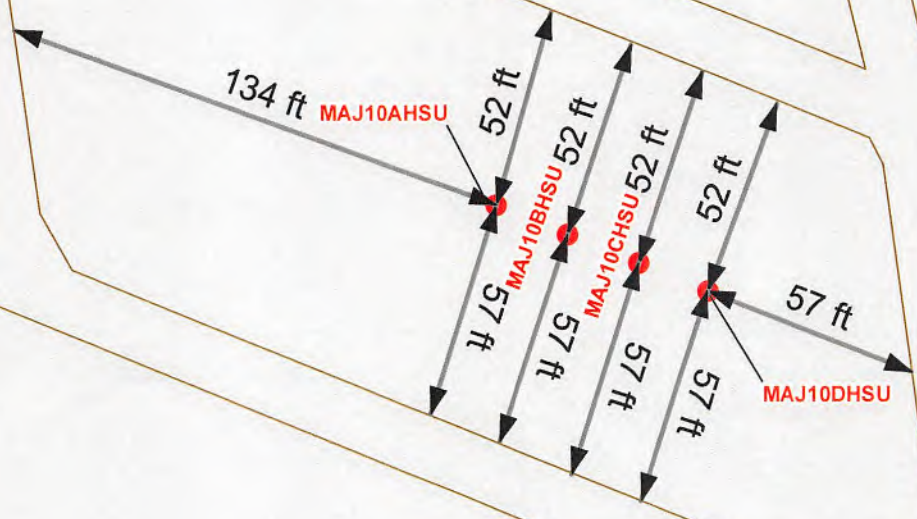
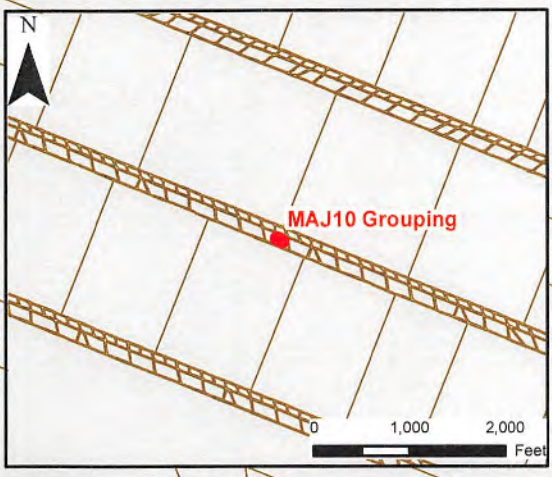
See attached.

25) Proposed borehole conditioning procedures:

Conditioning will be conducted as needed. All factors will be adjusted per hole conditions. All returns from the well bore must be consistent with a stable hole, returning minimal cuttings while exhibiting a non-existent gas flow prior to tripping out.

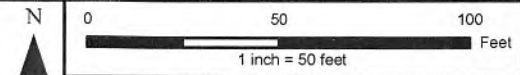
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\*Note: Attach additional sheets as needed.



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- Legend**
- Well Location
  - Mine Workings
  - Mined Out



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Prepared By: ljs0lni
Original Date: 7/31/2018
Revision No:
Revision Date:



**CNXGas Well  
MAJ10  
Pillar Study Map**



WW-9  
(4/16)

AUG 6 2018

API Number 47 - 51 - 02065  
Operator's Well No. MAJ10A,B,C,DHSU

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name CNX Gas Company LLC OP Code 494458046

Watershed (HUC 10) Wheeling Creek Quadrangle Majorsville

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

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: Closed Loop- No utilization of a pit

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 47-001-00561, 47-097-01514, 47-097-01613 )
- Reuse (at API Number Maj12 Well site (API TBD) )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain No pits )

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

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

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

Additives to be used in drilling medium? Bactericide, Polymers, and Weighting Agents

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Land Application of only soil conductor cuttings, all other cuttings will be taken to an approved Landfill

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

-Landfill or offsite name/permit number? See attached list.

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

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on 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 Raymond Hoon

Company Official (Typed Name) Raymond Hoon

Company Official Title Permitting Supervisor

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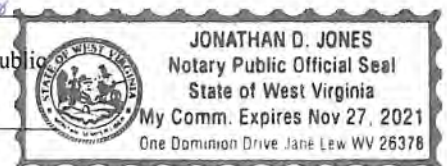
JUN 29 2018

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Subscribed and sworn before me this 5<sup>th</sup> day of February, 2018

[Signature] Notary Public

My commission expires 11/27/2021



Form WW-9

Operator's Well No. MAJ10A,B,CHSU

CNX Gas Company LLC

Proposed Revegetation Treatment: Acres Disturbed 19.7 Prevegetation pH 6.5

Lime according to pH test Tons/acre or to correct to pH 7.0

Fertilizer type 10-20-20 or equal

Fertilizer amount 500 lbs/acre

Mulch hay or straw at 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Orchard Grass	25	Orchard Grass	25
Birdsfoot Trefoil	15	Birdsfoot Trefoil	15
Ladino Clover	10	Ladino Clover	10

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *[Signature]*

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

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Title: Oil + Gas Inspector

Date: 2/6/18

Field Reviewed?  Yes  No

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51-02015  
12/21/2018



[Conventional Well Operator]  
[Address]  
[State]

CNX  
CNX Center  
1000 CONSOL Energy Drive  
Canonsburg, PA 15317

(724) 485-4040  
[PCR@cnx.com](mailto:PCR@cnx.com)

CNX Production Team

June 1, 2018

**Re: Marshall County Hydraulic Fracturing Notice**

Dear Sir or Madam,

CNX Gas Company, LLC (CNX) has developed a Utica well pad "MAJ10HSU" located in Marshall County, West Virginia. Through CNX's evaluation pursuant to WV Code 35 CSR 8(5.11), you have been identified as the owner or operator of a well within a 500' radius of the surface location or lateral section of the wellbore. Due to the apparent presence of unique geological conditions, communication between CNX hydraulic fracturing operations and the identified well is a possibility. As an owner or operator of a conventional natural gas well in this area, we are requesting your assistance in monitoring for changes that would indicate communication between your well(s) and our planned operation.

CNX anticipates conducting hydraulic fracturing activity at the MAJ10HSU pad during [timeframe]. Plats for each well to be hydraulically fractured on this pad are attached.

We recommend that conventional operators conduct the following activities before, during, and after fracturing operations.

1. Inspect surface equipment prior to fracturing, to establish integrity and confirm well conditions.
2. Observe wells during and after fracturing and monitor for abnormal increases in water, gas, or pressure.
3. Inspect and upgrade master valves or other necessary equipment for wellhead integrity as you see fit.
4. Notify the OOG and CNX if any changes in water, gas production, pressure, or other conditions that cause abnormal risk or concern.

Please feel free to contact CNX's Production Control Room at 724-485-4040 (staffed 24/7) with any questions or comments. You may also contact the West Virginia Office of Oil and Gas at 304-926-0499

Sincerely,

CNX Production

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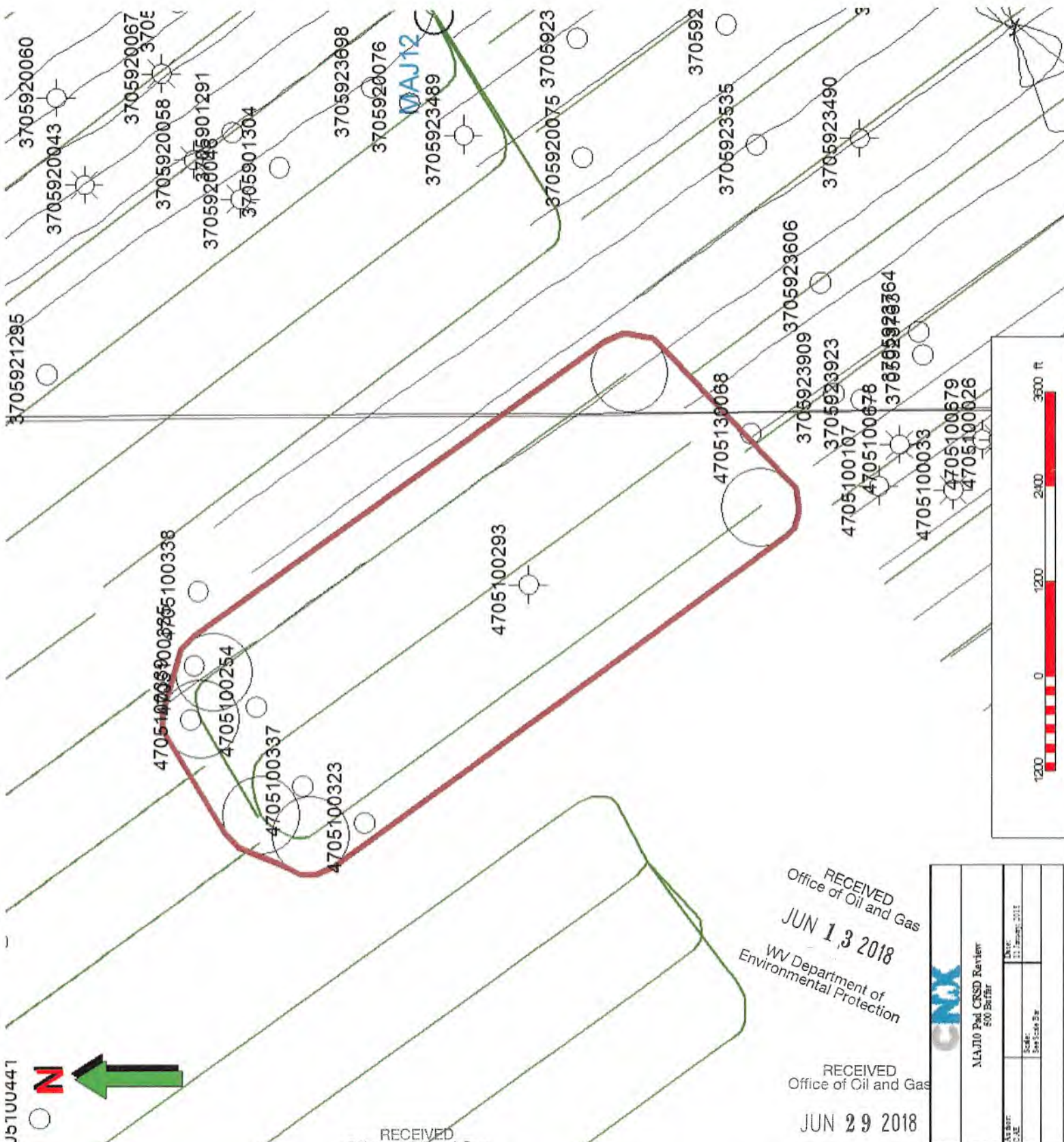
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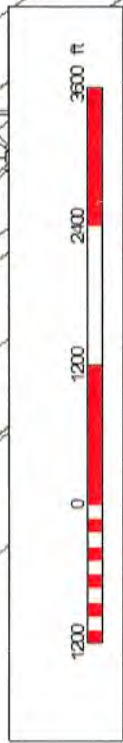
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MAJ10 Pal CSSD Review 500 South		Date: 11/14/2018
Author: C.A.E.	Scale: See Scale 5/8	

API	COMPANY	WELL NAME	WELL NUMBER	STATUS	TD	LAST PERMIT DATE	FORMATION AT TD	COMMENTS
4705100323	CONSOL PA COAL COMPANY	MILDRED STROPE	5013	PLUGGED	1805	6/26/2014	BIG INJUN	PLUGGED 6-26-14
4705100337	CONSOL PA COAL COMPANY	MILDRED STROPE	5012	PLUGGED	1857	7/17/2014	BIG INJUN	PLUGGED 7-17-14
4705100254	CONSOL PA COAL COMPANY	RALPH CURTIS RIGGLE	5010	PLUGGED	2073	8/12/2011	BIG INJUN	PLUGGED 8-12-14
4705101353	AB RESOURCES	EARL CARMICHAEL	1	CANCELLED PERMIT		10/6/2010		CANCELLED PERMIT
4705100711	KNOX ENERGY	JAMES A GRAY	1	NEVER DRILLED		10/16/1985		NEVER DRILLED
4705100296	COLUMBIA NATURAL RESOURCES	M M BARTO	1-1553	NEVER DRILLED		4/1/1956		NEVER DRILLED
4705100293	COLUMBIA GAS TRANSMISSION	M M BARTO	1556	STORAGE	2000	4/1/1956	BIG INJUN	STORAGE WELL
4705100068	CONSOL PA COAL COMPANY	FERDANDA MARTINEZ	4834	PLUGGED	1876	5/15/2007	BIG INJUN	PLUGGED 5-15-07
4705101045	CONSOL PA COAL COMPANY	HELEN L DOMAN	4715	PLUGGED	1207	8/4/2006	DUNKARD	PLUGGED 8-4-06
4705100318	OPERATOR UNKNOWN	M M BARTO	1557	PLUGGED		10/10/1970		NO DATA
4705100335	CONSOL PA COAL COMPANY	RALPH CURTIS RIGGLE	5005	PLUGGED	1985	8/26/2011	BIG INJUN	PLUGGED 8-26-11
4705100026	OPERATOR UNKNOWN	JNO MCGINNIS	3	PLUGGED	1868	12/26/1930	BIG INJUN	
4705100339	CONSOL PA COAL COMPANY	RALPH CURTIS RIGGLE	5007	PLUGGED	1978	9/12/2011	BIG INJUN	PLUGGED 9-12-11
4705100338	CONSOL PA COAL COMPANY	RALPH CURTIS RIGGLE	5006	PLUGGED	1933	7/1/2011	BIG INJUN	PLUGGED 7-1-11
3705926465	CNX RESOURCES	RHL23HHS	23H	PRODUCING	6988		MARCELLUS	HORIZONTAL MRCL WELL
3705926467	CNX RESOURCES	RHL23KHS	23K	PRODUCING	6992		MARCELLUS	HORIZONTAL MRCL WELL

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51-02065

Disclaimer: Vendors have been approved for the below category by ENV. UPDATED AGREEMENT with MSCM MUST BE CONFIRMED.

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HSE APPROVED NON-HAZARDOUS WASTE DISPOSAL FACILITIES (version 05-23-2016)

Republic Services (Allied Waste) Industrial Landfills		Gas Specific Waste Streams			Other Accepted Waste Streams								Municipal Solid Waste	Contact Information
Landfill	Location	Drill * Cuttings	Waste Liners	Waste Brine	Contaminated Soil (Including Petroleum)	Construction & Demolition Waste	Industrial Waste	Sludge	Friable Asbestos	Non-Friable Asbestos	Process Waste	Solidification Services		
McLean County	Bloomington	IL	X	X	X	X	X	X	X	X	X	X	X	
ERC/Coles County	Charleston	IL	X	X	X	X	X	X	X	X	X	X	X	
Brickyard Disposal	Danville	IL	X	X	X	X	X	X	X	X	X	X	X	
Southern Illinois Regional	De Soto	IL											X	
Lee County	Dixon	IL	X	X	X	X	X	X	X	X	X	X	X	
Upper Rock Island	East Moline	IL	X	X	X	X	X	X	X	X	X	X	X	
Bond County	Greensville	IL	X	X	X	X	X	X	X	X	X	X	X	
Illinois	Hoopeston	IL	X	X	X	X	X	X	X	X	X	X	X	
LandComp	LaSalle	IL	X	X	X	X	X	X	X	X	X	X	X	
Litchfield-Hillsboro	Litchfield	IL	X	X	X	X	X	X	X	X	X	X	X	
Envirotech	Morris	IL	X	X	X	X	X	X	X	X	X	X	X	
Livingston	Pontiac	IL	X	X	X	X	X	X	X	X	X	X	X	
Roxana	Roxana	IL	X	X	X	X	X	X	X	X	X	X	X	
Sangamon Valley	Springfield	IL	X	X	X	X	X	X	X	X	X	X	X	
Benson Valley	Frankfort	KY	X	X	X	X	X	X	X	X	X	X	X	
Blue Ridge	Irvine	KY	X	X	X	X	X	X	X	X	X	X	X	
Morehead	Morehead	KY	X	X	X	X	X	X	X	X	X	X	X	
Green Valley	Rush	KY	X	X	X	X	X	X	X	X	X	X	X	
Cherokee Run	Bellefontaine	OH			X	X	X	X	X	X	X	X	X	
Williams County	Bryan	OH			X	X	X	X	X	X	X	X	X	
County Environmental	Carey	OH			X	X	X	X	X	X	X	X	X	
Celina	Celina	OH			X	X	X	X	X	X	X	X	X	
Carbon-Limestone**	Lowellville	OH	X	X	X	X	X	X	X	X	X	X	X	
Countywide Landfill**	East Sparta	OH	X	X	X	X	X	X	X	X	X	X	X	
Lorain County	Oberlin	OH			X	X	X	X	X	X	X	X	X	
Oakland Marsh	Shiloh	OH			X	X	X	X	X	X	X	X	X	
Imperial	Imperial	PA			X	X	X	X	X	X	X	X	X	
Conestoga	Morgantown	PA			X	X	X	X	X	X	X	X	X	
Brunswick	Lawrenceville	VA			X	X	X	X	X	X	X	X	X	
King and Queen	Little Plymouth	VA			X	X	X	X	X	X	X	X	X	
Old Dominion	Richmond	VA			X	X	X	X	X	X	X	X	X	
Sycamore	Hurricane	WV			X	X	X	X	X	X	X	X	X	
Short Creek	Wheeling (Short Creek)	WV	X	X	X	X	X	X	X	X	X	X	X	
Carter Valley	Church Hill	TN			X	X	X	X	X	X	X	X	X	

317-921-1667 or 480-627-2700  
1-800-634-0215

Jack Palermo:  
work: 330-536-8013  
cell: 330-806-9660

Barbara Harsanyi:  
work: 330-536-8013 x 120  
cell: 330-423-7267

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Waste Management Industrial Landfills		Gas Specific Waste Streams			Other Accepted Waste Streams									Contact Information
Landfill	Location	Drill * Cuttings	Waste Liners	Waste Brine	Contaminated Soil (Including Petroleum)	Construction & Demolition Waste	Industrial Waste	Sludge	Friable Asbestos	Non-Friable Asbestos	Process Waste	Solidification Services	Municipal Solid Waste	
Arden Landfill	Washington	PA	X	X	X	X	X	X	X		X	X	X	
South Hills (Armoni)	South Park	PA	X	X	X	X	X	X	X		X	X	X	
Kelly Run	Elizabeth	PA	X	X	X	X	X	X	X		X	X	X	
Valley Landfill	Irwin	PA	X	X	X	X	X	X	X		X	X	X	
Evergreen Landfill	Blairsville	PA	X	X	X	X	X	X	X	X	X	X	X	
Charleston Landfill (Kanawha County)	Charleston	WV	X	X	X	X	X	X			X		X	
Meadowfill Landfill	Bridgeport	WV	X	X	X	X	X	X	X	X	X	X	X	
Northwestern Landfill	Parkersburg	WV	X	X	X	X	X	X	X	X	X	X	X	
S&S Grading Landfill	Clarksburg	WV	X	X	X	X	X	X			X		X	
American Landfill	Waynesburg	OH	X	X	X	X	X	X	X	X	X	X	X	
Suburban RDF	Glenford	OH	X	X	X	X	X	X	X	X	X	X	X	
Coshocton Landfill***	Coshocton	OH	X	X	X	X	X	X					X	
Mahoning Landfill	New Springfield	OH	X	X	X	X	X	X		X	X		X	

Scott Allen: 412-604-4444

Patty Landolt: 262-532-8000  
John Miller: 1-800-963-4777

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Additional Landfills		Gas Specific Waste Streams			Other Accepted Waste Streams									Contact Information
Landfill	Location	Drill* Cuttings	Waste Liners	Waste Brine	Contaminated Soil (Including Petroleum)	Construction & Demolition Waste	Industrial Waste	Sludge	Friable Asbestos	Non-Friable Asbestos	Process Waste	Solidification Services	Municipal Solid Waste	
Westmoreland Waste (WWLC Group)	111 Conner Lane, Belle Vernon, PA 15012	PA	X	X	X	X	X	X	X	X		X	X	
MAX Environmental (Bulger Facility)	200 Max Drive, Bulger, PA 15019	PA	X	X	X	X	X	X				X	X	
MAX Environmental (Yukon Facility)	233 MAX Lane, Yukon, PA 15698	PA	X	X	X	X	X	X				X	X	
Apex Sanitary landfill (Apex Environmental)	11 County Road 78, Amsterdam, Ohio 43903	OH	X	X	X	X	X	X				X	X	
Rumpke, Mt. Sterling (Rumpke Consolidated)	30 Larison Rd, Jeffersonville, KY 40337	KY	X	X	X	X	X	X	X	X			X	
Laurel Ridge Landfill (Waste Connections of KY)	3612 E State Highway 552 Lily, KY 40740	KY	X	X	X	X	X	X	X	X	X		X	
Advanced Disposal	Chestnut Valley 1184 McClellandtown Rd, McClellandtown, PA 15458	PA	X	X	X	X	X	X					X	
	Greentree Landfill; 635 Toby Rd.; Kersey, PA	PA	X	X	X	X	X	X					X	
	Mostoller Landfill; 7035 Glades Pike Rd.; Somerset, PA	PA	X	X	X	X	X	X					X	

Mike Home: 412-552-4427  
Mark Thomas: 724-929-7694

Carl Spadaro: 412-343-4900  
cell: 412-445-9789

Joe Teterick: 740-275-2857  
joet@els-company.com

Carl Walter: 513-623-2471

Bruce Crouch: Work: 606-864-7996  
Cell: 606-219-0261

Tony Labenne  
6184 Route 219, Brockway, PA 15824  
814-590-9906

\*\* Ohio "TENORM" - requires Radium 226/228 analysis by load before leaving the well pad. Solid waste landfills in Ohio can only accept TENORM waste with combined concentration less than 5 picocuries per gram above the natural background level.

\*\*\* Accepts drilling wastes but profile for disposal is not currently completed.

X Waste stream accepted by facility.

Waste stream is not or may not be accepted by facility. Contact facility directly to verify waste streams accepted.

New PADEP rules regarding "TENORM" testing requirement are pending.

Notes: \* Drill Cuttings include frac sand for the purpose of this table (Contact facility directly to verify waste streams accepted).

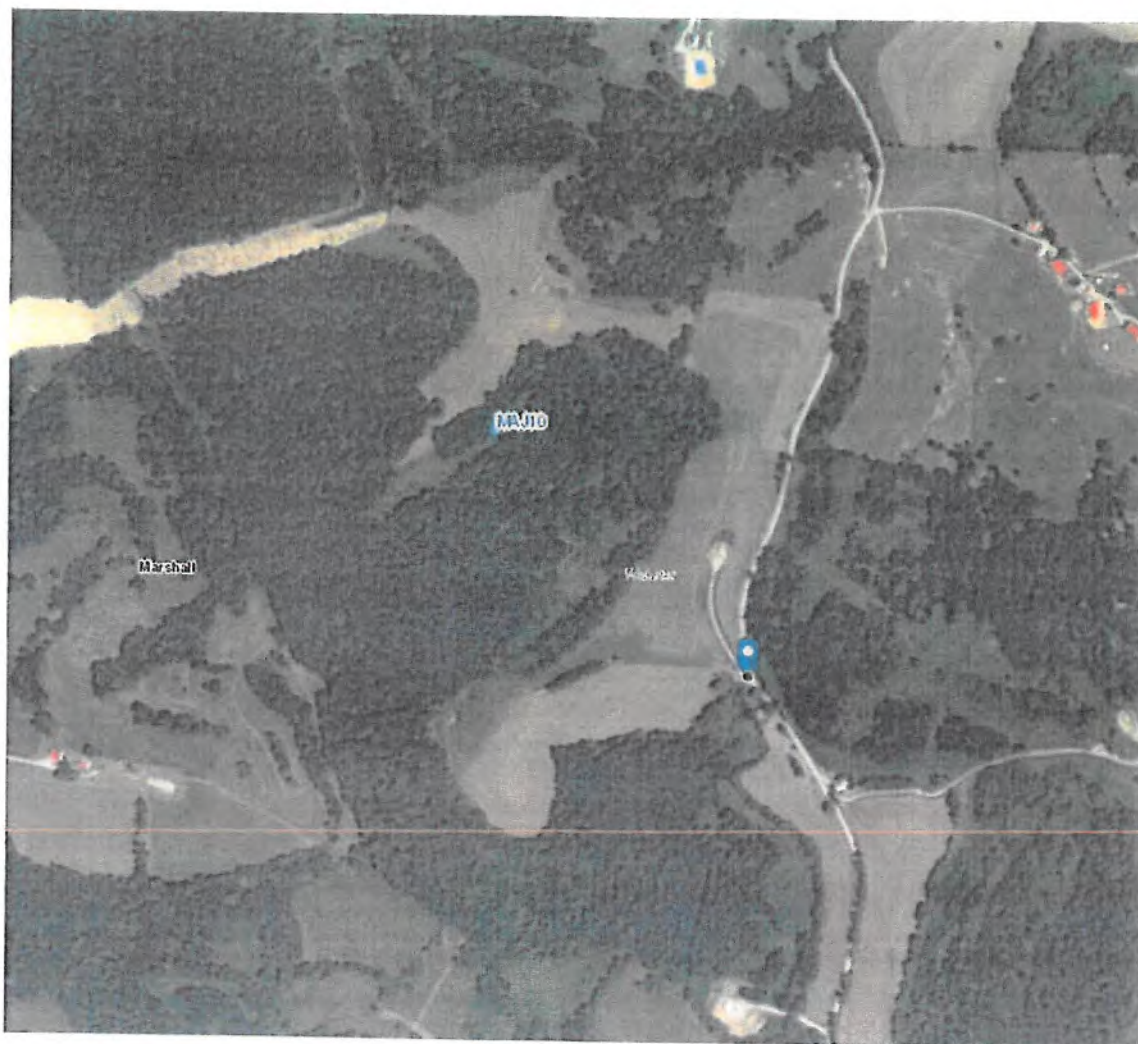
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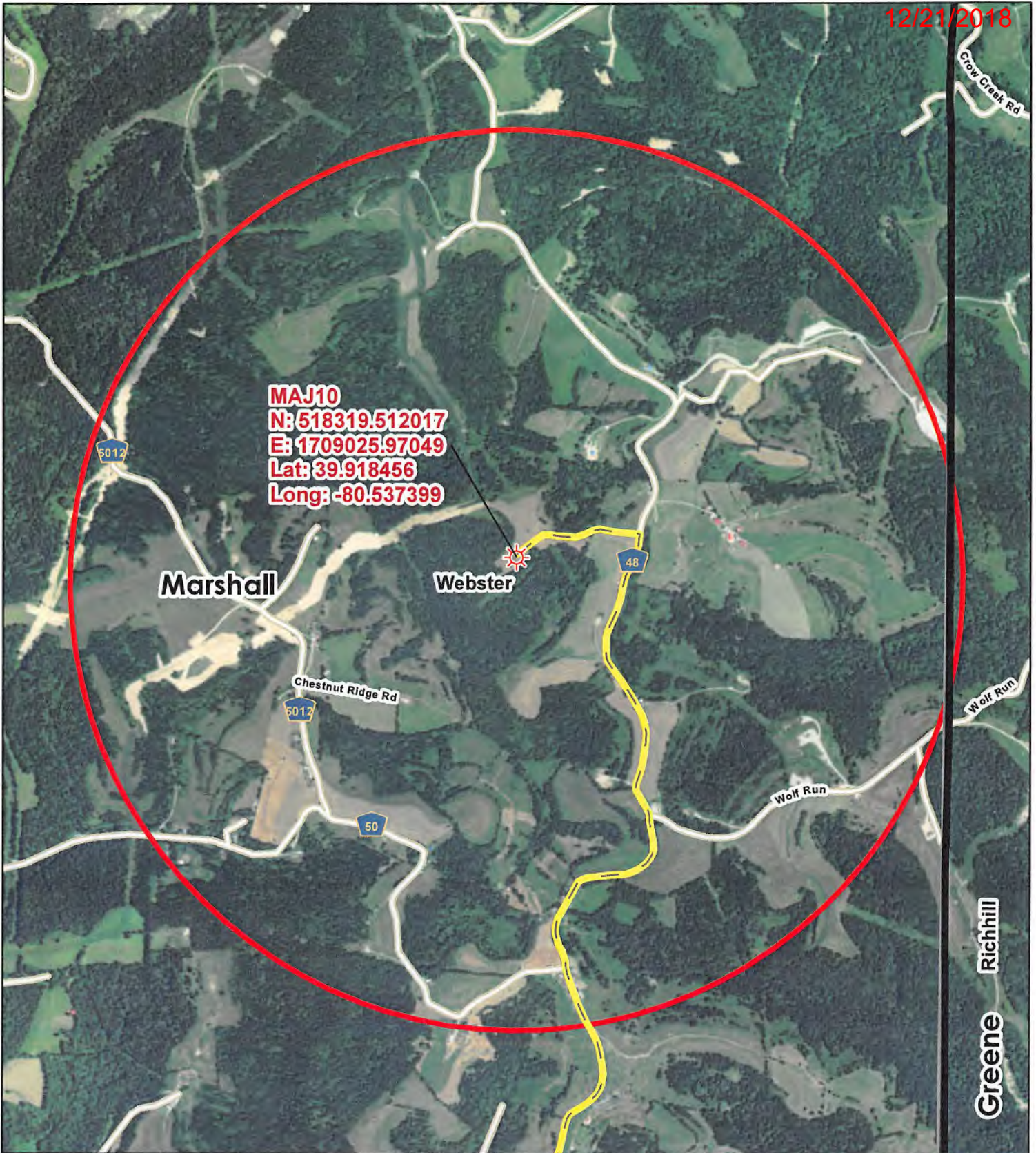
# Site Safety Plan for Well MAJ10HSU

## CNX Gas Company, LLC.

*[Handwritten signature]*  
2/6/18







**MAJ10**  
**N: 518319.512017**  
**E: 1709025.97049**  
**Lat: 39.918456**  
**Long: -80.537399**

Marshall

Webster

Chestnut Ridge Rd

Wolf Run

Wolf Run

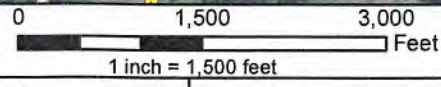
Richhill  
Greene

**Legend**

-  Wellbore
-  1 Mile Evacuation Buffer
-  Evacuation Route

**Directions:**  
 Head east from pad and turn right onto  
 County Highway 48, follow Highway 48 south  
 to State Highway 891.

Path: \\cnxgis\gis\business\_unit\_support\gas\_permitting\pp31\maj10\maps\evacuation\_plan\_map\maj10\_evacuation\_plan\_map.dwg - 1/20/18



 **CONSOL ENERGY**  
 CNX Center, Canonsburg, PA

Original Date: 12/14/2017	Prepared By: GIS
Revision Date: 12/14/2017	Approved By:

This map is property of CNX Land Resources Inc. and contains information that is proprietary and confidential in nature and may not be copied or reproduced without prior written consent.  
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Site Evacuation Map  
**MAJ10**

**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
See attached.				

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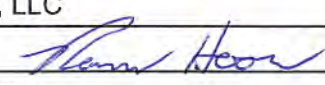
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The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired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

Well Operator: CNX Gas Company, LLC

By: Raymond Hoon

Its: Permitting Supervisor



<u>Tract ID</u>	<u>Title QLS / T#</u>	<u>Grantor, Lessor, etc</u>	<u>Grantee, Lessee, etc</u>	<u>Royalty</u>	<u>Book/Page</u>
<b>1</b> (Fee Tract)	205319000/ T115475	<b>Margaret Moran</b>	<b>Consol Pennsylvania Coal Company</b>	<b>100% CNX (DEED)</b>	<b>668/330</b>
		Consol Pennsylvania Coal Company	CNX Gas Company LLC	Deed	804/189
<b>2</b> (Fee Tract)	205319000/ T115474	<b>Margaret Moran</b>	<b>Consol Pennsylvania Coal Company</b>	<b>100% CNX (DEED)</b>	<b>668/330</b>
		Consol Pennsylvania Coal Company	CNX Gas Company LLC	Deed	804/189
<b>3</b> (2 Leases)	204643000/ T114764	<b>August W. Chambers, et al.</b>	<b>Columbia Gas Transmission Corporation</b>	<b>12.50%</b>	<b>529/225</b>
		Glenn E Chambers, et ux.	Columbia Gas Transmission Corporation	Lease Modification	667/156
		Betty Hewitt	Columbia Gas Transmission Corporation	Lease Modification	667/162
		Columbia Gas Transmission Corporation	Columbia Gas Transmission LLC	Merger/Name Change	683/459
		Columbia Gas Transmission LLC	NiSource Energy Ventures	Assignment	21/428
		NiSource Energy Ventures	Columbia Energy Ventures, LLC	Name Change	848/97
		Columbia Energy Ventures LLC and Columbia Gas Transmission as a joinder	CNX Gas Company LLC	Sublease	848/97
		<b>Chestnut Holdings</b>	<b>Fossil Creek Ohio</b>	<b>20%</b>	<b>848/218</b>
Fossil Creek Ohio	CNX Gas Company LLC	Assignment	37/18		
<b>4</b> (2 leases)	204994000/ T115134	<b>August W. Chambers, et al.</b>	<b>Columbia Gas Transmission Corporation</b>	<b>12.50%</b>	<b>529/225</b>
		Columbia Gas Transmission Corporation	Columbia Gas Transmission LLC	Merger/Name Change	683/459
		Columbia Gas Transmission LLC	NiSource Energy Ventures	Assignment	21/428
		NiSource Energy Ventures	Columbia Energy Ventures, LLC	Name Change	848/97
		Columbia Energy Ventures LLC and Columbia Gas Transmission as a joinder	CNX Gas Company LLC	Sublease	848/97
		<b>Chestnut Holdings</b>	<b>Fossil Creek Ohio</b>	<b>20%</b>	<b>848/218</b>
		Fossil Creek Ohio	CNX Gas Company LLC	Assignment	40/276
<b>5</b>	205052000/ T115194	<b>Michael S. Riggle</b>	<b>CNX Gas Company LLC</b>	<b>18%</b>	<b>956/146</b>
<b>6</b>	202142000/ T112145	<b>Ralph Curtis Riggle</b>	<b>CNX Gas Company LLC</b>	<b>17%</b>	<b>907/534</b>
<b>7</b>	204521000/ T114642	<b>Jackie L.Frye</b>	<b>CNX Gas Company LLC</b>	<b>15%</b>	<b>DB. 700/271</b>
		CNX Gas Company LLC	Noble Energy, Inc.	Assignment	AB 37/169
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 37/334

8 (Fee Tract)	205319000/ T115475	Margaret Moran	Consol Pennsylvania Coal Company	100% CNX (DEED)	668/330
		Consol Pennsylvania Coal Company	CNX Gas Company LLC	Deed	804/189
9	205315000/ T115471	David L. Kinney & Raymond P. Kinney	CNX Gas Company LLC	15%	701/421
10 (4 leases)	205314000/ T115470	Samuel Cottrell and Sheila Cottrell, husband and wife	TH Exploration, LLC	18%	933/627
		TH Exploration, LLC	CNX Gas Company, LLC	Assignment	42/173
		Leon Kinney and Ella Kinney, husband and wife	TH Exploration, LLC	18%	933/629
		TH Exploration, LLC	CNX Gas Company, LLC	Assignment	42/173
		Robert S. Neely and Jodi Neely, husband and wife	TH Exploration, LLC	18%	933/631
		TH Exploration, LLC	CNX Gas Company, LLC	Assignment	42/173
		Rodney J. Kinney and Debra J. Kinney, husband and wife	TH Exploration, LLC	18%	933/633
		TH Exploration, LLC	CNX Gas Company, LLC	Assignment	42/173
11	202138000/ T112141	Columbia Gas Transmission	NiSource Energy Ventures	17%	683/557
		Columbia Gas Transmission Corporation	Columbia Gas Transmission LLC	Merger/Name Change	683/459
		Columbia Energy Ventures LLC	CNX Gas Company LLC and Columbia Gas Transmission as a joinder	Sublease	848/97
		Columbia Energy Ventures LLC	CNX Gas Company LLC	Assignment	34/466
12	203161000/ T113178	Columbia Gas Transmission	NiSource Energy Ventures	17%	683/557
		Columbia Gas Transmission Corporation	Columbia Gas Transmission LLC	Merger/Name Change	683/459
		Columbia Energy Ventures LLC	CNX Gas Company LLC and Columbia Gas Transmission as a joinder	Sublease	848/97
		Columbia Energy Ventures LLC	CNX Gas Company LLC	Assignment	37/129
13	205320000/ T115476	Edward G. Strobe et al	CONSOL Pennsylvania Coal Company, LLC	100%	829/132
		CONSOL Pennsylvania Coal Company, LLC	CNX Land LLC	Deed	864/339
		CNX Land LLC	CNX Resources Corp	100% CNX (DEED)	Copy Included
14	205320000/ T115476	Dry Ridge Community Association, a West Virginia Nonprofit Corporation	Noble Energy, Inc.	15%	809/619
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 34/177
		CNX Gas Company LLC	Noble Energy, Inc.	Assignment	AB 37/169
		Noble Energy, Inc.	HG Energy II Appalachia, LLC	Assignment	AB 39/1
		HG Energy II Appalachia, LLC	CNX Gas Company LLC	Assignment	AB 42/187
15	202137000/ T112140	Columbia Gas Transmission	NiSource Energy Ventures	17%	683/557
		Columbia Gas Transmission Corporation	Columbia Gas Transmission LLC	Merger/Name Change	683/459
		Columbia Energy Ventures LLC	CNX Gas Company LLC and Columbia Gas Transmission as a joinder	Sublease	848/97
		Columbia Energy Ventures LLC	CNX Gas Company LLC	Assignment	37/129

16 (4 leases)	205053000/ T115195	Richard E. Scherich, widower	Noble Energy, Inc.	15%	806/314
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 34/177
		CNX Gas Company LLC	Noble Energy, Inc.	Assignment	AB 37/169
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 37/334
		Noble Energy, Inc.	HG Energy II Appalachia, LLC	Assignment	AB 39/1
		HG Energy II Appalachia, LLC	CNX Gas Company LLC	Assignment	AB 42/187
		Janet M. Scherich, single	Noble Energy, Inc.	15%	806/311
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 34/177
		CNX Gas Company LLC	Noble Energy, Inc.	Assignment	AB 37/169
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 37/334
		Noble Energy, Inc.	HG Energy II Appalachia, LLC	Assignment	AB 39/1
		HG Energy II Appalachia, LLC	CNX Gas Company LLC	Assignment	AB 42/187
		Scott Douglas Reed, a married man dealing in his sole and separate property	Noble Energy, Inc.	15%	806/317
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 34/177
		CNX Gas Company LLC	Noble Energy, Inc.	Assignment	AB 37/169
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 37/334
		Noble Energy, Inc.	HG Energy II Appalachia, LLC	Assignment	AB 39/1
		HG Energy II Appalachia, LLC	CNX Gas Company LLC	Assignment	AB 42/187
		Richard P. Barto and Mary Lee Barto	Noble Energy, Inc.	15%	805/554
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 33/28
CNX Gas Company LLC	Noble Energy, Inc.	Assignment	AB 37/169		
Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 37/334		
Noble Energy, Inc.	HG Energy II Appalachia, LLC	Assignment	AB 39/1		
HG Energy II Appalachia, LLC	CNX Gas Company LLC	Assignment	AB 42/187		
17	202134000/ T112137	Eugene Scherich, widower	The Manufacturers Light and Heat Company	12.50%	326/101
		The Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation	Assignment	422/204
		Columbia Gas Transmission Corporation	Columbia Gas Transmission LLC	Merger/Name Change	683/459
		Columbia Gas Transmission LLC	NiSource Energy Ventures	Assignment	21/428
		NiSource Energy Ventures, Columbia Gas Transmission	CNX Gas Company LLC	Sublease	848/97
		Pauline Myers Family Limited Partnership	NiSource Energy Ventures, Columbia Gas Transmission	17% (Royalty Modification)	835/594
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	AB 37/334
		Columbia Energy Ventures	CNX Gas Company LLC	Assignment	504/2274
18	202133000/ T112136	Eugene Scherich, widower	The Manufacturers Light and Heat Company	1/8	326/105
		The Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation	Assignment	422/204
		Columbia Gas Transmission Corporation	Columbia Gas Transmission LLC	Merger/Name Change	683/459
		Columbia Gas Transmission LLC	NiSource Energy Ventures	Assignment	21/428
		Columbia Energy Ventures LLC	CNX Gas Company LLC and Columbia Gas Transmission as a joinder	Sublease	848/97
		Columbia Energy Ventures LLC	CNX Gas Company and Noble Energy Inc	Assignment	AB 37/129
		CNX Gas Company LLC	Noble Energy, Inc.	Assignment	AB 37/169

		Noble Energy, Inc.	HG Energy II Appalachia, LLC	Assignment	AB 39/1
		HG Energy II Appalachia, LLC	CNX Gas Company LLC	Assignment	AB 342/187
19	285652000	Helen L. Doman, widow	TH Exploration, LLC	19%	949/454
		Helen L. Doman, widow	TH Exploration, LLC	Amendment	962/521
		TH Exploration, LLC	CNX Gas Company, LLC	Assignment	42/173
20	195297000/ T104972	Helen L. Doman, widow	TH Exploration, LLC	19%	949/454
		Helen L. Doman, widow	TH Exploration, LLC	Amendment	962/521
		TH Exploration, LLC	CNX Gas Company, LLC	Assignment	42/173
21	202385000/ T112395	Helen L. Doman, widow	TH Exploration, LLC	19%	949/454
		Helen L. Doman, widow	TH Exploration, LLC	Amendment	962/521
		TH Exploration, LLC	CNX Gas Company, LLC	Assignment	42/173
22	202386000/ T112396	Eugene Scherich, widower	The Manufacturers Light and Heat Company	12.50%	528/76
		Pauline Myers Family Limited Partnership	NiSource Energy Ventures, Columbia Gas Transmission	17%	472/420
		Columbia Energy Ventures, LLC f/k/a NiSource Energy Ventures, LLC	CNX Gas Company, LLC	Sublease	477/241
		Columbia Energy Ventures, LLC	CNX Gas Company, LLC	Assignment	492/682
23	202384000/ T112394	B.L. Frye and Dora Frye, husband and wife	The Manufacturers Light and Heat Company	1/8	447/53
		Columbia Gas Transmission Corporation	CNX Gas Company LLC	Deed	414/1259
		Columbia Energy Ventures, LLC f/k/a NiSource Energy Ventures, LLC	CNX Gas Company, LLC	Sublease	477/241
		Columbia Energy Ventures, LLC	CNX Gas Company, LLC	Assignment	504/2274
24	195298000/ T104973	Helen L. Doman, widow	TH Exploration, LLC	19%	949/454
		Helen L. Doman, widow	TH Exploration, LLC	Amendment	962/521
		TH Exploration, LLC	CNX Gas Company, LLC	Assignment	42/173
25	202387000/ T112397	W. Collier Baldwin and Sarah H. Baldwin, his wife	Columbia Gas Transmission Corporation	1/8	574/447
		Columbia Gas Transmission Corporation	Columbia Gas Transmission LLC	Merger/Name Change	414/1259
		Columbia Gas Transmission LLC	NiSource Energy Ventures LLC	Assignment	415/213
		John E. Snyder et al	NiSource Energy Ventures, Columbia Gas Transmission and CNX Gas Company LLC	18%	477/2251
		Columbia Energy Ventures, LLC, Columbia Gas Transmission, LLC and CNX Gas Company	Columbia Gas Transmission LLC	Sublease	477/241
		Columbia Energy Ventures, LLC, Columbia Gas Transmission, LLC	CNX Gas Company LLC	Amendment to Memo of Sublease	480/1972

26	204996000/ T115136	W. Collier Baldwin and Sarah H. Baldwin, his wife	Columbia Gas Transmission Corporation	1/8	574/447
		Columbia Gas Transmission Corporation	Columbia Energy Ventures, LLC	Name Change	414/1259
		Columbia Gas Transmission LLC	NiSource Energy Ventures LLC	Assignment	415/213
		John E. Snyder et al	NiSource Energy Ventures, Columbia Gas Transmission and CNX Gas Company LLC	18%	477/2251
		Columbia Energy Ventures, LLC, Columbia Gas Transmission, LLC and CNX Gas Company	Columbia Gas Transmission LLC	Sublease	477/241
		Columbia Energy Ventures, LLC, Columbia Gas Transmission, LLC	CNX Gas Company LLC	Amendment to Memo of Sublease	480/1972
27	202386000/ T112396	Eugene Scherich, widower	The Manufacturers Light and Heat Company	1/8	528/76
		Pauline Myers Family Limited Partnership	NiSource Energy Ventures, Columbia Gas Transmission	17%	472/420
		Columbia Energy Ventures, LLC f/k/a NiSource Energy Ventures, LLC	CNX Gas Company, LLC	Sublease	477/241
		Columbia Energy Ventures, LLC	CNX Gas Company, LLC	Assignment	492/682
28	202392000/ T112402	Delmar W. & Blanche Scherich, his wife	The Manufacturers Light and Heat Company	1/8	527/463
		Columbia Gas Transmission Corporation	Columbia Energy Ventures, LLC	Name Change	414/1259
		Columbia Gas Transmission LLC	NiSource Energy Ventures LLC	Assignment	415/213
		Tim Sabella	NiSource Energy Ventures and Columbia Gas Transmission	Pooling Amendment	456/3855
		Tom Sabella	NiSource Energy Ventures and Columbia Gas Transmission	Pooling Amendment	456/3859
		Columbia Energy Ventures, LLC f/k/a NiSource Energy Ventures, LLC	CNX Gas Company, LLC	Sublease	477/241
		Columbia Energy Ventures, LLC, Columbia Gas Transmission, LLC	CNX Gas Company LLC	Amendment to Memo of Sublease	480/1972
		Columbia Energy Ventures, LLC	CNX Gas Company LLC	Partial Assignment	492/682
		Columbia Energy Ventures, LLC	CNX Gas Company LLC/Noble Energy Inc	Partial Assignment	496/490
		CNX Gas Company LLC	Noble Energy Inc	Assignment	496/2775
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	496/2971
		Noble Energy, Inc.	HG Energy Appalachia, LLC	Assignment	503/2593
Noble Energy, Inc.	CNX Gas Company LLC	Corrective to Assignment	510/2242		
HG Energy II Appalachia, LLC	CNX Gas Company LLC	Assignment	AB 42/187		
29	202391000/ T112401	Tom Sabella aka Thomas J. Sabella and Beth Ann Sabella, husband and wife	Noble Energy Inc	15%	467/3295
		Noble Energy Inc	CNX Gas Company LLC	Assignment	477/3445
		Noble Energy Inc	CNX Gas Company LLC	Assignment	496/2971
		S. Elsworth Allison and Lucille Allison, his wife	The Manufacturers Light and Heat Company	12.50%	514/359
		Columbia Gas Transmission Corporation	Columbia Energy Ventures, LLC	Name Change	414/1259
		Columbia Gas Transmission LLC	NiSource Energy Ventures LLC	Assignment	415/213

30	202393000/ T112403	Pechin Leasing, LLC	Nisource Energy Ventures, Columbia Gas Transmission and CNX Gas Company LLC	15%	473/2094
		Donald R. D'Amico	Nisource Energy Ventures, Columbia Gas Transmission, CNX Gas Company LLC and Noble Energy Inc.	15%	492/2047
		Columbia Energy Ventures, LLC f/k/a NiSource Energy Ventures, LLC	CNX Gas Company, LLC	Sublease	477/241
		Columbia Energy Ventures, LLC, Columbia Gas Transmission, LLC	CNX Gas Company LLC	Amendment to Memo of Sublease	480/1972
		Columbia Energy Ventures, LLC	CNX Gas Company LLC	Partial Assignment	492/682
		Columbia Energy Ventures, LLC f/k/a NiSource Energy Ventures, LLC	CNX Gas Company LLC	Partial Assignment	496/490
		CNX Gas Company LLC	Noble Energy Inc	Assignment	496/2775
		Noble Energy, Inc.	CNX Gas Company LLC	Assignment	496/2971
		Noble Energy, Inc.	HG Energy II Appalachia, LLC	Assignment	503/2593
		HG Energy II Appalachia, LLC	CNX Gas Company LLC	Assignment	AB 42/187



BHL is located on topo map 5,516 feet south of Latitude: 39° 55' 00"  
 SHL is located on topo map 14,519 feet south of Latitude: 39° 57' 30"



	SURFACE OWNER	LESSOR	DIST-TM/PAR
1	CNX LAND, LLC	CNX GAS COMPANY LLC (FEE)	P/O 15-11/12
2	CNX LAND, LLC	CNX GAS COMPANY LLC (FEE)	15-11/11
3	ROGER D. MCCrackEN ET AL	AUGUST W. CHAMBERS ET AL CHESTNUT HOLDINGS INC	P/O 15-11/21
4	ROGER D. MCCrackEN ET AL	AUGUST W. CHAMBERS ET AL CHESTNUT HOLDINGS INC	P/O 15-11/21
5	MICHAEL S. RIGGLE	MICHAEL S. RIGGLE	15-11/19
6	MICHAEL S. RIGGLE	RALPH CURTIS RIGGLE	15-11/20
7	CNX LAND, LLC	JACKIE L. FRYE	P/O 15-11/13
8	CNX LAND, LLC	CNX GAS COMPANY LLC (FEE)	P/O 15-11/12
9	DAVID L. KINNEY, ET AL	DAVID L. KINNEY & RAYMOND P. KINNEY	P/O 15-11/9
10	RODNEY J. & DEBRA J. KINNEY	DAN WILLIAMSON THOMAS ALBERS JOHN JOSEPH ALBERS, JR. JAMES WILLIAMSON BONNIE MIKE CONNIE WRIGHT JADE WILLIAMSON GINGER WILLIAMSON SCOTT SAMUEL & SHEILA COTTRELL LEON & ELLA KINNEY ROBERT S. & JODI NEELY RODNEY J. & DEBRA J. KINNEY MICHAEL ALBERS MICHAEL ELLIOT RYAN FOLLWEILER (FKA RYAN ELLIOT)	15-11/8
11	RODNEY J. KINNEY CNX LAND, LLC JOSEPH SCARLATA TRUSTEE BRADLEY S. SCHERICH	COLUMBIA GAS TRANSMISSION	15-11/15 P/O 15-11/13 P/O 15-11/14 P/O 15-12/17
12	JOSEPH SCARLATA TRUSTEE	COLUMBIA GAS TRANSMISSION	P/O 15-11/14
13	CNX LAND, LLC	EDWARD G. STROPE, ET AL	P/O 15-11/16
14	DRY RIDGE COMMUNITY ASSC'N	DRY RIDGE COMMUNITY ASSOCIATION, A WEST VIRGINIA NONPROFIT CORPORATION	15-11/16.1
15	CNX LAND, LLC CNX LAND, LLC CNX LAND, LLC CONSOL PENNSYLVANIA COAL CO. BRADLEY S. SCHERICH	COLUMBIA GAS TRANSMISSION	15-11/17 P/O 15-11/13 P/O 15-11/16 15-12/18 P/O 15-12/17
16	CNX LAND, LLC	RICHARD E. SCHERICH JANET M. SCHERICH SCOTT DOUGLAS REED RICHARD P. AND MARY LEE BARTO	15-11/18
17	CNX LAND, LLC	EUGENE SCHERICH	15-12/20
18	GLEN AND MARLENE SPITZNOGLE PAUL & MALLORY HEWITT	EUGENE SCHERICH	15-12/16 15-12/16.1
19	HELEN L. DOMAN	HELEN L. DOMAN	15-12/22
20	HELEN L. DOMAN	HELEN L. DOMAN	15-12/21
21	HELEN L. DOMAN	HELEN L. DOMAN	22-3/106
22	GAHC L.P.	EUGENE SCHERICH	P/O 22-3/105
23			P/O 22-3/105A
24	CONSOL PENNSYLVANIA COAL CO. JOHN E. SYNDER ET UX	B.L. AND DORA FRYE	P/O 22-3/107 P/O 22-3/107A
24	HELEN L. DOMAN	HELEN L. DOMAN	3-5/10
25	WILLIAM SNYDER ET AL	W. COLLIER AND SARAH H. BALDWIN	22-3/115B
26	JOHN E. SNYDER ET UX		22-3/115A
28	GAHC L.P.	DELMAR W. & BLANCHE SCHERICH	22-3/102
29	GAHC L.P.	TOM SABELLA AKA THOMAS J. SABELLA AND BETH ANN SABELLA	22-3/104
30	GAHC L.P.	S. ELSWORTH AND LUCILLE ALLISON	22-3/100



SURFACE HOLE LOCATION (SHL)  
**UTM 17-NAD83(M)**  
 N:4418811.50  
 E:539568.00  
 NAD83, WV NORTH  
 N:518335.396  
 E:1677643.755  
 LAT/LON-NAD83  
 LAT:39°55'06.514"  
 LON:80°32'13.224"

APPROX. LANDING POINT  
**UTM 17-NAD83(M)**  
 N:4418926.99  
 E:540133.73  
 NAD83, WV NORTH  
 N:518683.282  
 E:1679506.543  
 LAT/LON-NAD83  
 LAT:39°55'10.163"  
 LON:80°31'49.368"

BOTTOM HOLE LOCATION (BHL)  
**UTM 17-NAD83(M)**  
 N:4416940.69  
 E:541574.67  
 NAD83, WV NORTH  
 N:512086.209  
 E:1684125.882  
 LAT/LON-NAD83  
 LAT:39°54'05.488"  
 LON:80°30'49.127"

BHL is located on topo map 3,828 feet west of Longitude: 80° 30' 00"  
 SHL is located on topo map 10,579 feet west of Longitude: 80° 30' 00"

12/21/2018



SEE PAGE 2 DUE TO UNIT BOUNDARY SIZE

FILE #: MAJ10CHSU  
 DRAWING #: MAJ10CHSU  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: 1/2500  
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.  
 Signed: *George D. Six*  
 R.P.E.: \_\_\_\_\_ L.L.S.: P.S. No. 2000



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP  
 OFFICE OF OIL & GAS  
 601 57TH STREET  
 CHARLESTON, WV 25304  
 Well Type:  Oil  Waste Disposal  Production  Deep  Gas  Liquid Injection  Storage  Shallow  
 WATERSHED: WHEELING CREEK ELEVATION: 1317.00'  
 COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE, WV 7.5'  
 SURFACE OWNER: CNX LAND, LLC ACREAGE: 59.00±  
 OIL & GAS ROYALTY OWNER: CNX GAS LLC ACREAGE: 2230.716±  
 DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION   
 PERFORATE NEW FORMATION  PLUG & ABANDON  CLEAN OUT & REPLUG  OTHER CHANGE   
 (SPECIFY): \_\_\_\_\_  
 TARGET FORMATION: POINT PLEASANT ESTIMATED DEPTH: TVD: 11,890± TMD: 20,595±  
 WELL OPERATOR CNX GAS COMPANY LLC DESIGNATED AGENT CHRIS TURNER  
 Address 1000 CONSOL ENERGY DRIVE Address 1 DOMINION DRIVE  
 City CANONSBURG State PA Zip Code 15317 City JANE LEW State WV Zip Code 26378

DATE: SEPTEMBER 7, 2018  
 OPERATOR'S WELL #: MAJ10CHSU  
 API WELL #: 47 51 02065 H6A  
 STATE COUNTY PERMIT  
 PLACE SEAL HERE



# MAJ10CHSU PAGE 2 OF 2

12/21/2018

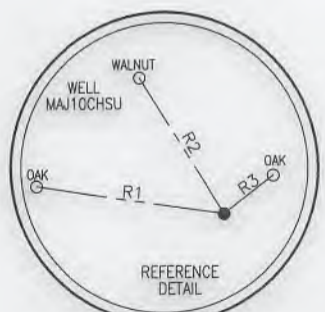
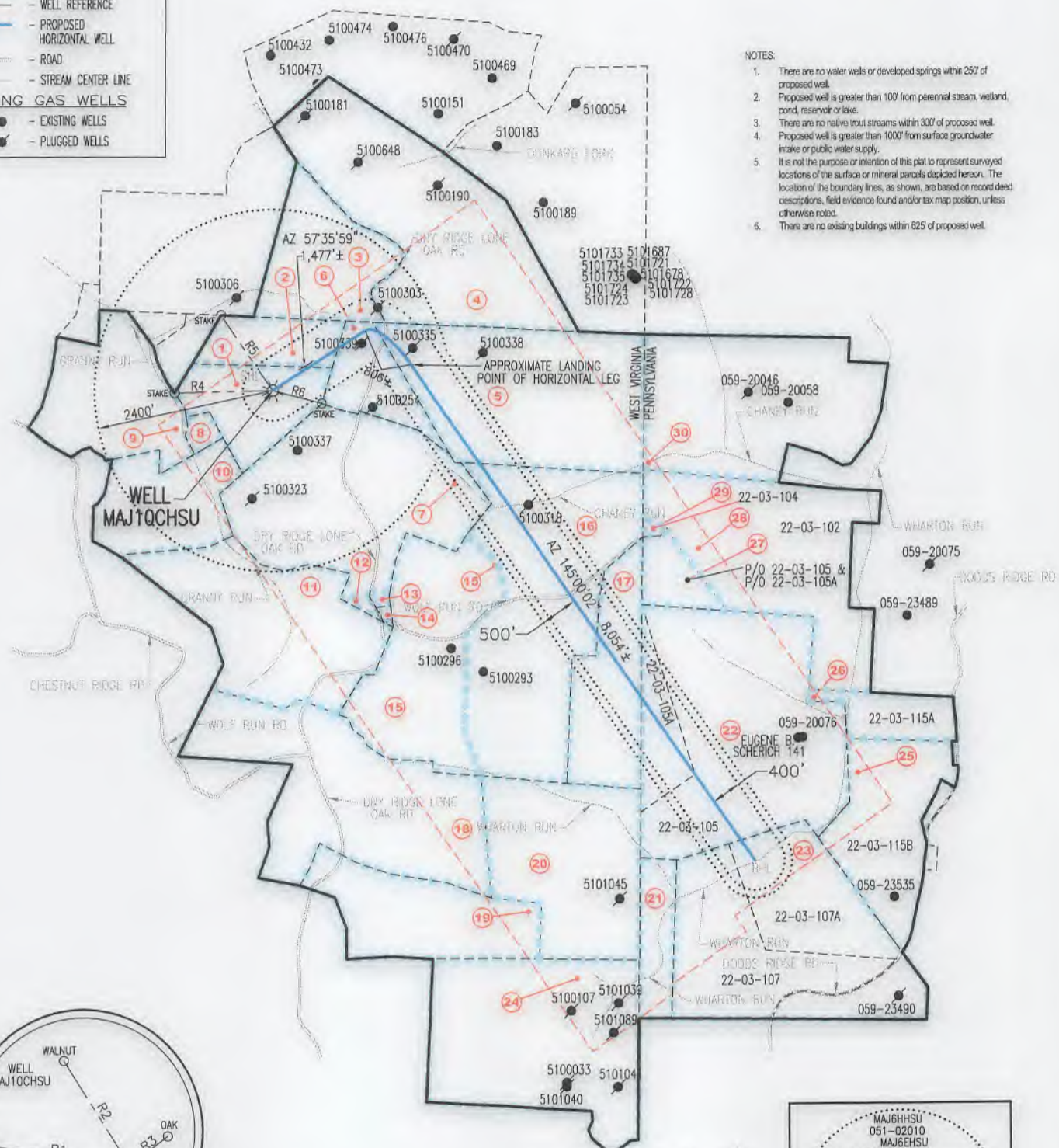
**LEGEND**

- ⊕ - TOPO MAP POINT
- ☼ - WELL
- - ALL ARE POINTS UNLESS OTHERWISE NOTED.
- ① - SURFACE OWNERS/LESSORS
- - - UNIT BOUNDARY
- MINERAL TRACT BOUNDARY
- - - PARCEL LINES
- - - LEASE BOUNDARY
- - - WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- - - STREAM CENTER LINE
- - EXISTING GAS WELLS
- ⊙ - PLUGGED WELLS



**NOTES:**

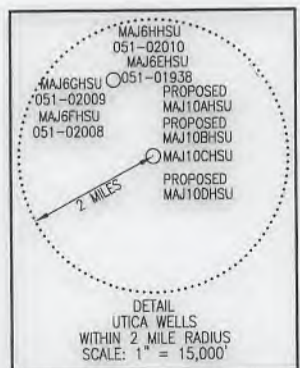
1. There are no water wells or developed springs within 250' of proposed well.
2. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
3. There are no native trout streams within 300' of proposed well.
4. Proposed well is greater than 1000' from surface groundwater intake or public water supply.
5. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.
6. There are no existing buildings within 625' of proposed well.



API 47-051-02065 H6A

LINE	BEARING	DISTANCE
R1	N 81°57'29" W	298.61'
R2	N 31°37'06" W	249.53'
R3	N 54°34'49" E	100.69'
R4	S 88°39'45" W	1321.75'
R5	N 34°43'13" W	1214.10'
R6	S 75°31'30" E	684.63'

**UNIT ACREAGE - 1187.813 ACRES**



**SURFACE HOLE LOCATION (SHL)**

UTM 17-NAD83(M)
N:4418811.50
E:539568.00
NAD83, WV NORTH
N:518335.396
E:1677643.755
LAT/LON-NAD83
LAT:39°55'06.514"
LON:80°32'13.224"

**APPROX. LANDING POINT**

UTM 17-NAD83(M)
N:4418926.99
E:540133.73
NAD83, WV NORTH
N:518683.282
E:1679506.543
LAT/LON-NAD83
LAT:39°55'10.163"
LON:80°31'49.368"

**BOTTOM HOLE LOCATION (BHL)**

UTM 17-NAD83(M)
N:4416940.69
E:541574.67
NAD83, WV NORTH
N:512086.209
E:1684125.882
LAT/LON-NAD83
LAT:39°54'05.488"
LON:80°30'49.127"



*George D. Six*

**SEPTEMBER 7, 2018**

4705102065



**DRILLING WELL PLAN**

**MAJ-10C-HSU**

**Utica HZ**

**MAJ-10C-HSU**

<b>Ground Elevation</b>	<b>1317</b>		<b>SHL (NAD27)</b>		<b>N: 518298.068 E: 1709078.587</b>	
<b>SHL (NAD83)</b>	<b>N: 518335.396 E: 1677643.755</b>		<b>BHL (NAD27)</b>		<b>N: 512048.700 E: 1715560.658</b>	

HOLE	RIG	CASING	GEOLOGY	TOP	BTTM	MUD	CEMENT	Centralizers	Conditioning	BITS	COMMENTS
36"	Conductor Rig	30"	Conductor	TVD (GL)		AIR	Grout To Surface	N/A	Ensure clean hole at TD	Auger	Stabilize surface fill/soil
				100							
24"	N/A	18.625'	Deepest Water Well	-	378	AIR	TOC=Surface 20% OHXS	Centralized every 3 joints to surface	Pump Fresh water ahead of cement	Air Percussion Hammer/Carbide Bit	Run Casing to isolate minable coal seams.
			Roof Coal Zone	778	779						
			Pittsburgh Coal	779	786						
			Coal Protection String	890							
17.5"	N/A	13.375'	Big Lime	1,954	1,981	AIR	Gas Block Blend TOC=surface 20% OHXS	Centralized every 45' to 100' from surface.	Pump Brine water ahead of cement	Air Percussion Hammer/Carbide Bit	Run Casing to isolate the storage interval/shallow gas
			Big Injun Top	1,982	2,123						
			Big Injun Base	2,124	2,799						
			50 Foot	2,800	2,833						
			Gordon	2,834	2,859						
			Fourth	2,860	2,981						
			Fifth	2,982							
			Int. 1 Casing String	3,332							
12.25"	N/A	9.625'	Rhinestreet	6,247	6,631	AIR	TOC 5,000' 20% OHXS	Centralized every 2 joints to surface	Fill and circulate with SOBMs for a min. of one (1) complete circulation prior to cementing.	Tri-Cone / Directional Air Motor to maintain vertical control	Run casing to isolate the Salina formation protect the Queenston from hydrostatic pressure fracture. Shoe should be set ~800' below the Queenston top.
			Tully	6,632	6,659						
			Hamilton	6,660	6,774						
			Marcellus	6,775	6,829						
			Onondaga	6,830	6,924						
			Oriskany	6,925	6,970						
			Helderberg/Keyser	6,971	7,264						
			Salina	7,265	8,444						
			Lockport	8,445	9,596						
			Rochester-Rose Hill	9,597	9,615						
			Packer Shell	9,616	9,626						
			Tuscarora ("Clinton")	9,627	9,922						
			Queenston	9,923							
Int. 2 Casing String	10,723										
8.5" Curve	N/A	5.5"	Reedville	10,826	11,822	AIR	TOC is 5,000' 10% OHXS	Centralized every 2 joints to TOC	Circulate with SOBMs for a min. of one (1) complete circulation prior to cementing.	PDC Drill bit and RSS BHA	Run casing to isolate the producing zone through the curve/lateral.
			Utica	11,823	11,875						
			Point Pleasant	11,876	12,095						
			Trenton	12,096	12,196						
8.5" Lateral			Prod. Casing	20,545		14.0 SOBMs	Centralized every joint to KOP				

8,054' Lateral

89.0° Planned Inclination  
145° Planned Azimuth

BHL  
11,890' TVD  
20,595' MD

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QUITCLAIM DEED  
11193

This QUITCLAIM DEED (this "*Deed*") is made as of the 30<sup>th</sup> day of May, 2018 (the "*Effective Time*"), by and between CNX RESOURCE HOLDINGS LLC, a Delaware limited liability company ("*GRANTOR*"), with a tax mailing address of 1000 CONSOL Energy Drive, Suite 400, Canonsburg, PA 15317, and CNX GAS COMPANY LLC, a Virginia limited liability company ("*GRANTEE*"), with a tax mailing address of 1000 CONSOL Energy Drive, Suite 400, Canonsburg, PA 15317. GRANTOR and GRANTEE may be referred to herein individually as a "*Party*" and collectively as the "*Parties*."

WITNESSETH, that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and subject to the terms and conditions hereof, GRANTOR does hereby GRANT, CONVEY, ASSIGN, TRANSFER, and QUITCLAIM unto GRANTEE, without warranty of any kind or nature, all of GRANTOR's right, title, interest, and estate in and to the oil, gas, and coalbed methane within and underlying those certain tract(s) or parcel(s) described on Exhibit A (whether one or more, collectively, the "*Conveyed Interests*"), together with all rights, privileges, benefits, and powers as are appurtenant, necessary, convenient, implied and/or incidental to the possession, ownership, enjoyment, operation and/or development of the Conveyed Interests.

TO HAVE AND TO HOLD the Conveyed Interests unto GRANTEE, its successors and assigns, forever, subject, however, to (i) all the terms and conditions of this Deed; (ii) any and all other reservations, exceptions, rights of way, easements, covenants, conditions, restrictions or servitudes made, created or retained in prior deeds or other instruments of record as of the date hereof affecting or pertaining to the Conveyed Interests hereby conveyed; and (iii) governmental laws, ordinances, and regulations affecting the Conveyed Interests hereby conveyed and the uses to be made thereof.

THE CONVEYED INTERESTS ARE BEING CONVEYED IN AN "AS IS, WHERE IS" CONDITION AND "WITH ALL FAULTS" IN THEIR PRESENT CONDITION, WITHOUT ANY REPRESENTATION OR WARRANTY AS TO TITLE OR OTHERWISE (EXPRESS OR IMPLIED) OF ANY KIND OR NATURE, STATUTORY OR OTHERWISE, ORAL OR WRITTEN, PAST, PRESENT OR FUTURE. GRANTOR AND GRANTEE AGREE THAT, TO THE EXTENT REQUIRED BY APPLICABLE LAW TO BE EFFECTIVE, THE DISCLAIMERS OF CERTAIN REPRESENTATIONS AND WARRANTIES CONTAINED IN THIS PARAGRAPH ARE "CONSPICUOUS" DISCLAIMERS FOR THE PURPOSE OF ANY APPLICABLE LAW.

This Deed shall bind and inure to the benefit of the Parties hereto and their respective successors and assigns.

This Deed may be executed in any number of counterparts, and each such counterpart hereof shall be deemed to be an original instrument, but all of such counterparts shall constitute for all purposes one agreement.

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**DECLARATION OF CONSIDERATION OR VALUE**

GRANTOR hereby declares that this Deed is a quitclaim deed without consideration and, therefore, is not subject to the West Virginia excise tax on the privilege of transferring real property pursuant to West Virginia Code Section 11-22-1, *et seq.*

[Signature pages follow]

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IN WITNESS WHEREOF, this Deed has been executed by the Parties hereto as of the dates of their respective acknowledgements below, but is effective for all purposes as of the Effective Time.

GRANTOR:

CNX RESOURCE HOLDINGS LLC

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By: *AJR*  
Name: Alexander J. Reyes  
Title: Vice President *me*

COMMONWEALTH OF PENNSYLVANIA,  
COUNTY OF WASHINGTON, TO-WIT:

I, Sara M. Micoli, a notary public of the said county, do hereby certify that on this 30 day of May, 2018, before me personally appeared Alexander J. Reyes, who acknowledged himself to be the Vice President of CNX RESOURCE HOLDINGS LLC, a Delaware limited liability company, and that he as such officer, being so authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the company by himself as said officer.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

*Sara M. Micoli*  
Notary Public

My commission expires: 3/11/19  
(Notarial Seal)

COMMONWEALTH OF PENNSYLVANIA  
NOTARIAL SEAL  
Sara M. Micoli, Notary Public  
Cecil Twp., Washington County  
My Commission Expires March 11, 2019  
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

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GRANTEE:

CNX GAS COMPANY LLC

By: *AJR*  
Name: Alexander J. Reyes  
Title: Vice President

*MJM*

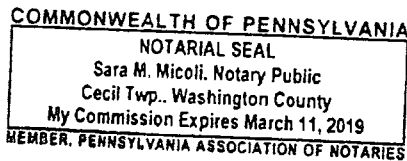
COMMONWEALTH OF PENNSYLVANIA,  
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IN WITNESS WHEREOF, I hereunto set my hand and official seal.

*Sara M. Micoli*  
Notary Public

My commission expires: 3/11/19  
(Notarial Seal)



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This document was prepared by: Erin F. Paternostro, Esq., Steptoe & Johnson PLLC, P. O. Box 1588, Charleston, WV 25326-1588 (Without Title Examination)

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**EXHIBIT A**

**Conveyed Interests**

The Conveyed Interests underlying that certain tract or parcel of land situate in Webster District, Marshall County, West Virginia, being more particularly bounded and described as follows, less all prior conveyances of record:

Beginning at a stone by corner of fence post on west side of Dry Ridge County Road, said stone also marking the corner between W. H. Martin and W. S. Phillips; thence South 28° 30' East 385 feet to an iron stake at the intersection of said road with road to Warden's Run, said stake marking the southwest corner of the Cross Road School lot; thence South 59° 31' East 148 feet to a stake in old road; said old road being south of present county road; thence North 4° West 250 feet to a stake in fence row, said stake marking the northeast corner of the aforementioned school house lot; thence down the hill with lands of C. M. Phillips, North 73° 45' East 605.5 feet to a small elm on north bank of small ravine at its junction with another small ravine; thence up the hill North 86° 00' West 317 feet to a stake on bench; thence South 23° 45' West 46 feet to stake on bench; thence up hill North 78° 30' W507 feet to a stake at west side of Dry Ridge County Road; thence South 20° 11' West 103 feet to the place of beginning, containing 3.352 acres, more or less.

There is **excepted** from this Deed, **and not hereby conveyed**, the following described parcel of land which is part of the above described 3.352 acres and is also situate in Webster District, Marshall County, West Virginia, bounded and being more particularly described as follows:

Beginning at a rebar set at the southernmost corner of a 3.352 acre tract of land that was conveyed to Dry Ridge Community Association by a deed dated October 18, 1960, and of record in said Clerk's office in Deed Book 347, at page 178. The said point also being located at the southwestern corner of a 9.978 acre tract of land that was conveyed to Russell and Mildred Strobe by a deed dated March 29, 1960, and of record in said Clerk's office in Deed Book 344, at page 219, as shown as Tract "D" on a plat of record in said Clerk's Office in Deed Book 172, at page 591. Thence, from the said place of beginning, with the westernmost lines of the said Tract "D", and with the easternmost line of the aforesaid

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3.352 acre Dry Ridge Community Association, N. 04° 00' W. passing on line a 16 penny carpenters spike set in the center of Marshall County Route 50 at 69.37 feet, continuing with the existing fenceline, for a total distance of 287.18 feet to a rebar set. Thence, leaving the fence and now through the lands of Dry Ridge Community Association, a new division line now established herein, S. 84° 55' W. passing on line a rebar set atop the embankment at 159.17 feet, for a total distance of 199.87 feet to point on the western margin of Marshall County Route 48. Thence, with the western margin of the said road and with the westernmost line of Tract "G" of the above said plat, S. 25° 18' E. for a distance of 214.86 feet to a point at or near the intersection of the previously said roads. Thence, with the southern line of tract "G" and with the southernmost line of the aforementioned 3.352 acre tract, S. 59° 31' E. for a distance of 148.00 feet to the place of beginning, containing 0.86 acres, more or less, as surveyed in the field in November, 1996, by Bryan A. Payne, West Virginia Registered Land Surveyor No. 977.

The above described property is subject to that portion of Lucy Land (Marshall County Route #50) and Dry Ridge Road (Marshall County Route #48) that lies within its borders.

Being all or a portion of the same property conveyed by Deed from Edward G. Strope, Roger S. Strope, Charles B. Strope, Gary W. Strope, Daniel K. Strope, and Carla Sue Strahl to Consol Pennsylvania Coal Company LLC, dated May 23, 2014, and recorded in the office of the Clerk of the County Commission of Marshall County, West Virginia in Book 829, Page 132, and described therein as "Parcel No. 3."

Further being part of the same property conveyed from Consol Pennsylvania Coal Company LLC, et al. to CNX Resource Holdings LLC by Quitclaim Deed, Assignment and Bill of Sale dated effective as of 12:01 p.m. (Eastern Time) on October 6, 2017, and recorded in the Office of the Clerk of the County Commission of Marshall County, West Virginia in Deed Book 946, Page 413.

QLS No.: 258782000.

11-16. WITHIN OR UNDERLYING all or a portion of the following tax map and parcel: 15-JUN 29 2018

*The acreages recited or described in Exhibit A may not accurately reflect the actual acreage of the Conveyed Interests, including those recitals or descriptions for which a survey of the acreage was not conducted or where acreage has been conveyed or otherwise transferred prior to the date hereof.*

EXHIBIT A  
PAGE 2

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Erika Whetstone  
Permitting Manager  
Work: 724-485-4035  
Mobile: 724-317-2224  
Email: erikawhetstone@cnx.com

CNX Center 12/21/2018  
1000 CONSOL Energy Drive  
Canonsburg, PA 15317-6506  
724-485-4000  
cnx.com

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57th Street SE  
Charleston, WV 25304-2345

RE: Road Letter – MAJ10 Well Pad

To Whom It May Concern:

CNX Gas Company LLC has the right to drill, stimulate and produce wells that are drilled under the County and State Roads as designated on the plats.

Should you have any questions or need additional information, please do not hesitate to contact me at erikawhetstone@cnx.com or 724-485-4035.

Sincerely,

Erika Whetstone  
CNX Gas Company LLC

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

Date of Notice Certification: 8-1-18

API No. 47- 51 - 02065  
Operator's Well No. MAJ10CHSU  
Well Pad Name: MAJ10HSU

**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>West Virginia</u>	UTM NAD 83	Easting: <u>539567.996</u>
County: <u>Marshall</u>		Northing: <u>4418811.505</u>
District: <u>Webster</u>	Public Road Access: <u>Dry Ridge Road-CR48</u>	
Quadrangle: <u>Majorsville</u>	Generally used farm name: <u>CNX</u>	
Watershed: <u>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.

<p>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:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><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</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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**AUG 6 2018**

WV Department of  
Environmental Protection

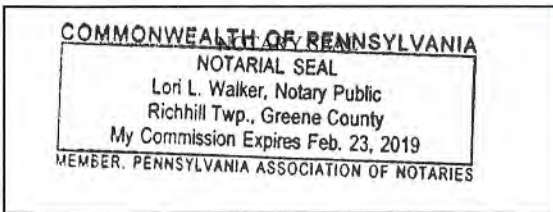
**Required Attachments:**

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.

**Certification of Notice is hereby given:**

THEREFORE, I Erika Whetstone, 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>CNX Gas Company, LLC</u>	Address:	<u>1000 Consol Energy Drive</u>
By:	<u>Erika Whetstone <i>Erika Whetstone</i></u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permitting Manager</u>	Facsimile:	<u></u>
Telephone:	<u>724-485-4035</u>	Email:	<u>ErikaWhetstone@CNX.com</u>



*Commonwealth of Pennsylvania County of Washington*  
 Subscribed and sworn before me this 3<sup>rd</sup> day of August 2018  
*Lori L Walker* Notary Public  
 My Commission Expires February 23, 2019

**Oil and Gas Privacy Notice:**

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

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WV Department of  
Environmental Protection

**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:** 8-2-18 **Date Permit Application Filed:** 8-3-18

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Office of Oil and Gas

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**Notice of:**

WV Department of  
Environmental Protection

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

**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: CNX LAND, LLC

Address: 1000 Consol Energy Drive

Canonsburg, PA 15317

Name: \_\_\_\_\_

Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: See attached.

Address: \_\_\_\_\_

COAL OPERATOR

Name: Consol Pennsylvania Coal Company, LLC

Address: 1000 Consol Energy Drive

Canonsburg, PA 15317

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

Name: Michael S. Riggle

Address: 3648 Dry Ridge Road

Cameron, WV 26033

Name: CNX LAND, LLC

Address: 1000 Consol Energy Drive

Canonsburg, PA 15317

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: COLUMBIA GAS TRANSMISSION, LLC

Address: P. O. BOX 1273

CHARLESTON, WV 25325

\*Please attach additional forms if necessary

AUG 6 2018

API NO. 47- 51 - 02065  
OPERATOR WELL NO. MAJ10CHSU  
Well Pad Name: MAJ10HSU 12/21/2018

WV Department of  
Environmental Protection

**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 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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well 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. The department may, 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

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 at:

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

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WV Department of  
Environmental Protection

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.**

**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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Environmental Protection



WW-6A  
(8-13)

API NO. 47- 51 - 02065  
OPERATOR WELL NO. MAJ10HSU 12/21/2018  
Well Pad Name: MAJ10HSU

**Notice is hereby given by:**

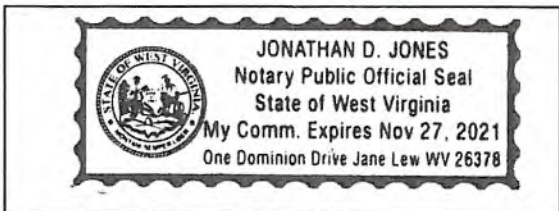
Well Operator: CNX Gas Company, LLC  
Telephone: 724-485-3540  
Email: RaymondHoon@CNX.com



Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317  
Facsimile: \_\_\_\_\_

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 31<sup>st</sup> day of July, 2018.

[Signature] Notary Public

My Commission Expires 11/27/2021

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Office of Oil and Gas  
AUG 6 2018  
WV Department of  
Environmental Protection

**Coal Owner(s):**

Consol Pennsylvania Coal Company, LLC  
1000 Consol Energy Drive  
Canonsburg, PA 15317

CNX THERMAL HOLDINGS LLC  
1000 CONSOL Energy Drive  
Canonsburg, PA 15317

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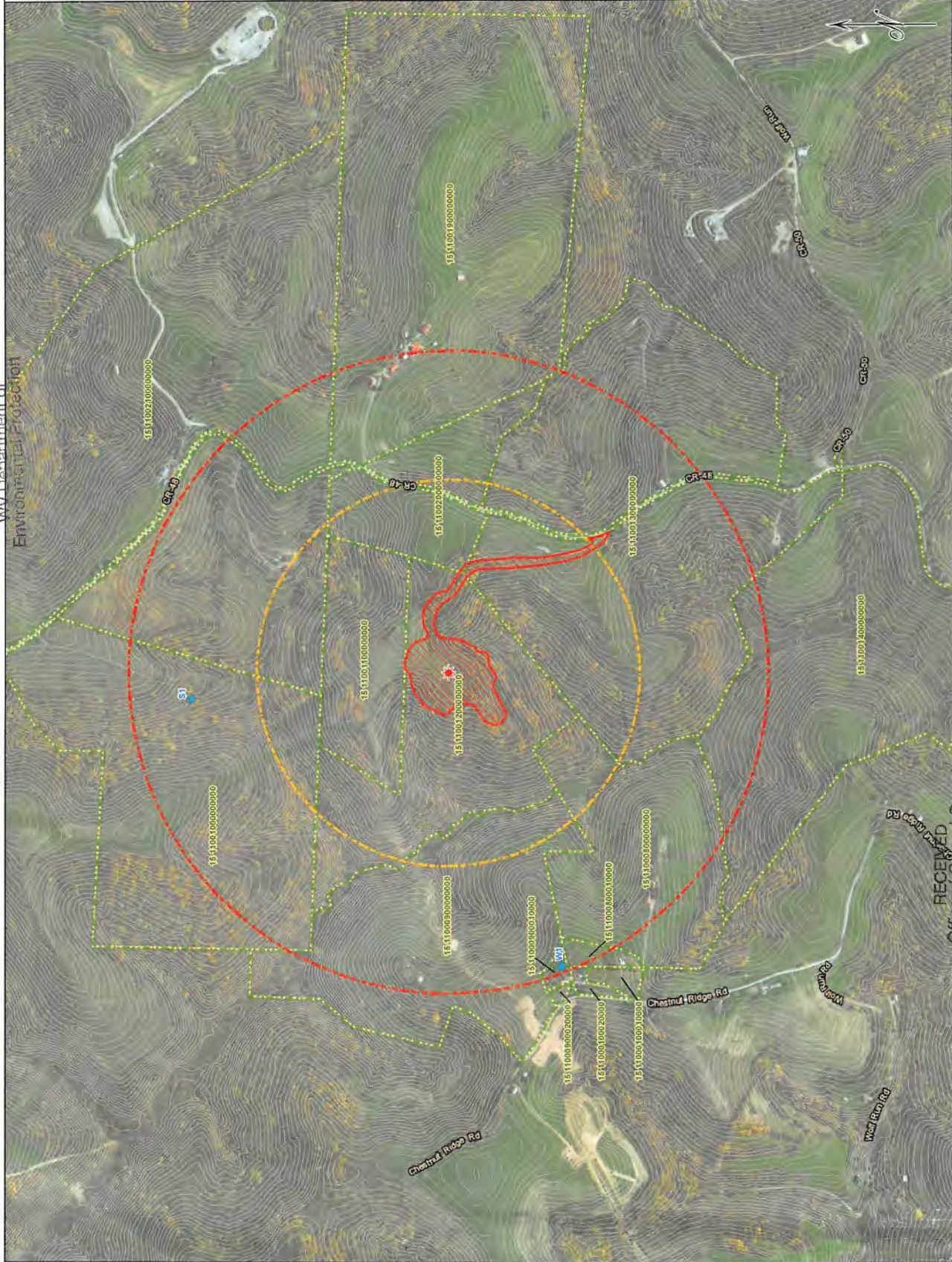
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Environmental Protection



**LEGEND**

- MAJ10 Gas Well
- Inventoried, Not Sampled
- Well Pad Boundary
- 2,500 Foot Radius
- 1,500 Foot Radius
- Parcel Boundaries



**Map References:**

- Supply information collected and provided by Moody and
- 7 1/2 minute quadrangle: Majorville, WV
- Base aerial imagery retrieved from ESRI online database.
- World Imagery with World Transportation Overlay.

**Notes:**

- This drawing is the property of CNX Gas Company, LLC.
- All information shown on this map is for informational purposes only.
- In nature, it may not be copied or otherwise reproduced in whole or in part without prior written consent.

**PRE-DRILL WATER SURVEY**

**MAJ10 Gas Well  
Water Source Map**

Webster District  
Marshall County, WV

Project #: 17-227-02

Prepared for:



189 Johnson Road  
Building 2, Suite 101  
PA 15342  
Office: (724) 746-5200  
Fax: (724) 746-5603  
www.moody-us.com

Drawn by:	MPS	Date:	01/24/18
Checked by:	MC	Revision:	

51-02065

12/21/2018

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Office of Oil and Gas

JUN 13 2018

WV Department of  
Environmental Protection

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF ENTRY FOR PLAT SURVEY

**Notice Time Requirement:** Notice shall be provided at least SEVEN (7) days but no more than FORTY-FIVE (45) days prior to entry

**Date of Notice:** 12/7/17      **Date of Planned Entry:** 12/14/17

**Delivery method pursuant to West Virginia Code § 22-6A-10a**

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

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

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Office of Oil and Gas

**Notice is hereby provided to:**

AUG 6 2018

SURFACE OWNER(s)

Name: CNX LAND, LLC  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: See attached  
Address: \_\_\_\_\_

WV Department of  
Environmental Protection

MINERAL OWNER(s)

Name: CNX Gas Company, LLC  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

\*please attach additional forms if necessary

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JUN 29 2018

WV Department of  
Environmental Protection

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: West Virginia  
County: Marshall  
District: Webster  
Quadrangle: Majorsville

Approx. Latitude & Longitude: 39°55'06.92", -80°32'14.17"  
Public Road Access: Dry Ridge Road CR-48  
Watershed: Wheeling Creek  
Generally used farm name: CNX

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: CNX Gas Company, LLC  
Telephone: 724-485-3540  
Email: RaymondHood@CNX.com

Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317  
Facsimile: \_\_\_\_\_

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WV Department of  
Environmental Protection

**Oil and Gas Privacy Notice:**

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

MAJ10HSU

WW6A3 Attachment

**COAL OWNER OR LESSEE:**

Consol Pennsylvania Coal Company, LLC  
1000 Consol Energy Drive  
Canonsburg, PA 15317

CNX THERMAL HOLDINGS LLC  
1000 CONSOL Energy Drive  
Canonsburg, PA 15317

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Environmental Protection

51-0200 12/25/2018

**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:** 07/19/2018 **Date Permit Application Filed:** 8-3-18

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

HAND DELIVERY  CERTIFIED MAIL RETURN RECEIPT REQUESTED

WV Department of  
Environmental Protection

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: CNX LAND, LLC  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

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: West Virginia UTM NAD 83 Easting: 539567.996  
County: Marshall Northing: 4418811.505  
District: Webster Public Road Access: Dry Ridge Road-CR48  
Quadrangle: Majorsville Generally used farm name: CNX  
Watershed: Wheeling Creek

**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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: CNX Gas Company, LLC  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317  
Telephone: 724-485-3540  
Email: RaymondHoon@CNX.com  
Facsimile: \_\_\_\_\_

Authorized Representative: Raymond Hoon  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317  
Telephone: 724-485-3540  
Email: RaymondHoon@CNX.com  
Facsimile: \_\_\_\_\_

**Oil and Gas Privacy Notice:**

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

SI-02665 12/21/2018

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:** 8-2-18 **Date Permit Application Filed:** 8-2-18

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

- CERTIFIED MAIL  
RETURN RECEIPT REQUESTED
- HAND  
DELIVERY

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

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

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

Name: CNX LAND, LLC  
Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317

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:	West Virginia	UTM NAD 83	Easting:	539567.996
County:	Marshall		Northing:	4418811.505
District:	Webster	Public Road Access:	Dry Ridge Road-CR48	
Quadrangle:	Majorsville	Generally used farm name:	CNX	
Watershed:	Wheeling Creek			

**This Notice Shall Include:**

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

Well Operator: CNX Gas Company, LLC  
Telephone: 724-485-3540  
Email: RaymondHoon@CNX.com

Address: 1000 Consol Energy Drive  
Canonsburg, PA 15317  
Facsimile: \_\_\_\_\_

**Oil and Gas Privacy Notice:**

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

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AUG 6 2018

WV Department of  
Environmental Protection

12/21/2018



## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

## Division of Highways

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

Jim Justice  
 Governor

Thomas J. Smith, P. E.  
 Secretary of Transportation/  
 Commissioner of Highways

January 25, 2018

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

Subject: DOH Permit for the MAJ-10 Well Pad, Marshall County  
 MAJ-10 Well Site

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permit #06-2017-0833 for the subject site to CNX Resources for access to the State Road for the well site located off of Marshall County Route 48 SLS.

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

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 Office of Oil and Gas

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WV Department of  
 Environmental Protection

Very Truly Yours,

*Gary K. Clayton*

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

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 Office of Oil and Gas  
 JUN 13 2018

WV Department of  
 Environmental Protection

Cc: Shannon Miller  
 CNX Resources  
 CH, OM, D-6  
 File

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 JUN 29 2018

WV Department of



## Section V – Proposed Additives to be used in Fracturing or Stimulations

Type: Water CAS: 7732-18-5  
Type: Silica CAS: 14808-60-7  
Type: Hydrochloric Acid CAS: 7647-01-0  
Type: Copolymer of Two Propenamide CAS: 69418-26-4  
Type: Petroleum distillate CAS: 64742-47-8  
Type: Glutaraldehyde CAS: 111-30-8  
Type: Ethylene glycol CAS: 107-21-1  
Type: Diethylene glycol mono n-butyl ether CAS: 112-34-5  
Type: Oleic acid diethanolamide CAS: 93-83-4  
Type: Alcohols, C12-16, ethoxylated CAS: 68551-12-2  
Type: Quaternary ammonium compound CAS: 68424-85-1  
Type: Ammonium chloride CAS: 12125-02-9  
Type: Short chained glycol ether CAS: 112-34-5  
Type: Ethoxylated (C10-16) alcohols CAS: 68002-97-1  
Type: Metanol CAS: 67-56-1  
Type: Formaldehyde CAS: 50-00-0  
Type: Thiourea CAS: 62-56-6  
Type: Acetophenone CAS: 98-86-2

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JUN 13 2018

WV Department of  
Environmental Protection

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JUN 29 2018

WV Department of  
Environmental Protection

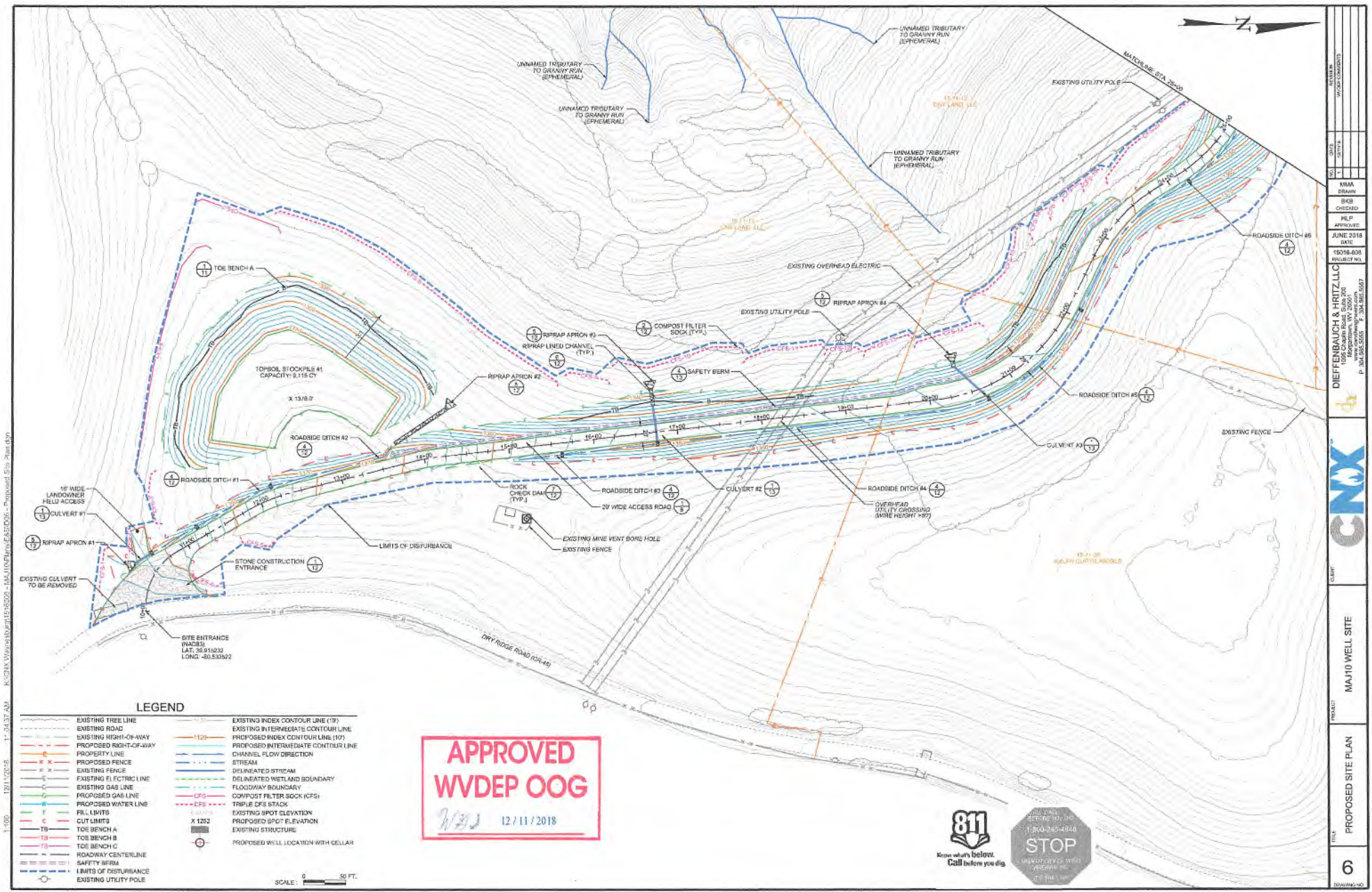












1:000  
 12/11/2018  
 1:00:37 AM  
 K:\CRM\Wishnu\18100000 - MAJ10 Well Site - Proposed Site Plan.dwg

DATE	BY	CHKD	APP'D
12/11/2018	WJ	WJ	WJ
PREPARED BY: MMA ENGINEERING 15018-038 15018-038 15018-038 15018-038			
CLIENT: MAJ10 WELL SITE PROJECT: PROPOSED SITE PLAN TITLE: 6			

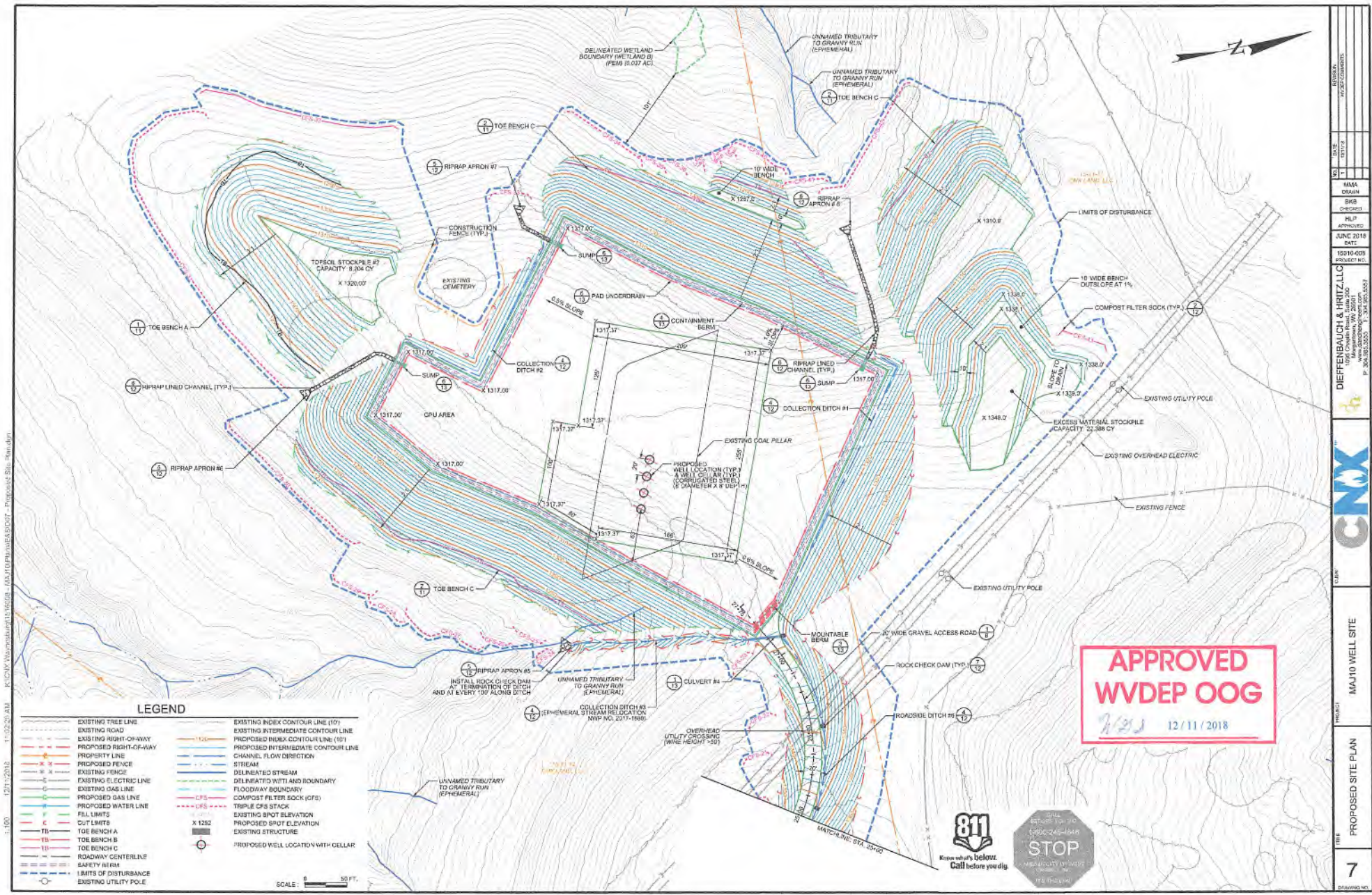
**LEGEND**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>--- EXISTING TREE LINE</li> <li>--- EXISTING ROAD</li> <li>--- EXISTING RIGHT-OF-WAY</li> <li>--- PROPOSED RIGHT-OF-WAY</li> <li>--- PROPERTY LINE</li> <li>--- PROPOSED FENCE</li> <li>--- EXISTING FENCE</li> <li>--- EXISTING E-LECTRIC LINE</li> <li>--- EXISTING GAS LINE</li> <li>--- PROPOSED GAS LINE</li> <li>--- PROPOSED WATER LINE</li> <li>--- FILL LIMITS</li> <li>--- CUT LIMITS</li> <li>--- TOE BENCH A</li> <li>--- TOE BENCH B</li> <li>--- TOE BENCH C</li> <li>--- ROADWAY CENTERLINE</li> <li>--- SAFETY BERM</li> <li>--- LIMITS OF DISTURBANCE</li> <li>--- EXISTING UTILITY POLE</li> </ul> | <ul style="list-style-type: none"> <li>--- EXISTING INDEX CONTOUR LINE (10')</li> <li>--- EXISTING INTERMEDIATE CONTOUR LINE</li> <li>--- PROPOSED INDEX CONTOUR LINE (10')</li> <li>--- PROPOSED INTERMEDIATE CONTOUR LINE</li> <li>--- CHANNEL FLOW DIRECTION</li> <li>--- STREAM</li> <li>--- DELINEATED STREAM</li> <li>--- DELINEATED WETLAND BOUNDARY</li> <li>--- FLOODWAY BOUNDARY</li> <li>--- COMPOST FILTER SOCK (CFS)</li> <li>--- TRIPLE CFS STACK</li> <li>--- EXISTING SPOT ELEVATION</li> <li>--- PROPOSED SPOT ELEVATION</li> <li>--- EXISTING STRUCTURE</li> <li>--- PROPOSED WELL LOCATION WITH CELLAR</li> </ul> |
|---|--|

**APPROVED**  
**WVDEP OOG**  
 WJ 12/11/2018

SCALE: 0 50 FT.





**LEGEND**

—	EXISTING TREE LINE	—	EXISTING INDEX CONTOUR LINE (10')
—	EXISTING ROAD	—	EXISTING INTERMEDIATE CONTOUR LINE
—	EXISTING RIGHT-OF-WAY	—	PROPOSED INDEX CONTOUR LINE (10')
—	PROPOSED RIGHT-OF-WAY	—	PROPOSED INTERMEDIATE CONTOUR LINE
—	PROPERTY LINE	—	CHANNEL FLOW DIRECTION
—	PROPOSED FENCE	—	STREAM
—	EXISTING FENCE	—	DELIMITED STREAM
—	EXISTING ELECTRIC LINE	—	DELIMITED WETLAND BOUNDARY
—	EXISTING GAS LINE	—	FLOODWAY BOUNDARY
—	PROPOSED GAS LINE	—	COMPOST FILTER SOCK (CFS)
—	PROPOSED WATER LINE	—	TRIPLE CFS STACK
—	FILL LIMITS	—	EXISTING SPOT ELEVATION
—	CUT LIMITS	—	PROPOSED SPOT ELEVATION
—	TOE BENCH A	—	EXISTING STRUCTURE
—	TOE BENCH B	—	PROPOSED WELL LOCATION WITH CELLAR
—	TOE BENCH C	—	
—	ROADWAY CENTERLINE		
—	SAFETY BERM		
—	LIMITS OF DISTURBANCE		
—	EXISTING UTILITY POLE		

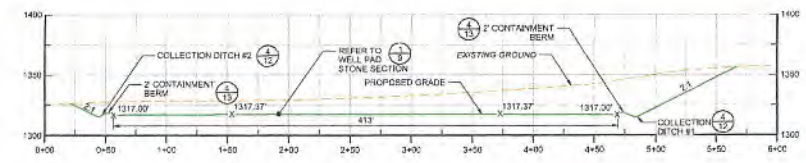
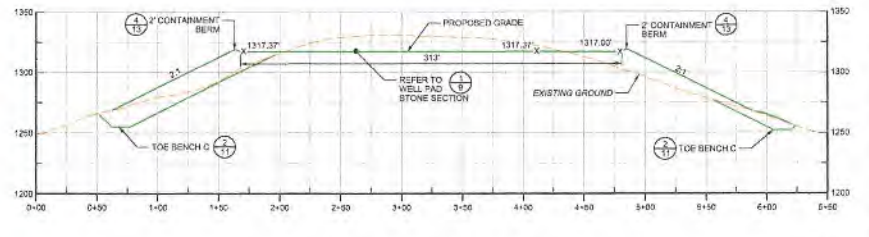
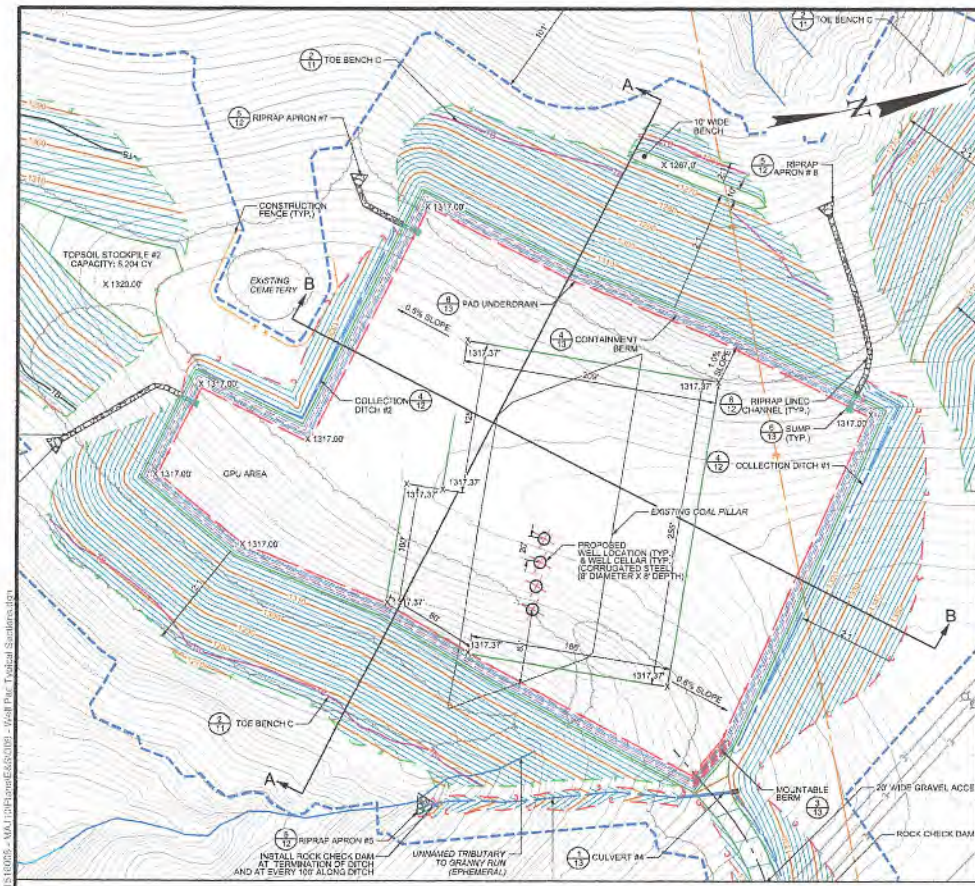
**APPROVED WVDEP OOG**  
 12/11/2018



NO.	DATE	REVISION
1	12/11/18	PROJECT SUBMITTAL
PREPARED BY: AMMA DESIGN CHECKED BY: BKB H.P. APPROVED BY: SINC 2018 DATE: 12/11/2018 PROJECT NO.: 18010-003 PROJECT NAME: MAJ10 WELL SITE DRAWING NO.: 7		
MAJ10 WELL SITE PROPOSED SITE PLAN		







**APPROVED**  
**WVDEP OOG**

12/11/2018

*JM* 12/18/2018

2' OF ZA	
3' OF AASHTO M8	
12" OF CEMENT STABILIZATION BASE (66 LBS/SY)	PROPOSED GRADE

**WELL PAD**  
**STONE SECTION**

N.T.S.

1  
9



11/10 12/15/2018 4:55:33 PM H:\CNX\Wormholes\1110005 - MAJ10 Wellstone\Well Plan\_Typical Sections.dwg

PROJECT: MAJ10 WELL SITE  
 TITLE: WELL PAD TYPICAL SECTIONS  
 DATE: 12/11/2018  
 DRAWN BY: J.M.  
 CHECKED BY: J.M.  
 APPROVED BY: J.M.  
 DATE: 12/18/2018  
 15016-008  
 PROJECT NO.  
 DIFFENBAUGH & HRTZ, LLC  
 1000 W. MARKET STREET, SUITE 200  
 WASHINGTON, WV 26041  
 P: 304.855.0200 F: 304.855.0207

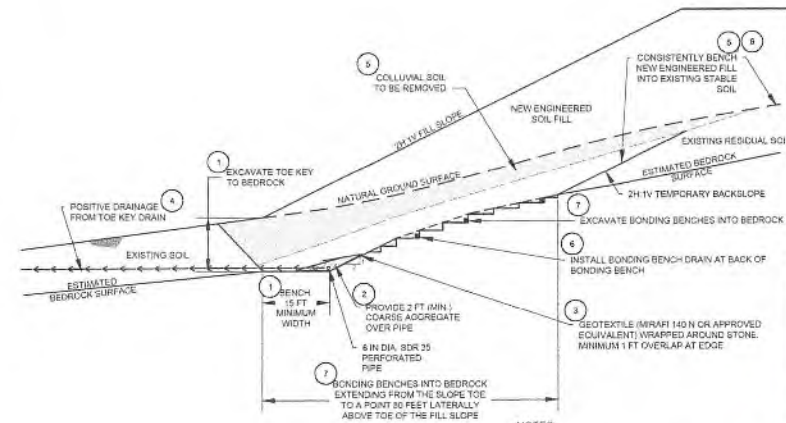
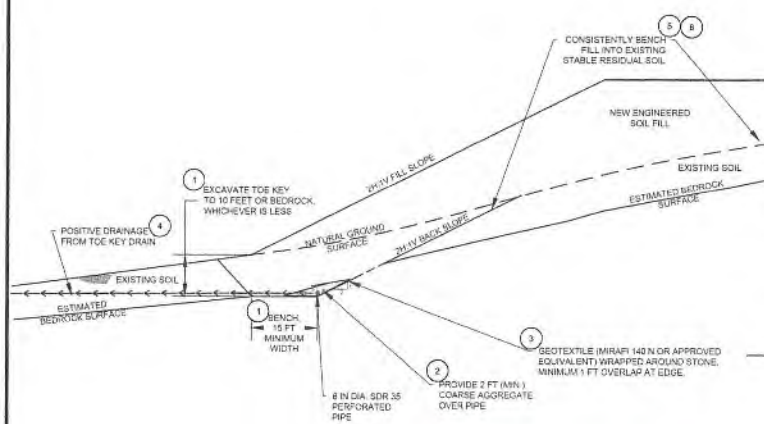




- NOTES:
- EXCAVATE A MINIMUM 15 FEET WIDE FOUNDATION BENCH TOE KEY TO BEDROCK.
  - DRAINAGE STONE SHOULD CONSIST OF AASHTO #57 COARSE AGGREGATE.
  - DRAINAGE STONE SHOULD BE OVERLAIN BY A NON-WOVEN GEOTEXTILE FILTER FABRIC MANUFACTURED SPECIFICALLY FOR DRAINAGE APPLICATIONS (SUCH AS MIRAFI 140 N OR APPROVED EQUIVALENT).
  - POSITIVE DRAINAGE MUST BE PROVIDED (GRAVITY PIPES OR TRENCH DRAINS) TO PREVENT WATER FROM BEING TRAPPED WITHIN THE DRAINAGE STONE MATERIAL. OUTLET DRAINS TO BE INSTALLED ON NO MORE THAN 100 FEET INTERVALS.
  - ANY COLLUVIAL SOIL OR SLICKENSIDED LAYERS (i.e. OLD SLIP PLANES, TYPICALLY GRAY IN COLOR) ENCOUNTERED DURING FILL BENCHING SHALL BE COMPLETELY UNDERCUT AND BACKFILLED WITH ENGINEERED FILL.
  - BONDING BENCH DRAINS SHOULD BE CONSTRUCTED AT MAXIMUM 10 FT. VERTICAL INTERVALS WHEN BENCHING IN ROCK AND 20 FT. VERTICAL INTERVALS WHEN BENCHING IN SOIL. BONDING BENCH DRAINS SHOULD BE CONSTRUCTED INTO STIFF/COMPETENT RESIDUAL SOIL OR BEDROCK. THE DRAINS SHOULD OUTLET VIA SOLID WALLED PIPES AT MAXIMUM 100 FT. INTERVALS. SEE BELOW FOR BONDING BENCH DRAIN DETAIL.

**TOE BENCH DETAIL A  
(FOR FILL SLOPES 11'-29')**

N.T.S.



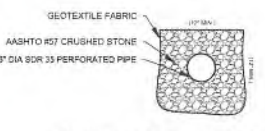
**TOE BENCH DETAIL C  
(FOR FILL SLOPES OVER 50')**

N.T.S.

- NOTES:
- EXCAVATE A MINIMUM 15 FEET WIDE FOUNDATION BENCH TOE KEY ON BEDROCK BENEATH THE TOE OF THE FILL.
  - DRAINAGE STONE SHOULD CONSIST OF AASHTO #57 COARSE AGGREGATE.
  - DRAINAGE STONE SHOULD BE OVERLAIN BY A NON-WOVEN GEOTEXTILE FILTER FABRIC MANUFACTURED SPECIFICALLY FOR DRAINAGE APPLICATIONS (SUCH AS MIRAFI 140 N OR APPROVED EQUIVALENT).
  - POSITIVE DRAINAGE MUST BE PROVIDED (GRAVITY PIPES OR TRENCH DRAINS) TO PREVENT WATER FROM BEING TRAPPED WITHIN THE DRAINAGE STONE MATERIAL. OUTLET DRAINS TO BE INSTALLED ON NO MORE THAN 100 FEET INTERVALS.
  - ANY COLLUVIAL SOIL OR SLICKENSIDED LAYERS (i.e. OLD SLIP PLANES, TYPICALLY GRAY IN COLOR) ENCOUNTERED DURING FILL BENCHING SHALL BE COMPLETELY UNDERCUT AND BACKFILLED WITH ENGINEERED FILL.
  - BONDING BENCH DRAINS SHOULD BE CONSTRUCTED AT MAXIMUM 10 FT. VERTICAL INTERVALS WHEN BENCHING IN ROCK AND 20 FT. VERTICAL INTERVALS WHEN BENCHING IN SOIL. BONDING BENCH DRAINS SHOULD BE CONSTRUCTED INTO STIFF/COMPETENT RESIDUAL SOIL OR BEDROCK. THE DRAINS SHOULD OUTLET VIA SOLID WALLED PIPES AT MAXIMUM 100 FT. INTERVALS. SEE BELOW FOR BONDING BENCH DRAIN DETAIL.
  - BONDING BENCHES SHOULD BE EXCAVATED INTO BEDROCK FROM THE SLOPE TOE TO A POINT 80 FEET LATERALLY ABOVE THE TOE OF THE FILL SLOPE.

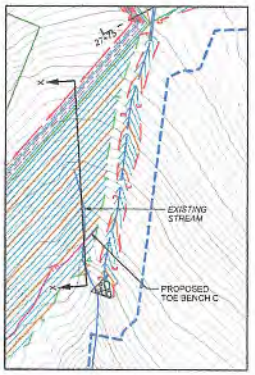
**APPROVED  
WVDEP OOG**

WJS 12/11/2018



**BONDING BENCH DRAIN**

N.T.S.

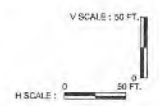


**PLAN VIEW**

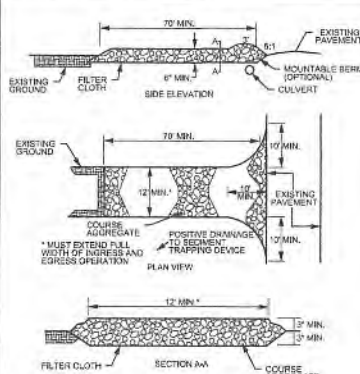


**SECTION X-X**

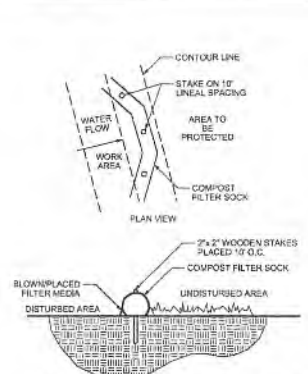
**TYPICAL VALLEY FILL**



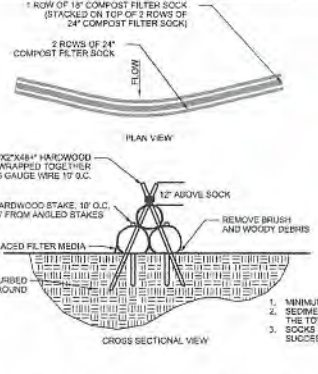
PROJECT NO.	15010-C08
DATE	JUNE 2019
SCALE	N.T.S.
DESIGNER	DIFFENBAUGH & HRTZ, LLC
CHECKED	MAJTO
PROJECT	MAJTO WELL SITE
TITLE	TOE BENCH DETAILS
DATE	11



**STONE CONSTRUCTION ENTRANCE** 1  
N.T.S. 12



**COMPOST FILTER SOCK DETAIL** 2  
N.T.S. 12

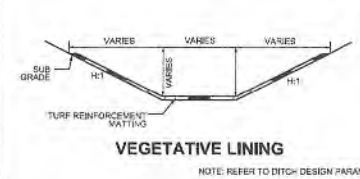


**TRIPLE COMPOST FILTER SOCK STACK DETAIL** 3  
N.T.S. 12

**APPROVED WVDEP OOG**  
12/11/2018

**COMPOST FILTER SOCK SIZE CHART**  
NOTE: SLOPE LENGTH MEASURED FROM FURTHEST POINT OF CONTRIBUTING DRAINAGE AREA

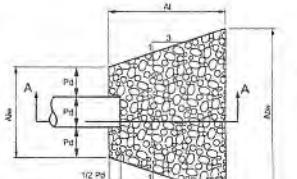
SOCK #	SIZE (INCHES)	% SLOPE	ACTUAL SLOPE LENGTH (FT)	MAX SLOPE LENGTH (FT)	SOCK LENGTH (FT)	LOCATION
1	STACK	N/A	N/A	-	96	ACCESS ROAD
2	STACK	N/A	N/A	-	42	ACCESS ROAD
3	STACK	N/A	N/A	-	18	ACCESS ROAD
4	STACK	N/A	N/A	-	45	ACCESS ROAD
5	STACK	N/A	N/A	-	48	ACCESS ROAD
6	2x	22	138	181	204	STOCKPILE
7	2x	22	150	181	112	STOCKPILE
8	STACK	N/A	N/A	-	494	STOCKPILE
9	STACK	N/A	N/A	-	51	ACCESS ROAD
10	STACK	N/A	N/A	-	165	ACCESS ROAD
11	STACK	N/A	N/A	-	108	ACCESS ROAD
12	STACK	N/A	N/A	-	51	ACCESS ROAD
13	STACK	N/A	N/A	-	69	ACCESS ROAD
14	STACK	N/A	N/A	-	31	ACCESS ROAD
15	STACK	N/A	N/A	-	104	ACCESS ROAD
16	STACK	N/A	N/A	-	47	ACCESS ROAD
17	STACK	N/A	N/A	-	37	ACCESS ROAD
18	STACK	N/A	N/A	-	21	ACCESS ROAD
19	STACK	N/A	N/A	-	161	ACCESS ROAD
20	STACK	N/A	N/A	-	41	ACCESS ROAD
21	STACK	N/A	N/A	-	41	ACCESS ROAD
22	STACK	N/A	N/A	-	41	ACCESS ROAD
23	STACK	N/A	N/A	-	41	ACCESS ROAD
24	STACK	N/A	N/A	-	29	PAD
25	STACK	N/A	N/A	-	43	PAD
26	STACK	N/A	N/A	-	43	PAD
27	STACK	N/A	N/A	-	118	PAD
28	STACK	N/A	N/A	-	89	PAD
29	STACK	N/A	N/A	-	89	PAD
30	STACK	N/A	N/A	-	218	PAD
31	STACK	N/A	N/A	-	662	STOCKPILE
32	2x	19	200	211	245	STOCKPILE
33	STACK	N/A	N/A	-	117	PAD
34	STACK	N/A	N/A	-	44	PAD
35	STACK	N/A	N/A	-	38	PAD
36	STACK	N/A	N/A	-	31	PAD
37	STACK	N/A	N/A	-	28	PAD
38	STACK	N/A	N/A	-	18	PAD
39	STACK	N/A	N/A	-	80	PAD
40	STACK	N/A	N/A	-	89	PAD
41	STACK	N/A	N/A	-	182	PAD
42	STACK	N/A	N/A	-	182	PAD
43	2x	10	222	245	68	STOCKPILE



**VEGETATIVE LINING**

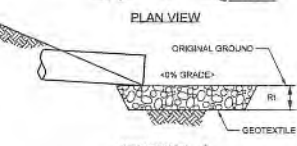


**RIP RAP LINING**



**RIPRAP APRON DESIGN PARAMETERS**

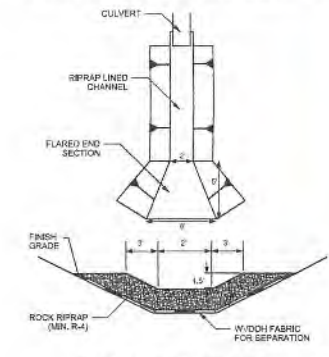
OUTLET NO.	PIPE SIZE (IN)	RIPRAP		APRON	
		THICK (IN)	LENGTH (FT)	INITIAL WIDTH (FT)	TERMINAL WIDTH (FT)
1	18	4	18	13	4.5
2	24	4	18	13	6
3	24	4	18	13	6
4	24	4	18	13	6
5	24	4	18	13	6
6	24	4	18	13	6
7	24	4	18	13	6
8	24	4	18	13	6



**SECTION A-A**

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.  
ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.  
EXTEND RIPRAP ON BACK SIDE OF APRON TO AT LEAST 1/2 DEPTH OF PIPE ON BOTH SIDES TO PREVENT SCOUR AROUND THE PIPE.

**RIPRAP APRON OUTLET PROTECTION** 5  
N.T.S. 12



**RIPRAP LINED CHANNEL** 6  
N.T.S. 12

**DITCH DESIGN PARAMETERS**

ITEM	APPROXIMATE STATION RANGE	CHANNEL LENGTH (LF)	BOTTOM WIDTH (FT)	MIN CHANNEL DEPTH (FT)	SIDE SLOPES (R:1)	CHANNEL LINING	UNDER LAYMENT	PLACEMENT THICKNESS (IN)
ROADSIDE DITCH#1	10+50 - 13+25	264	2	1.0	1.5	SC-250	N/A	N/A
ROADSIDE DITCH#2	13+25 - 13+75	50	2	1.0	1.5	SC-250	N/A	N/A
ROADSIDE DITCH#3	19+50 - 19+80	320	2	1.0	1.5	SC-250	N/A	N/A
ROADSIDE DITCH#4	18+80 - 20+60	288	2	1.5	1.5	SC-250	N/A	N/A
ROADSIDE DITCH#5	20+60 - 23+14	256	2	1.8	1.5	SC-250	N/A	N/A
ROADSIDE DITCH#6	23+14 - 27+25	421	2	1.0	1.5	SC-250	N/A	N/A
COLLECTION DITCH#1	N/A	548	2	1.0	2.0	SC-250	N/A	N/A
COLLECTION DITCH#2	N/A	273	1	1.0	2.0	SC-250	N/A	N/A
COLLECTION DITCH#3	N/A	210	2	1.0	2.0	R-4	GEOTEXTILE	18.0

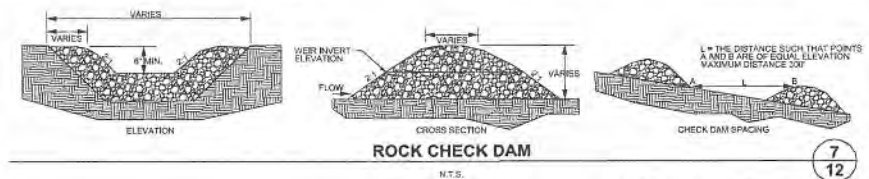
**TRAPEZOIDAL DITCH** 4  
N.T.S. 12

**RIPRAP GRADATION, FILTER BLANKET REQUIREMENTS, MAXIMUM VELOCITIES**

Class, Size Rock Size (Inches)	Percent Passing (Square Openings)					
	R-8	R-7	R-6	R-5	R-4	R-3
20	100					
24	100	100				
18		15-60		100		
15	0-15				100	
12		0-15	15-50			
9			0-15	15-50		100
6				0-15	15-50	
3					0-15	15-50
2						0-15
1						
Nominal Placement Thickness (Inches)	63	45	36	27	18	9
Filter Stone V <sub>max</sub> (ft/min)	17.0	14.5	13.0	11.6	9.0	6.6

**COMPARISON OF VARIOUS GRADATIONS OF COARSE AGGREGATES**

Sieve No.	Total Percent Passing														
	4"	3 1/2"	3"	2 1/2"	2"	1 1/2"	1"	3/4"	3/8"	#2	#10	#20	#40	#60	#100
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
3						0-15	0-15	0-5	0-5	0-5	0-5	0-5	0-5	0-5	0-5
5						100	90-100	20-55	0-10	0-5	0-10	0-5	0-10	0-5	0-5
27						100	90-100	20-55	0-10	0-5	0-10	0-5	0-10	0-5	0-5
67						100	90-100	20-55	0-10	0-5	0-10	0-5	0-10	0-5	0-5
7						100	90-100	20-55	0-10	0-5	0-10	0-5	0-10	0-5	0-5
8						100	90-100	20-55	0-10	0-5	0-10	0-5	0-10	0-5	0-5
10						100	90-100	20-55	0-10	0-5	0-10	0-5	0-10	0-5	0-5

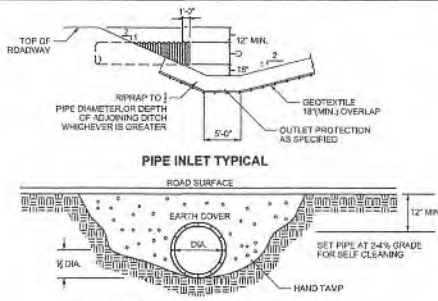


**ROCK CHECK DAM** 7  
N.T.S. 12

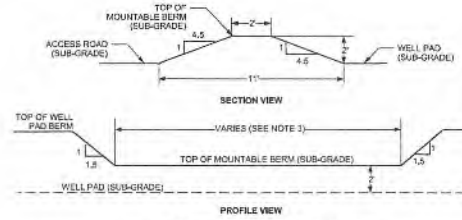
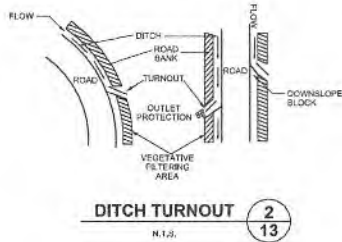
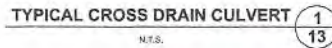


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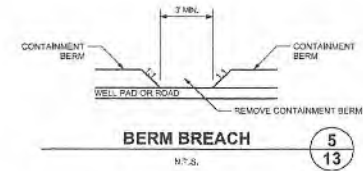
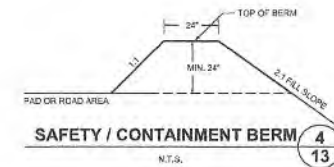
PROJECT: MAJTO WELL SITE  
 DATE: JUNE 2018  
 15015-008 PROJECT NO.  
 DESIGNED BY: HRP  
 CHECKED BY: BKB  
 DRAWN BY: MMA  
 DATE: 12/11/2018  
 APPROVED BY: WVDEP OOG  
 PROJECT: MAJTO WELL SITE  
 DATE: JUNE 2018  
 15015-008 PROJECT NO.  
 DESIGNED BY: HRP  
 CHECKED BY: BKB  
 DRAWN BY: MMA  
 DATE: 12/11/2018  
 APPROVED BY: WVDEP OOG



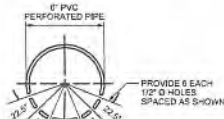
ITEM	LOCATION	PEAK FLOW (CFS)	LENGTH (FT)	SLOPE (%)	MATERIAL NO.	SIZE (IN)
CULVERT #1	FIELD ACC	0.7	30	4	HOPE 1	18
CULVERT #2	~19+80	6.8	45	8	HOPE 1	18
CULVERT #3	~20+80	4.4	58	5	HOPE 1	18
CULVERT #4	~27+25	3.1	45	7	HOPE 1	18



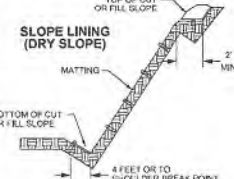
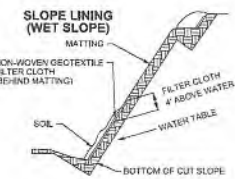
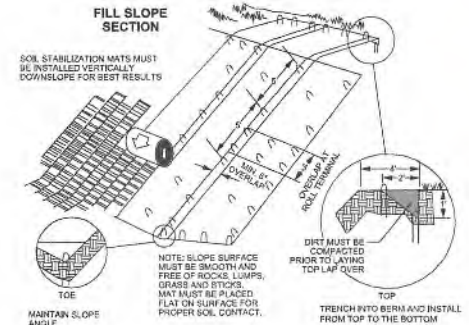
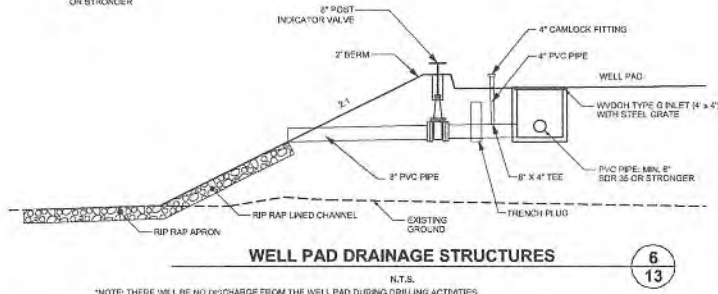
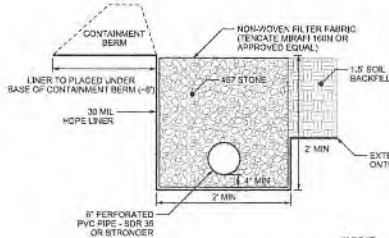
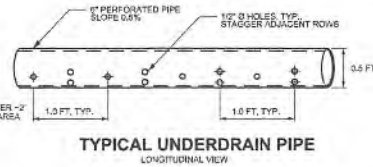
NOTES:  
 1. MOUNTABLE BERM SHALL USE THE SAME STONE SECTION AS SHOWN IN THE WELL PAD TYPICAL SECTION.  
 2. MOUNTABLE BERM SHALL BE INSTALLED PRIOR TO AND SHALL REMAIN IN-PLACE DURING DRILLING AND COMPLETION ACTIVITIES ON THE WELL PAD. THERE SHALL BE NO DISCHARGE TO LEAVE THE PAD DURING THIS TIME PERIOD.  
 3. MOUNTABLE BERM SHALL EXTEND FROM EDGE OF CONTAINMENT BERM TO EDGE OF CONTAINMENT BERM OR APPROXIMATELY THE FULL WIDTH OF THE ACCESS ROAD AT THE WELL PAD ENTRANCE.



**APPROVED**  
**WVDEP OOG**  
*WJL* 12/11/2018



**UNDERDRAIN PIPE CROSS SECTION**



\*NOTE: FLEXTERRA CAN BE USED IN PLACE OF ROLLED EROSION CONTROL PRODUCTS  
**ROLLED EROSION CONTROL PRODUCTS**  
 N.T.S. 7/13

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