west virginia department of environmental protection

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

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

Thursday, March 02, 2017
WELL WORK PERMIT
Vertical / New Drill

COLUMBIA GAS TRANSMISSION, LLC (A)
P. O. BOX 1273

CHARLESTON, WV 253251273

Re: Permit approval for RIPLEY 12598
47-035-03026-00-00

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: RIPLEY 12598
Farm Name: ADKINS, JACOB
U.S. WELL NUMBER: 47-035-03026-00-00
Vertical / New Drill
Date Issued: 3/2/2017

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PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.

2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.

3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.

4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.

5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.

6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours

7. Well work activities shall not constitute a hazard to the safety of persons.

8. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced, drilling ceased, completion of any other permitted well work and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

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WW - 2B
(Rev. 8/10)

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

1) Well Operator: Columbia Gas Transmission, LLC | 307032 (Operator ID) | Jackson (County) | Ripley (District) | Ripley (Quadrangle)

2) Operator's Well Number: Ripley 12598 3) Elevation: 755 ft PAD 752 ft

4) Well Type: (a) Oil _____ or Gas X

(b) If Gas: Production ____ / Underground Storage X

Deep X / Shallow _____ 4868 ft TVD

5) Proposed Target Formation(s): Oriskany Proposed Target Depth: 5357 ft MD
6) Proposed Total Depth: 5457 MD 4968 TVD Feet Formation at Proposed Total Depth: Helderberg
7) Approximate fresh water strata depths: 412 ft (based on offset residential water wells)
8) Approximate salt water depths: 1666 - 1883 ft (Salt Sand)

9) Approximate coal seam depths: none anticipated

10) Approximate void depths,(coal, Karst, other): none anticipated

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

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

Refer to attached wellbore diagram and QES well planning report.
Directionally drill well to Oriskany sandstone, fracture stimulate, and install pipeline.
Fracture treatment: 500 gal acid, 600 bbls fresh water, 100 MSCF N2, and 30 Klbs proppant.

RECEIVED
Office of Oil and Gas
JAN 03 2017
WV Department of
Environmental Protection

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS Size	Grade	Weight per ft	FOOTAGE For Drilling	INTERVALS Left in Well	CEMENT Fill -up (Cu. Ft.)	
Conductor	20	B-35	53	32	20	20	
Fresh Water	13.375	H-40	48	480	468	350	CTS
Intermediate	9.625	J-55	36	2550	2538	820	CTS
Intermediate	7	N-80	23	5168	5157	150	
Production	4.5	P-110	11.6	5313	5303	360	
Tubing							
Liners							

Packers: Kind: _____
Sizes: _____
Depths Set _____

12-20-16

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Elevations
GL: 752 ft
KB: 764 ft

4-½" Flowstring
Double Barrier Diagram

Ripley well 12598

~ not to scale ~

Maximum surface operating pressure 1675 psig

Maximum reservoir pore pressure 1900 psig

20" Conductor @ 32 ft KB

Deepest Fresh Water @ 424 ft KB

13-3/8" Surface csg @ 480 ft KB
48 ppf H-40 ERW API 8rd thread
Internal Yield: 1730 psi
Collapse: 770 psi
Joint Strength: 322 Klbs
(cemented to surface)

There are five residential water wells within 1920 ft of proposed Ripley well 12598. Depths are known for all five wells. The depth of the deepest water well is at an elevation of 340 ft above sea level. This is the basis for determining the deepest subsurface fresh water zone in proximity to Ripley well 12598.

Salt Sand
1678–1895 ft TVD KB

Berea 2416 – 2424 ft TVD KB

KOP @ 2540 ft TVD KB

9-5/8" Intermediate #1 csg @ 2480 ft TVD KB
36 ppf J-55 ERW LTC API 8rd thread
Internal Yield: 3520 psi (SF = 1.8)
Collapse: 2020 psi
Body Yield Strength: 564 Klbs
Joint Strength: 453 Klbs
(cemented to surface)

12-2016

Marcellus shale 5258 - 5268 ft MD KB (4769 – 4779 ft TVD KB)

Onondaga limestone cap rock
5268 – 5369 ft MD KB
(4779 – 4880 ft TVD KB)

Oriskany storage 5369 – 5404 ft MD KB (4880 – 4915 ft TVD KB)

Helderberg limestone 5404 – 5469 ft MD KB
(4915 – 4980 ft TVD KB)

7" Interm #2 @ 5339 ft MD KB (4850 ft TVD)
23 ppf N-80 ERW LTC API 8rd thread
Internal Yield: 6340 psi (SF = 3.3)
Collapse: 3830 psi
Body Yield Strength: 532 Klbs
Joint Strength: 442 Klbs
(cement bottom 1000' with 50/50 Pozmix lead and Class A tail)

1360 ft

TD 5469 ft MD KB
(4980 ft TVD KB)

4-1/2" Flowstring @ 5469 ft MD KB (4980 ft TVD)
11.6 ppf P-110 USS-CDC HTQ modified API BTC
Internal Yield: 10710 psi (SF = 5.6)
Collapse: 7580 psi
Body Yield Strength: 367 Klbs
Joint Strength: 385 Klbs
(cemented to 2100 ft with 50/50 Pozmix lead and Class A tail)

03/03/2017

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TransCanada

TransCanada

Jackson County, WV
Ripley
Ripley 12598

Wellbore #1

Plan: Design #3

QES Well Planning Report

14 December, 2016

4703503026T

TransCanada

Well Planning Report

QES

Database:	EDM5002	**Local Co-ordinate Reference:**	Well Ripley 12598
Company:	TransCanada	**TVD Reference:**	well @ 764.0usft (Rig KB 12')
Project:	Jackson County, WV	**MD Reference:**	well @ 764.0usft (Rig KB 12')
Site:	Ripley	**North Reference:**	Grid
Well:	Ripley 12598	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Project	Jackson County, WV		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	West Virginia Southern Zone		

Site	Ripley				
Site Position:		**Northing:**	686,397.57 usft	**Latitude:**	38° 52' 58.324 N
From:	Map	**Easting:**	1,769,353.28 usft	**Longitude:**	81° 41' 58.435 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.43 °

Well	Ripley 12598					
Well Position	**+N/-S**	-4,439.8 usft	**Northing:**	681,957.75 usft	**Latitude:**	38° 52' 14.250 N
	+E/-W	-2,541.1 usft	**Easting:**	1,766,812.19 usft	**Longitude:**	81° 42' 30.140 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	752.0 usft

Wellbore	Wellbore #1			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	11/28/2016	-7.79	66.41	51,880

Design	Design #3				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	248.82	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,540.0	0.00	0.00	2,540.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,230.4	48.33	248.82	3,151.4	-99.1	-255.8	7.00	7.00	0.00	248.82	
4,040.6	48.33	248.82	3,690.1	-317.7	-820.1	0.00	0.00	0.00	0.00	
5,248.7	0.00	0.00	4,760.0	-491.1	-1,267.7	4.00	-4.00	0.00	180.00	
5,468.7	0.00	0.00	4,980.0	-491.1	-1,267.7	0.00	0.00	0.00	0.00	PBHL - Ripley 12598

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TransCanada

Well Planning Report

QES

Database:	EDM5002	**Local Co-ordinate Reference:**	Well Ripley 12598
Company:	TransCanada	**TVD Reference:**	well @ 764.0usft (Rig KB 12')
Project:	Jackson County, WV	**MD Reference:**	well @ 764.0usft (Rig KB 12')
Site:	Ripley	**North Reference:**	Grid
Well:	Ripley 12598	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
Salt Sand									
1,678.0	0.00	0.00	1,678.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
Berea									
2,416.0	0.00	0.00	2,416.0	0.0	0.0	0.0	0.00	0.00	0.00
9 5/8"									
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
Build 7° / 100'									
2,540.0	0.00	0.00	2,540.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	4.20	248.82	2,599.9	-0.8	-2.0	2.2	7.00	7.00	0.00
2,700.0	11.20	248.82	2,699.0	-5.6	-14.5	15.6	7.00	7.00	0.00
2,800.0	18.20	248.82	2,795.6	-14.8	-38.2	40.9	7.00	7.00	0.00
2,900.0	25.20	248.82	2,888.5	-28.1	-72.6	77.9	7.00	7.00	0.00
3,000.0	32.20	248.82	2,976.2	-45.5	-117.4	125.9	7.00	7.00	0.00
3,100.0	39.20	248.82	3,057.3	-66.5	-171.8	184.2	7.00	7.00	0.00
3,200.0	46.20	248.82	3,130.8	-91.0	-235.0	252.0	7.00	7.00	0.00
EOB @ 48.33° Inc. / 248.82° Azm									
3,230.4	48.33	248.82	3,151.4	-99.1	-255.8	274.3	6.99	6.99	0.00
3,300.0	48.33	248.82	3,197.7	-117.9	-304.3	326.3	0.00	0.00	0.00
3,400.0	48.33	248.82	3,264.2	-144.9	-373.9	401.0	0.00	0.00	0.00
3,500.0	48.33	248.82	3,330.7	-171.8	-443.6	475.7	0.00	0.00	0.00
3,600.0	48.33	248.82	3,397.1	-198.8	-513.2	550.4	0.00	0.00	0.00
3,700.0	48.33	248.82	3,463.6	-225.8	-582.9	625.1	0.00	0.00	0.00
3,800.0	48.33	248.82	3,530.1	-252.8	-652.5	699.8	0.00	0.00	0.00
3,900.0	48.33	248.82	3,596.6	-279.8	-722.2	774.5	0.00	0.00	0.00
4,000.0	48.33	248.82	3,663.1	-306.7	-791.8	849.1	0.00	0.00	0.00
Drop 4° / 100'									
4,040.6	48.33	248.82	3,690.1	-317.7	-820.1	879.5	0.00	0.00	0.00

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TransCanada

Well Planning Report

QES

Database:	EDM5002	**Local Co-ordinate Reference:**	Well Ripley 12598
Company:	TransCanada	**TVD Reference:**	well @ 764.0usft (Rig KB 12')
Project:	Jackson County, WV	**MD Reference:**	well @ 764.0usft (Rig KB 12')
Site:	Ripley	**North Reference:**	Grid
Well:	Ripley 12598	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,100.0	45.95	248.82	3,730.5	-333.4	-860.7	923.0	4.00	-4.00	0.00
4,200.0	41.95	248.82	3,802.5	-358.5	-925.4	992.4	4.00	-4.00	0.00
4,300.0	37.95	248.82	3,879.1	-381.7	-985.2	1,056.6	4.00	-4.00	0.00
4,400.0	33.95	248.82	3,960.1	-402.9	-1,040.0	1,115.3	4.00	-4.00	0.00
4,500.0	29.95	248.82	4,044.9	-422.0	-1,089.3	1,168.2	4.00	-4.00	0.00
4,600.0	25.95	248.82	4,133.2	-438.9	-1,133.0	1,215.1	4.00	-4.00	0.00
4,700.0	21.95	248.82	4,224.6	-453.6	-1,170.9	1,255.6	4.00	-4.00	0.00
4,800.0	17.95	248.82	4,318.6	-465.9	-1,202.7	1,289.8	4.00	-4.00	0.00
4,900.0	13.95	248.82	4,414.7	-475.8	-1,228.3	1,317.2	4.00	-4.00	0.00
5,000.0	9.95	248.82	4,512.5	-483.3	-1,247.6	1,337.9	4.00	-4.00	0.00
5,100.0	5.95	248.82	4,611.5	-488.3	-1,260.5	1,351.8	4.00	-4.00	0.00
5,200.0	1.95	248.82	4,711.3	-490.8	-1,266.9	1,358.6	4.00	-4.00	0.00
EOD @ Vertical									
5,248.7	0.00	248.82	4,760.0	-491.1	-1,267.7	1,359.5	4.00	-4.00	0.00
Onondaga									
5,267.7	0.00	0.00	4,779.0	-491.1	-1,267.7	1,359.5	0.01	-0.01	0.00
5,300.0	0.00	0.00	4,811.3	-491.1	-1,267.7	1,359.5	0.00	0.00	0.00
7"									
5338.7	0.00	0.00	4850	-491.1	-1,267.7	1,359.5	0.00	0.00	0.00
Oriskany									
5,368.7	0.00	0.00	4,880.0	-491.1	-1,267.7	1,359.5	0.00	0.00	0.00
5,400.0	0.00	0.00	4,911.3	-491.1	-1,267.7	1,359.5	0.00	0.00	0.00
Helderberg									
5,403.7	0.00	0.00	4,915.0	-491.1	-1,267.7	1,359.5	0.00	0.00	0.00
TD @ 5469' MD / 4980' TVD									
5,468.7	0.00	0.00	4,980.0	-491.1	-1,267.7	1,359.5	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Ripley 12598 D# - plan hits target center - Point	0.00	0.00	4,980.0	-491.1	-1,267.7	681,466.67	1,765,544.52	38° 52' 9.300 N	81° 42' 46.120 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,480.0	2,480.0	9 5/8"	9-5/8	12-1/4
5,318.7	4,830.0	7"	7	8-3/4

03/03/2017

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Database:	EDM5002	**Local Co-ordinate Reference:**	Well Ripley 12598
Company:	TransCanada	**TVD Reference:**	well @ 764.0usft (Rig KB 12')
Project:	Jackson County, WV	**MD Reference:**	well @ 764.0usft (Rig KB 12')
Site:	Ripley	**North Reference:**	Grid
Well:	Ripley 12598	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,678.0	1,678.0	Salt Sand		0.00	
2,416.0	2,416.0	Berea		0.00	
5,267.7	4,779.0	Onondaga		0.00	
5,368.7	4,880.0	Oriskany		0.00	
5,403.7	4,915.0	Helderberg		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,540.0	2,540.0	0.0	0.0	Build 7° / 100'
3,230.4	3,151.4	-99.1	-255.8	EOB @ 48.33° Inc. / 248.82° Azm
4,040.6	3,690.1	-317.7	-820.1	Drop 4° / 100'
5,248.7	4,760.0	-491.1	-1,267.7	EOD @ Vertical
5,468.7	4,980.0	-491.1	-1,267.7	TD @ 5469' MD / 4980' TVD

03/03/2017

4703503026T

Project: Jackson County, WV
Site: Ripley
Well: Ripley 12598
Wellbore: Wellbore #1
Design: Design #3
Latitude: 38° 52' 14.250 N
Longitude: 81° 42' 30.140 W
Ground Level: 752.0
well @ 764.0usft (Rig KB 12')

TransCanada

QES DIRECTIONAL DRILLING

PROJECT DETAILS: Jackson County, WV	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	West Virginia Southern Zone
System Datum:	Mean Sea Level

REFERENCE INFORMATION	
Co-ordinate (N/E) Reference:	Well Ripley 12598, Grid North
Vertical (TVD) Reference:	well @ 764.0usft (Rig KB 12')
Section (VS) Reference:	Slot - (0.0N, 0.0E)
Measured Depth Reference:	well @ 764.0usft (Rig KB 12')
Calculation Method:	Minimum Curvature

WELL DETAILS: Ripley 12598

+N/-S	+E/-W	Northing	Ground Level: Easting	752.0 Latittude	Longitude
0.0	0.0	681957.76	1766812.19	38° 52' 14.250 N	81° 42' 30.140 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL - Ripley 12598 D#2	4980.0	-491.1	-1267.7	681466.67	1765544.52	38° 52' 9.300 N	81° 42' 46.120 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2540.0	0.00	0.00	2540.0	0.0	0.0	0.00	0.00	0.0	Build 7° / 100'
3230.4	48.33	248.82	3151.4	-99.1	-255.8	7.00	248.82	274.3	EOB @ 48.33° Inc. / 248.82° Azm
4040.6	48.33	248.82	3690.1	-317.7	-820.1	0.00	0.00	879.5	Drop 4° / 100'
5248.7	0.00	0.00	4760.0	-491.1	-1267.7	4.00	180.00	1359.5	EOD @ Vertical
5468.7	0.00	0.00	4980.0	-491.1	-1267.7	0.00	0.00	1359.5	TD @ 5469' MD / 4980' TVD

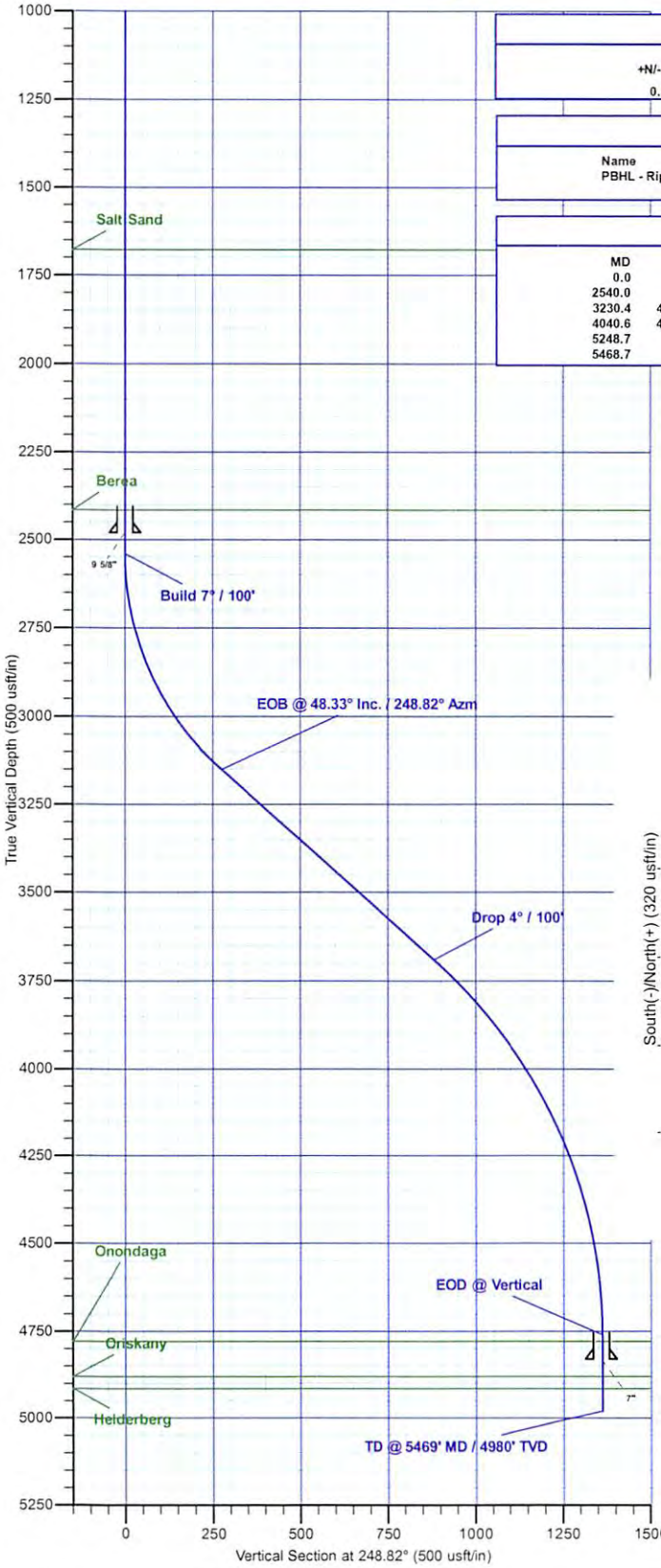
M G T

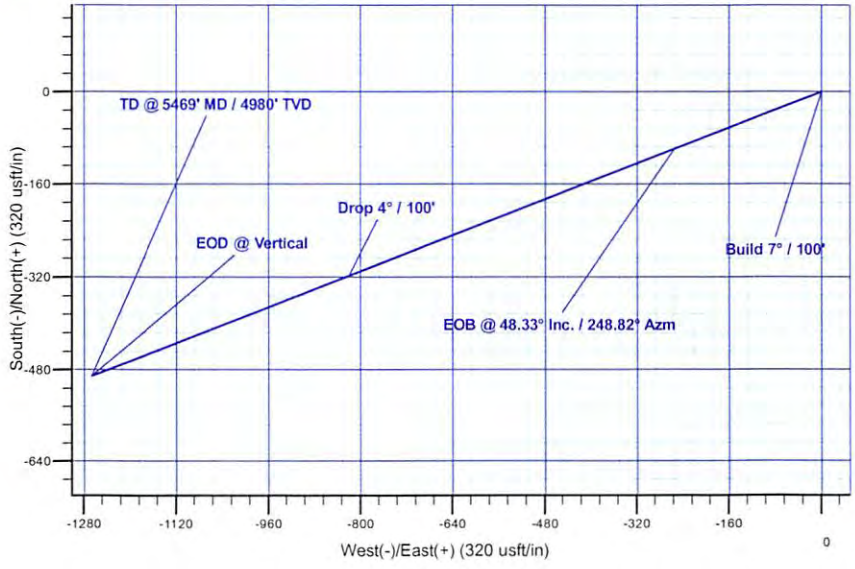
Azimuths to Grid North
True North: 0.44°
Magnetic North: -7.35°

Magnetic Field
Strength: 51879.9snT
Dip Angle: 66.41°
Date: 11/28/2016
Model: IGRF2015

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1678.0	1678.0	Salt Sand
2416.0	2416.0	Berea
4779.0	5267.7	Onondaga
4880.0	5368.7	Oriskany
4915.0	5403.7	Helderberg





Plan: Design #3 (Ripley 12598/Wellbore #1)

Created By: Will Jircik Date: 12:11, December 14 2016

03/03/2017

4703503026T

WW-2B1
(5-12)

Well No. Ripley 12598

West Virginia Department of Environmental Protection
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

Be advised, you have the right to sample and analyze any water supply at your own expense.

Listed below is the laboratory chosen by operator to perform analysis, and contactor chosen to collect sample.

Certified Laboratory Name: ALS Environmental
Sampling Contractor: ALS Environmental

Well Operator: Columbia Gas Transmission, LLC
Address: 1700 MacCorkle Ave. SE
Charleston, WV 25314-1273
Telephone: 304-357-2000

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

JACOB ADKINS
745 PUCKETT RIDGE ROAD
RIPLEY, WV 25275

BOBBY KEITH ADKINS
714 KNOTTS RUN ROAD
RIPLEY, WV 25271

JACK & SHARON QUESENBERRY
1008 KNOTTS RUN ROAD
RIPLEY, WV 25271

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JAN 03 2017
WV Department of
Environmental Protection

03/03/2017

Water Wells and Springs in Proximity to Ripley New Drills

*** well / spring to be tested in blue highlight**

Well	Landowner	Well or Spring	Requested by Landowner (yes / no)	Sample Date	Water Well or Spring Coordinates		Distance from Proposed Storage Well	GL Elevation (Google Earth)	Well Depth	Well Depth above MSL
					Lat	Long				
Ripley 12598	Jacob Adkins	water well #1 (SW of storage well)	no		38 52 10.79	81 42 32.87	410	748	380	368
Ripley 12598	Jacob Adkins	water well #2 (SE of storage well)	no		38 52 10.22	81 42 27.12	470	752	230	522
Ripley 12598	Jacob Adkins	water well at residence	no		38 52 3.99	81 42 17.25	1460	870	530	340
Ripley 12598	Bobby Keith Adkins	water well	no		38 52 2.14	81 42 36.50	1330	704	130	574
Ripley 12598	Jack & Sharon Quesenberry	water well	no		38 52 4.49	81 42 50.89	1920	792	425	367
Ripley 12598	George Smith, Jr	no water well but there is a spring - location of spring not known but none of Smith acreage is within 1000 ft of proposed storage well	no		???	???	???	???	N/A	
Ripley 12598	Minnie Belle Ramsey, Heirs	landowner not aware of any water wells or springs								

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4703503026T

WW-2A
(Rev. 6-14)

1). Date: 1/30/17

2.) Operator's Well Number Riplev 12598

3.) API Well No.: State 47- County 035 - Permit

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

4) Surface Owner(s) to be served:
(a) Name Jacob Adkins
Address 745 Puckett Ridge Road
Riplev, WV 25271
(b) Name
Address
(c) Name
Address

5) (a) Coal Operator
Name
Address
(b) Coal Owner(s) with Declaration
Name not operated
Address
Name
Address
(c) Coal Lessee with Declaration
Name not operated
Address

6) Inspector Jamie Stevens
Address 105 Kentuck Rd
Kenna, WV 25248
Telephone 304-206-7775

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

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

OR

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

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

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

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

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

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

Received
Office of Oil & Gas
FEB 01 2017

Well Operator Columbia Gas Transmission, LLC
By: James E. Amos
Its: Senior Well Services Engineer
Address: 48 Columbia Gas Rd
Sandyville, WV 25275
Telephone: 304-373-2412
Email: james_amos@transcanada.com

Subscribed and sworn before me this 30th day of January, 2017

Notary Public

My Commission Expires 5-9-2017

Oil and Gas Privacy Notice

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

03/03/2017

4703503026T

Columbia Pipeline Group

1700 MacCorkle Ave SE
P.O. Box 1273
Charleston, WV 25325

January 30, 2017

Jacob Adkins
745 Puckett Ridge Road
Ripley, WV 25271

Columbia Gas Transmission, LLC is applying for a permit to the WV Department of Environmental Protection – Office of Oil and Gas, to drill a new underground natural gas storage well located on property owned by you. As reference, the field and well ID is Ripley 12598.

As part of the well permitting process required by the Office of Oil and Gas, Columbia, the well operator, is required to provide a copy of all applicable permit forms for your review and record retention. Columbia encourages you to review each form in detail, and follow the instructions as outlined.

Jacob, you are receiving the enclosed duplicate copy of the well drilling permit application because I mistakenly mailed the first copy to the wrong address. The application has not changed except for the correct postal mailing address on form WW-2A.

Sincerely,

Jim Amos
Senior Well Services Engineer
Columbia Gas Transmission, LLC

4703503026T

WW-2A1
(Rev. 1/11)

Operator's Well Number Ripley 12598

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

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

(1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;

(2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
surface	Martha Ann Harrison, et al	Columbia Gas Transmission, LLC	Storage Lease 1052730-00	84 / 386
bottom hole	J B Vail and Tinnie Vail	Columbia Gas Transmission, LLC	Storage Lease 51674-00	85 / 416

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

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

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

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

Well Operator: Columbia Gas Transmission, LLC
By: Its: James E. Amos
Senior Well Services Engineer

Received
Office of Oil and Gas
JAN 0 9 2017
WV Department of
Environmental Protection

03/03/2017

47035030264T

WW-9
(5/16)

API Number 47 - 035 -
Operator's Well No. Ripley 12598

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

Operator Name Columbia Gas Transmission, LLC OP Code 307032

Watershed (HUC 10) Left Fork Quadrangle Ripley

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: fresh and salt water, FW based drilling fluid, cement returns, cuttings

Will a synthetic liner be used in the pit? Yes ☑ No ☐ If so, what ml.? 30

Proposed Disposal Method For Treated Pit Wastes:

- ___ Land Application (if selected provide a completed form WW-9-GPP)
- ■ Underground Injection (UIC Permit Number 34-009-23821, 34-009-23823, 34-009-23824, 34-105-23619)
- ___ Reuse (at API Number ___)
- ___ Off Site Disposal (Supply form WW-9 for disposal location)
- ___ Other (Explain ___

Will closed loop system be used? If so, describe: yes - steel flow line to earthen pit or circulating tank

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

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

Additives to be used in drilling medium? NaCl, KCl, biocide, polymer, bentonite, attapulgite, starch, surfactant

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

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

-Landfill or offsite name/permit number? if needed: Rumpke Beech Hollow Landfill (Wellston, OH)

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

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

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

Company Official Signature [signature]

Company Official (Typed Name) James E. Amos

Company Official Title Senior Well Services Engineer

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JAN 09 2017
WV Department of
Environmental Protection

Subscribed and sworn before me this 20 day of December, 20 16

Robin Whiting Notary Public

My commission expires May 17, 2017

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
ROBIN WHITING
810 ...
SPENCER, WV 25276
My commission expires May 21, 2017

[signature] 1-2-2016

03/03/2017

4703503026

Form WW-9

Operator's Well No. Ripley 12598

Proposed Revegetation Treatment: Acres Disturbed 6.6 (pad+road+pipeline) Prevegetation pH 6-7

Lime 2 Tons/acre or to correct to pH 7-8

Fertilizer type 10-10-10

Fertilizer amount 600 lbs/acre

Mulch straw @ 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Rye	40	Orchard Grass and/or Tall Fescue	29
		Birdsfoot Trefoil (Empire)	9
		Annual Rye	12

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:

Comments:

Title: OOG Inspector Date: 12-20-16

Field Reviewed? (X) Yes ( ) No

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WV Department of
Environmental Protection

03/03/2017

4703503026T

WW-9- GPP
Rev. 5/16

Page _____ of _____
API Number 47 - 035 - _____
Operator's Well No. Ripley 12598

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

Operator Name: Columbia Gas Transmission, LLC

Watershed (HUC 10): Left Fork Quad: Ripley

Farm Name: Jacob Adkins

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

No fluids planned to be discharged.

No fertilizer will be stored on site. Fuel, oil, and lubricants will be stored on site, but located within secondary containment. Spills from construction equipment, well treatment fluids, and produced well fluids are the only possible source of contamination to groundwater. Drilling and flowback fluids to be stored in tanks. Earthen pit to constructed to WV DEP standards.

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

Earthen berm to be constructed around perimeter of well pad with storm water sumps to control release of captured precipitation.

Construction and well servicing equipment will be monitored and inspected daily for leaks. Earthen pit and tanks to be monitored daily for leaks. Spill kits will be on site.

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

Unnamed tributary of Left Fork is approximately 60 ft to the E.

WV Baptist Conference Center (WV9918034) is the closest Well Head Protection Area at a distance of 5.3 miles from discharge area. Refer to enclosed assessment letter dated 12/6/16 from Department of Health and Human Resources, Source Water Assessment and Protection department.

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

N/A

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JAN 03 2017
WV Department of
Environmental Protection

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

03/03/2017

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WW-9- GPP
Rev. 5/16

Page _____ of _____
API Number 47 - _____ - _____
Operator's Well No. Ripley 12598

N/A

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

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

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

During routine tailgate and JSA meetings groundwater protection will be a topic of discussion.

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

No fertilizer will be stored on site. Fuel, oil, and lubricants will be stored on site, but located within secondary containment. Spills from construction equipment, well treatment fluids, and produced well fluids are the only possible source of contamination to groundwater.

Inspections to be performed daily.

Signature: _____

Date: 12/19/16

03/03/2017

4703503026T

STATE OF WEST VIRGINIA
DEPARTMENT OF HEALTH AND HUMAN RESOURCES
BUREAU FOR PUBLIC HEALTH
OFFICE OF ENVIRONMENTAL HEALTH SERVICES

Earl Ray Tomblin
Governor

Karen L. Bowling
Cabinet Secretary

December 6, 2016

Ripley 12596	
Lat:	38.8829
Long:	81.6996
Ripley 12597	
Lat:	38.8790
Long:	81.6849
Ripley 12598	
Lat:	38.8706
Long:	81.7084

William Timmermeyer
Environmental Planning & Permitting Principal
TransCanada | Columbia Pipeline Group
1700 MacCorkle Ave., SE
PO Box 1273
Charleston, WV 25314

Re: SWAP Information Request for
Proposed Ripley wells
Jackson County, West Virginia

Dear Mr. Timmermeyer:

In response to the informational request dated December 5, 2016 concerning the closest Wellhead Protection Areas for three proposed wells in Jackson County. Based on the current information, we have found that your project area **does not** intersect any public water sources or protection areas.

The closest distances to the Protection Areas are as follow:

Wellhead Protection Area	WV9918034	WV BAPTIST CONF. CENTER	5.3 miles
Zone of Critical Concern	WV3301811	CITY OF RIPLEY	3.5 mile
Zone of Peripheral Concern	WV3301811	CITY OF RIPLEY	3.4 mile

Your location is 104 miles upstream of a public water intake at the WVAWC –Huntington District.

We do not have information regarding private drinking wells in the area. I suggest you contact the county health department for this information.

I hope the information provided helps you with the completion of your project. If you have any questions, please do not hesitate to contact me at (304) 356-4309.

Sincerely,

Lisa A. King, GIS Administrator
Source Water Assessment and Protection

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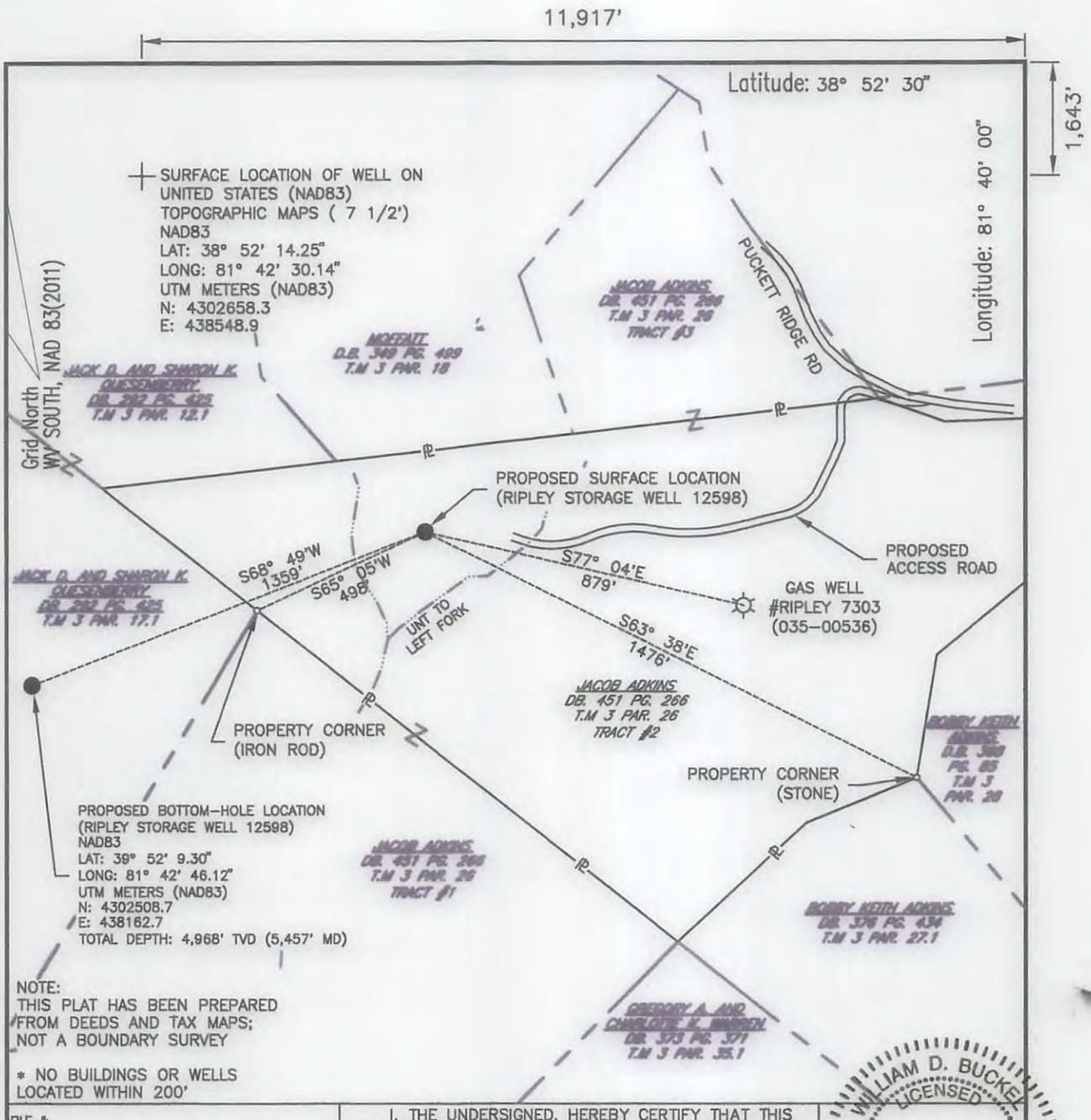
Office of Oil and Gas
JAN 03 2017

CC: William J. Toomey

350 Capitol Street, Room 313
Charleston, West Virginia 25301-3713
Telephone: (304) 558-2981



FILE #:

DRAWING #: 12598

SCALE: 1" = 400'

MINIMUM DEGREE OF ACCURACY: 1:2,500'

PROVEN SOURCE OF ELEVATION: STATIC GPS SURVEY WITH TIES TO NGS DATA

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: William D. Buckel

R.P.E.: L.L.S.: 1064

WILLIAM D. BUCKEL LICENSED No. 1064 STATE OF WEST VIRGINIA PROFESSIONAL LAND SURVEYOR

PLACE SEAL HERE

+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: 12/27/2016

OPERATOR'S WELL #: 12598

API WELL #: 47 (STATE) 035 (COUNTY) 03026T (PERMIT)

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

WATERSHED: LEFT FORK ELEVATION: 755'

COUNTY/DISTRICT: JACKSON / RIPLEY QUADRANGLE: RIPLEY

SURFACE OWNER: JACOB ADKINS ACREAGE: 50

OIL & GAS ROYALTY OWNER: J.B. VAIL AND TINNIE VAIL LEASE NO. 1052730-000 (SURFACE) 51674 (BOTTOM HOLE) ACREAGE: 120

DRILL ☒ CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☒

PLUG OFF OLD FORMATION ☐ PERFORATE NEW FORMATION ☐ PLUG & ABANDON ☐

CLEAN OUT & REPLUG ☐ OTHER CHANGE ☐ SPECIFY):

03/03/2017

TARGET FORMATION: ORISKANY SANDSTONE (STORAGE RESERVOIR) ESTIMATED DEPTH: 4868 FT. TVD 5357 FT. MD

WELL OPERATOR COLUMBIA GAS TRANSMISSION
Address 1700 MACCORKLE AVE. SE PO BOX 1273
City CHARLESTON State WV Zip Code 25325-1273

DESIGNATED AGENT PAUL AMICK
Address 1700 MACCORKLE AVE. SE PO BOX 1273
City CHARLESTON State WV Zip Code 25325-1273

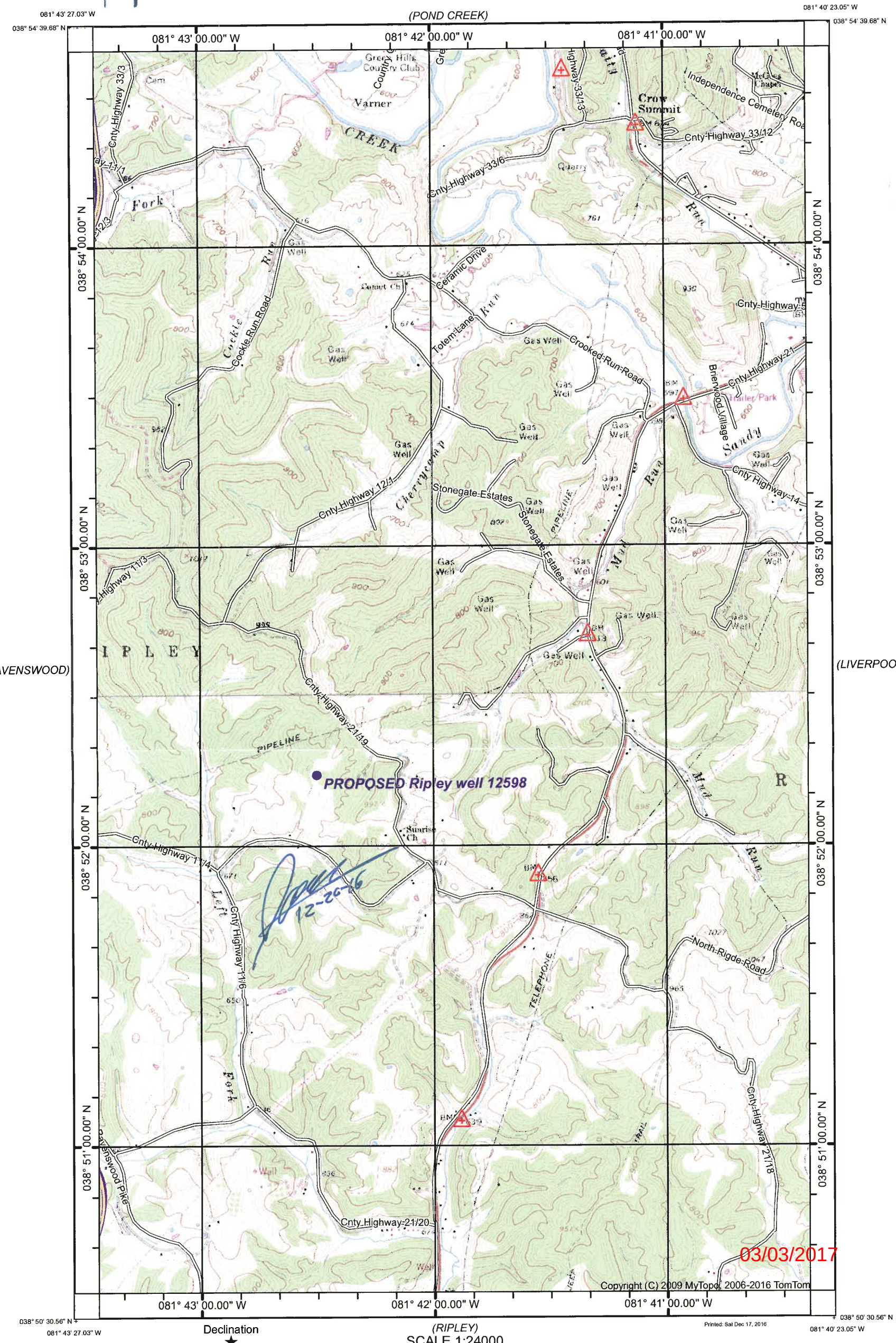
4703503026T

SANDYVILLE QUADRANGLE
WEST VIRGINIA
TOPOGRAPHIC SERIES

(PORTLAND) (POND CREEK) (ROCKPORT)

(RAVENSWOOD) (RIPLEY) (LIVERPOOL)

(COTTAGEVILLE) (GAY)



SANDYVILLE, WV
1960

ISSUE	DRAWING NUMBER
B	D-7119-COV-1

47035030267

PROJECT NUMBER 22890

FACILITY NAME
ASSET GROUP X – ZONE X

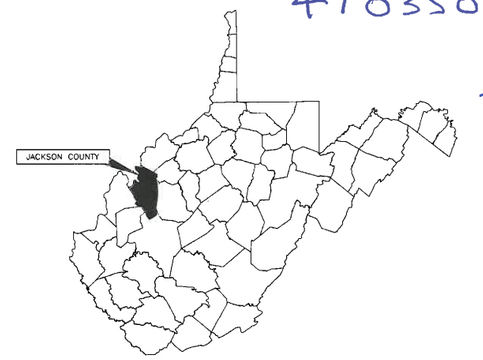
JACKSON COUNTY, WEST VIRGINIA

PIPELINE: 6" LINE X59W12598

MAOP – XXX PSIG, MOP – XXX PSIG

INVENTORY MAP: XXXXXX
XX.XXXX'N, –XX.XXXX'W

Columbia Gas Transmission



PROJECT LOCATION:
JACKSON COUNTY, WEST VIRGINIA

RIPLEY WELL 12598 (CML)

PROPOSED WELL PAD AND ACCESS ROAD
ENGINEERING SERVICES - DESIGN - WORK ORDER # 47110 - PROJECT # 22890
DESIGN DRAWINGS - CIVIL

DESIGN DRAWINGS

D	7119	COV-1	COVER SHEET
D	7119	NOT	GENERAL NOTES
D	7119	INX-1	INDEX SHEET
D	7119	INX-2	INDEX SHEET
TD	7119	103A	LAYOUT & GRADING PLAN
TD	7119	103B	LAYOUT & GRADING PLAN
TD	7119	103C	BASELINE & PAD CROSS SECTIONS
TD	7119	103D	ACCESS ROAD PROFILE
D	7119	TYP-1	TYPICALS
D	7119	TYP-2	TYPICALS
D	7119	TYP-3	TYPICALS
D	7119	TYP-3	TYPICALS

WV DEP Reclamation Plan

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12-2016
Office of Oil and Gas
JAN 03 2017
WV Department of
Environmental Protection

Know what's below. Call before you dig.
DIAL 811 OR 1-800-245-4848

1. BASIS OF COORDINATES AND DATUM IS GRID NORTH DERIVED FROM STATIC TIES TO NGS MONUMENTS AND TRANSFORMED INTO WEST VIRGINIA STATE PLANE SOUTH, NAD 83 (2011), US SURVEY FOOT.
2. INFORMATION DEPICTED HEREON IS BASED ON A SURVEY CONDUCTED FOR THE PURPOSE OF ESTABLISHING BASELINES FOR MAPPING SELECTED TOPOGRAPHIC FEATURES.
3. PROPERTY LINES SHOWN ARE FROM AVAILABLE PROPERTY LINE EVIDENCE AND DEED INFORMATION SUPPLIED BY THE CLIENT. A COMPLETE BOUNDARY SURVEY COMPLIANT WITH WV CODE 30-13A HAS NOT BEEN CONDUCTED.

BID SET
ISSUED: 11/29/2016

MOTT MACDONALD

TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING PACKAGE ARE DESIGNED IN ACCORDANCE WITH APPLICABLE COLUMBIA PIPELINE GROUP GUIDELINES AND SPECIFICATIONS AND IN COMPLIANCE WITH COLUMBIA PIPELINE GROUP CAD / DRAFTING STANDARDS

LEAD CPG DESIGN ENGINEER _____ DATE _____

ENGINEERING REVIEW _____ DATE _____

LEAD/SENIOR DESIGNER CHECK 03/03/2017 DATE _____

NOTE: ANY CHANGES TO THE DESIGN SHOWN IN THIS DRAWING PACKAGE MUST BE APPROVED BY THE DESIGN ENGINEER.

PROJECT DELIVERY
PROJECT ENGINEERING
P.O. BOX 1273, CHARLESTON, WV 25325-1273
1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

Columbia Gas Transmission

RIPLEY WELL SITE 12598

COVER SHEET

DRAWN BY:	MM	DATE: 09/01	DRAWING NUMBER	ISSUE
	PROJECT NUMBER:	22890	D-7119-COV-1	B
	W.O. NUMBER:	47110		

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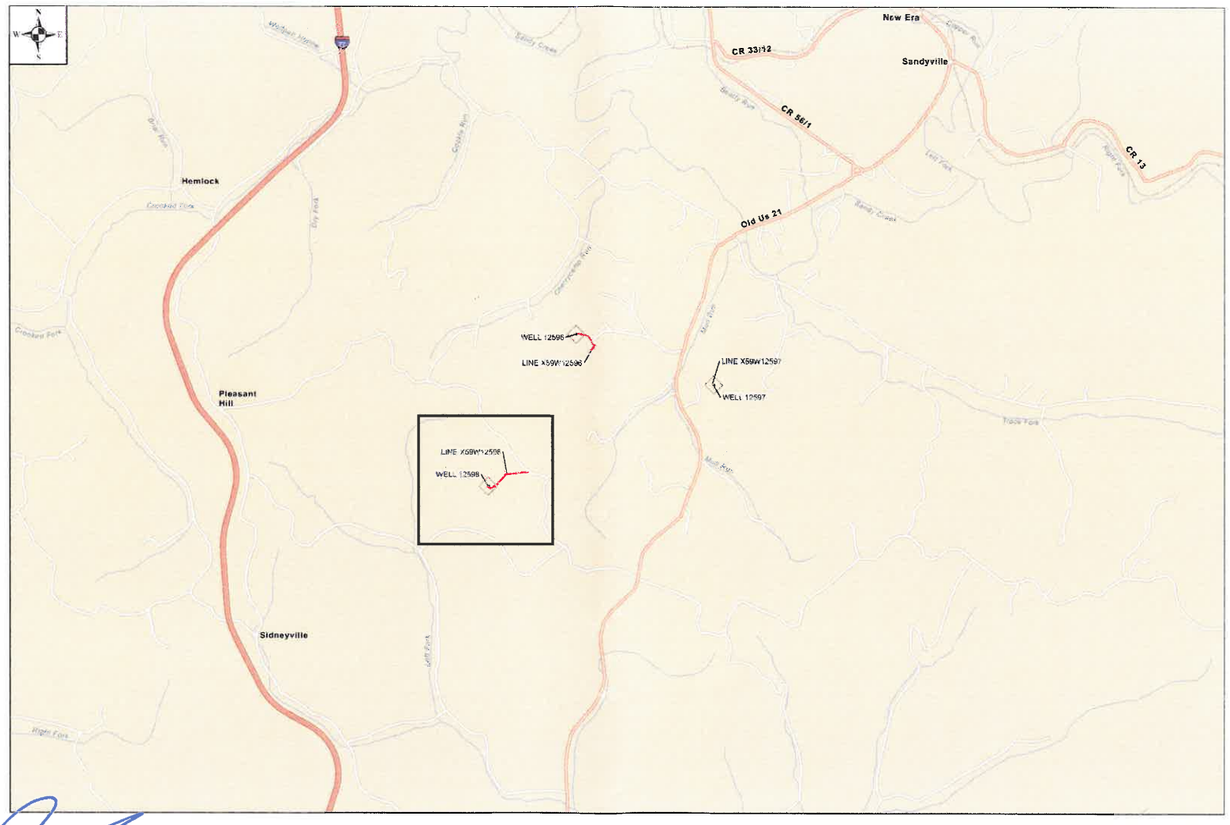
11/29/2016 9:03 AM Reese, Jason S

DRAWING NUMBER	ISSUE
D7119-INX-1	B

Columbia Gas Transmission



12-20-16

RIPLEY WELL 12598

BID SET
ISSUED: 11/29/2016

NO.	REVISIONS	BY APPROVED	DATE
B	RE-ISSUED FOR BID	MM	11/29/2016
		MM	11/29/2016
		MM	11/29/2016

MOTT MACDONALD

NON-SCALED

DESIGN PRESSURE ___ PSIG AT ___ °F (___ DESIGN FACTOR). MAXIMUM HOOP STRESS LEVEL AT ___ PSIG. ___ % SMYS. BASED ON ___.
MAOP OF ___ PSIG AT ___ °F IS LIMITED BY ___.
MINIMUM TEST PRESSURE ___ PSIG. MAXIMUM TEST PRESSURE ___ PSIG.
TEST LIMITED BY ___ TEST PERIOD ___ HOURS.
TEST MEDIUM ___ SERVICE ___.
NONDESTRUCTIVE INSPECTION REQUIREMENTS ___.

CERTIFICATE
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DESIGN ENGINEER DATE

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03/03/2017

DWG. NO. REFERENCE

PROJECT DELIVERY
PROJECT ENGINEERING
P.O. BOX 1273, CHARLESTON, WV 25325-1273
1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

Columbia Gas Transmission

RIPLEY WELL 12598

TITLE: INDEX SHEET

DRAWN BY	DATE	DRAWING NUMBER	ISSUE
MM	09/01	D7119-INX-1	B
PROJECT NUMBER:	22890		
W.O. NUMBER:	47110		

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11/29/2016 9:07 AM Reese, Jason S

DRAWING NUMBER	ISSUE
D7119-INX-2	B

JACKSON COUNTY, WEST VIRGINIA

N

WELL SITE
12596

TD-7115-103A

TD-7115-103C

TD-7115-103D

TD-7115-103B

PARKERSBURG ROAD / COUNTY ROAD 21

STONEGATE ESTATES

WELL SITE
12597

TD-7117-103A

TD-7117-103B

RIPLEY
COMPRESSOR
STATION

WELL SITE
12598

TD-7119-103B

TD-7119-103A

RUCKETT RIDGE ROAD
COUNTY ROAD 21/19

PARKERSBURG ROAD / COUNTY ROAD 21

CITY OF RIPLEY
APPROXIMATELY 3.80 MILES

COUNTY ROAD 11/4

BID SET
ISSUED: 11/29/2016

MOTT MACDONALD

NON-SCALED

DESIGN PRESSURE ___ PSIG AT ___ °F (___DESIGN FACTOR); MAXIMUM HOOP STRESS LEVEL AT ___ PSIG ___ % SMYS, BASED ON _____.
MAOP OF ___ PSIG AT ___ °F IS LIMITED BY _____.
MINIMUM TEST PRESSURE ___ PSIG. MAXIMUM TEST PRESSURE ___ PSIG.
TEST LIMITED BY _____. TEST PERIOD ___ HOURS.
TEST MEDIUM _____. SERVICE _____.
NONDESTRUCTIVE INSPECTION REQUIREMENTS _____.

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03/03/2017

DESIGN ENGINEER DATE

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Columbia Gas Transmission

TITLE
RIPLEY WELL 12598
INDEX SHEET

DRAWN BY	DATE	DRAWING NUMBER	ISSUE
MM	09/01	D7119-INX-2	B
PROJECT NUMBER:	22890		
W.O. NUMBER:	47110		

NO.	REVISIONS	BY APPROVED	DATE
B	RE-ISSUED FOR BID	MM	11/29/2016
		MM	11/29/2016
		MM	11/29/2016

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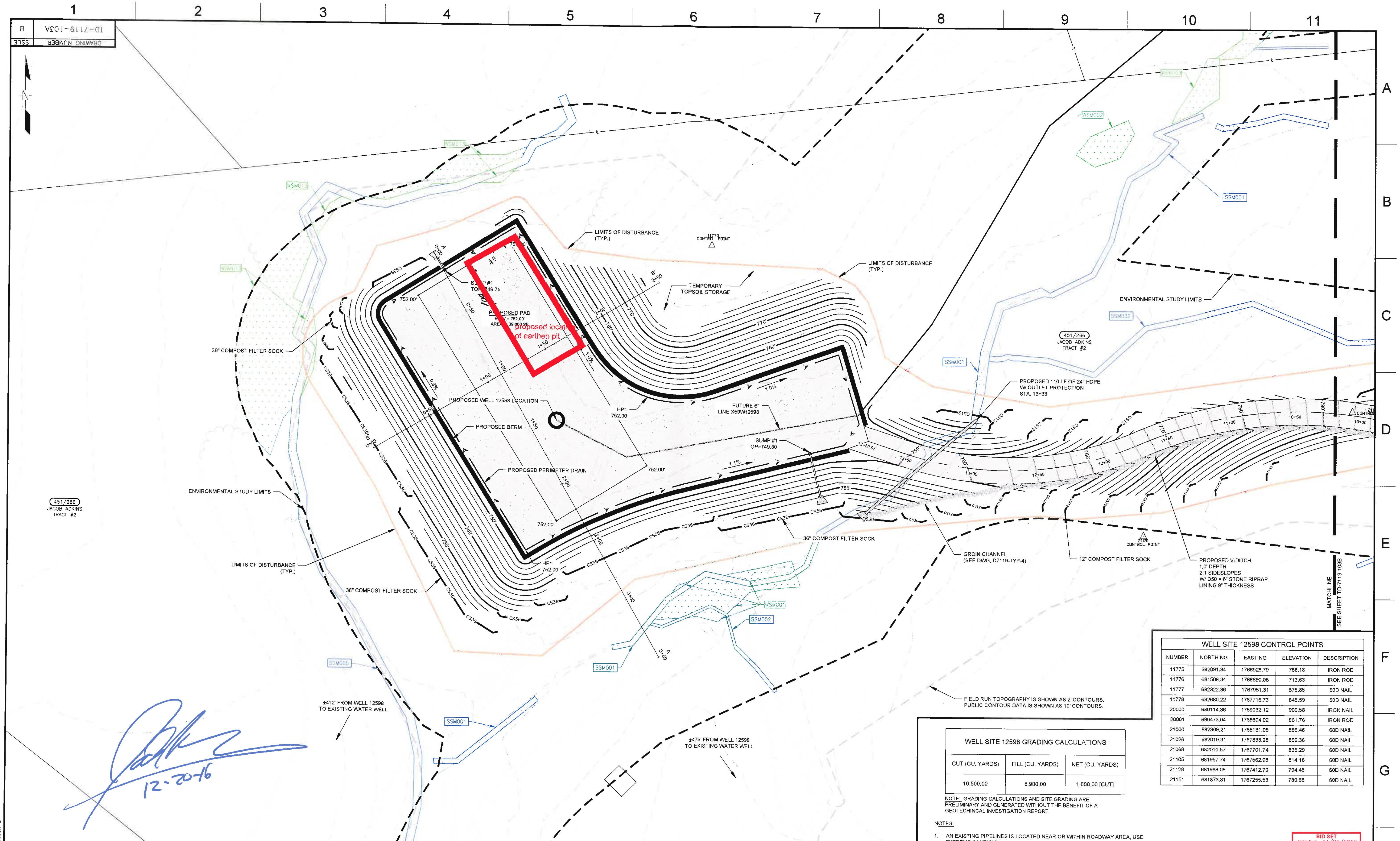

WELL SITE 12598 CONTROL POINTS				
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
11775	682091.34	1766928.79	788.18	IRON ROD
11776	681508.34	1766690.08	713.63	IRON ROD
11777	682322.36	1767951.31	875.85	60D NAIL
11778	682680.22	1767716.73	845.59	60D NAIL
20000	680114.36	1769032.12	909.58	IRON NAIL
20001	680473.04	1768604.02	861.76	IRON ROD
21000	682309.21	1768131.06	866.46	60D NAIL
21026	682019.31	1767838.28	860.36	60D NAIL
21068	682010.57	1767701.74	835.29	60D NAIL
21105	681957.74	1767562.98	814.16	60D NAIL
21128	681968.08	1767412.79	794.46	60D NAIL
21151	681873.31	1767255.53	780.68	60D NAIL

WELL SITE 12598 GRADING CALCULATIONS		
CUT (CU. YARDS)	FILL (CU. YARDS)	NET (CU. YARDS)
10,500.00	8,900.00	1,600.00 [CUT]

NOTE: GRADING CALCULATIONS AND SITE GRADING ARE PRELIMINARY AND GENERATED WITHOUT THE BENEFIT OF A GEOTECHINCAL INVESTIGATION REPORT.

NOTES:

1. AN EXISTING PIPELINES IS LOCATED NEAR OR WITHIN ROADWAY AREA, USE EXTREME CAUTION!

BID SET ISSUED: 11/29/2016

12-20-16

SCALE: 1" = 30'-0"

MOTT MACDONALD

NO.	REVISIONS	BY	DATE
	RE-ISSUED FOR BID	MM	11/29/2016

DESIGN PRESSURE ___ PSIG AT ___ °F (___ DESIGN FACTOR). MAXIMUM HOOP STRESS LEVEL AT ___ PSIG ___ % SMYS. BASED ON ___ . MAOP OF ___ PSIG AT ___ °F IS LIMITED BY ___ . MINIMUM TEST PRESSURE ___ PSIG. MAXIMUM TEST PRESSURE ___ PSIG. TEST LIMITED BY ___ . TEST PERIOD ___ HOURS. TEST MEDIUM ___ . SERVICE ___ . NONDESTRUCTIVE INSPECTION REQUIREMENTS ___ .

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DWG. NO.	REFERENCE
TD-7119-103C	RIPLEY WELL SITE 12598 - BASELINE & PAD CROSS SECTION
TD-7119-103D	RIPLEY WELL SITE 12598 - ACCESS ROAD PROFILE & SECTION

PROJECT DELIVERY
PROJECT ENGINEERING
P.O. BOX 1273 CHARLESTON, WV 25325-1273
1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

Columbia Gas Transmission

TITLE: RIPLEY WELL SITE 12598 — LAYOUT & GRADING PLAN

DRAWN BY: MM DATE: 09/01
PROJECT NUMBER: 22890
W.O. NUMBER: 47110
DRAWING NUMBER: TD-7119-103A ISSUE: B

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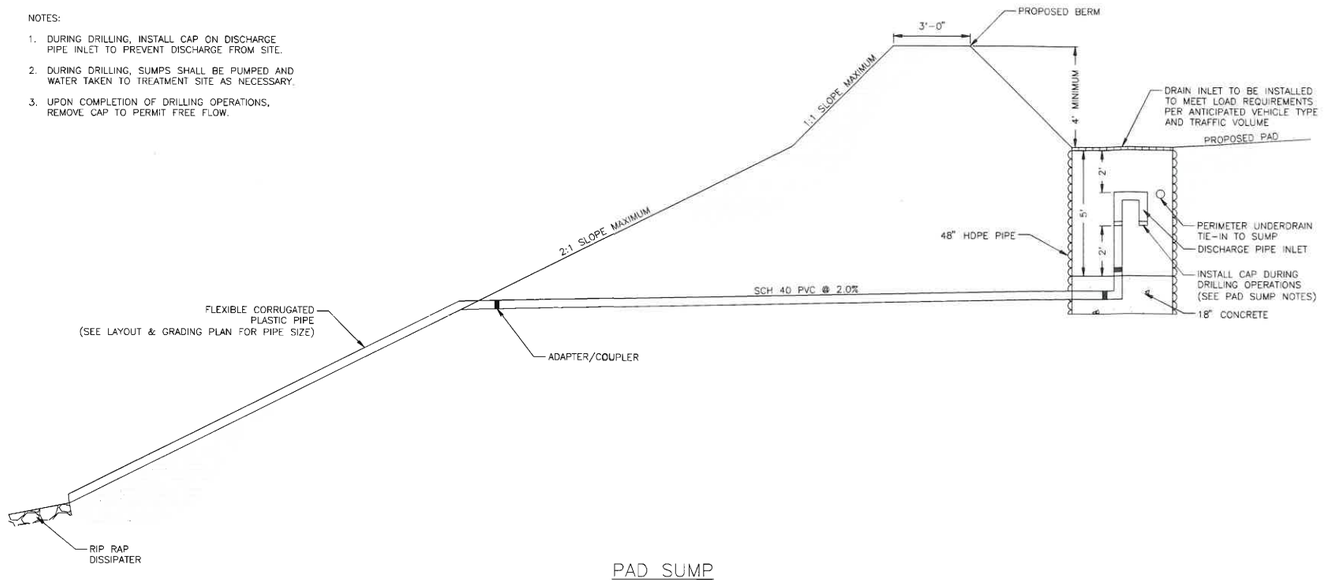
DRAWING NUMBER	ISSUE
D7119-TYP-3	B

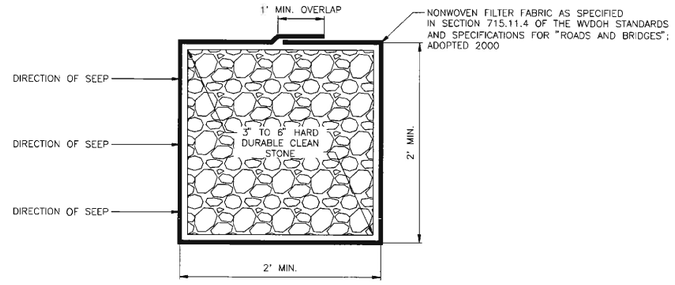
03/03/2017

NOTES:

1. DURING DRILLING, INSTALL CAP ON DISCHARGE PIPE INLET TO PREVENT DISCHARGE FROM SITE.
2. DURING DRILLING, SUMPS SHALL BE PUMPED AND WATER TAKEN TO TREATMENT SITE AS NECESSARY.
3. UPON COMPLETION OF DRILLING OPERATIONS, REMOVE CAP TO PERMIT FREE FLOW.



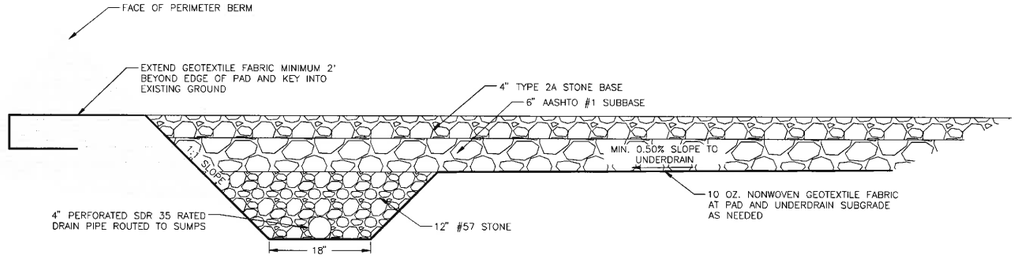
PAD SUMP
NOT TO SCALE



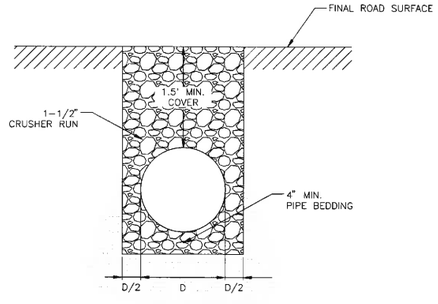
NOTES:

1. FILTER FABRIC TO BE OVERLAPPED 1' MINIMUM AT ALL JOINTS.
2. SLOPE DRAIN AT 5% MINIMUM TO DRAIN AND DAYLIGHT TO FACE OF EMBANKMENTS. LARGE SEEPS MAY REQUIRE PIPING TO BE PROPERLY CONVEYED TO THE TOE AREA AS DIRECTED.

TYPICAL FILL EMBANKMENT UNDERDRAIN
NOT TO SCALE



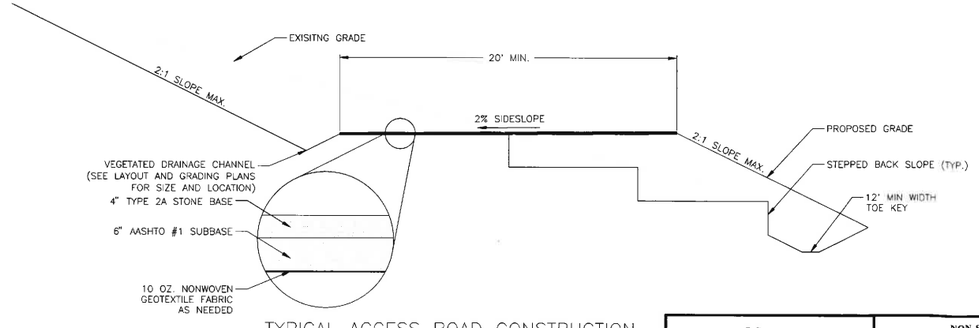
PAD PERIMETER UNDERDRAIN
NOT TO SCALE



NOTES:

ALL CULVERTS SHALL BE INSTALLED @ 2% MINIMUM SLOPE.

TYPICAL ACCESS ROAD CROSSING
NOT TO SCALE



TYPICAL ACCESS ROAD CONSTRUCTION
NOT TO SCALE

BID SET
ISSUED 11/29/2016

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NO.	REVISIONS	BY	DATE APPROVED	DATE

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6	RE-ISSUED FOR BID	MM	11/29/2016	
		MM	11/29/2016	
		MM	11/29/2016	

DESIGN PRESSURE ___ PSIG AT ___ % (___ DESIGN FACTOR). MAXIMUM HOOP STRESS LEVEL AT ___ PSIG ___ % SMYS. BASED ON .
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PROJECT ENGINEERING
P.O. BOX 1273 CHARLESTON, WV 25325-1273
1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

Columbia Gas Transmission

RIPLEY WELL 12598

TITLE
TYPICALS

DRAWN BY	MM	DATE	09/01	DRAWING NUMBER	ISSUE
PROJECT NUMBER	22890			D7119-TYP-3	B
W.O. NUMBER	47110				

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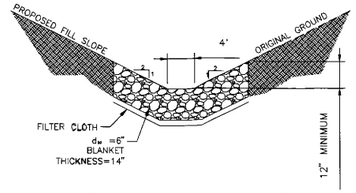
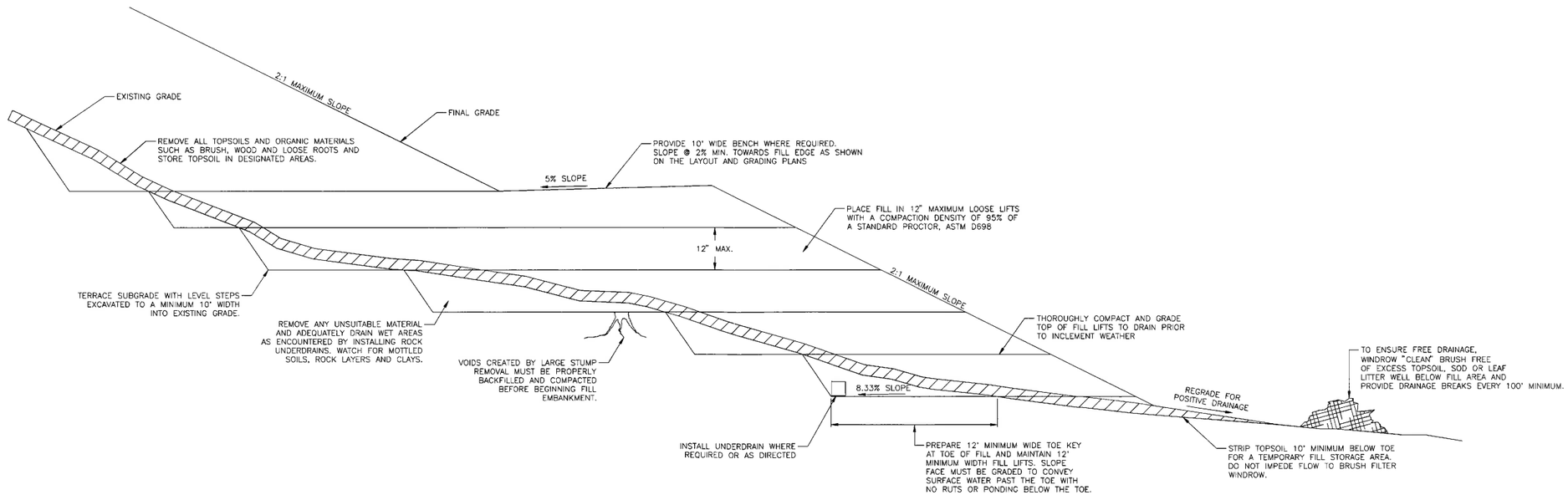
DRAWING NUMBER	ISSUE
D7119-TYP-4	B



RIPRAP GROIN CHANNEL
NOT TO SCALE

NOTES:

1. EXCAVATED TOE KEY BASE MUST BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO BEGINNING FILL PLACEMENT.



FILL PLACEMENT
NOT TO SCALE

BID SET
ISSUED: 11/29/2016

NO.	REVISIONS	BY	DATE
		APPROVED	DATE
8	RE-ISSUED FOR BID	MM	11/29/2016
		MM	11/29/2016
		MM	11/29/2016

MOTT MACDONALD

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DESIGN PRESSURE ___ PSIG AT ___ °F (___ DESIGN FACTOR). MAXIMUM HOOP STRESS LEVEL AT ___ PSIG ___ % SMYS. BASED ON _____.
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_____ _____
DESIGN ENGINEER DATE

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Columbia Gas Transmission

RIPLEY WELL 12598

TITLE
TYPICALS

DRAWN BY	MM	DATE	09/01
PROJECT NUMBER:	22890		
W.O. NUMBER:	47110		

DRAWING NUMBER: D7119-TYP-4
ISSUE: B

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ISSUE	DRAWING NUMBER
B	D-7119-NOT

GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING STATE ONE-CALL UTILITY LOCATING SERVICE. IN WEST VIRGINIA CALL 811 TO CONTACT WEST VIRGINIA UTILITY PROTECTION SERVICES (OUPS).
2. CONTRACTOR SHALL PERFORM ALL WORK IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL LAWS & REGULATIONS AS DEFINED BY THE CONTRACT DOCUMENTS, SPECIFICATIONS, DRAWINGS, ENVIRONMENTAL PLANS, AND PERMIT STIPULATIONS.
3. WELDING, GRINDING, AND BEVELING TO BE DONE IN ACCORDANCE WITH COLUMBIA PIPELINE GROUP'S GENERAL WELDING SPECIFICATIONS.
4. TIE IN PIPING IS TO BE INTERNALLY TAPERED IN ACCORDANCE WITH COLUMBIA PIPELINE GROUP'S WELDING SPECIFICATIONS.
5. GALVANIZED STEEL PIPE CLAMPS SHALL COME WITH A 1/8" THICK VIBALON LINER ATTACHED TO THE PIPE CLAMP. THE SHIM BLOCKS MAY BE OF THE EPOXY TYPE OR THE GALVANIZED STEEL TYPE WITH A 1/8" PVC LINER. ALTERNATIVES TO GALVANIZED STEEL PIPE CLAMPS ARE CABLES OR U-BOLTS. A VIBALON SHEATH MAY BE ORDERED FOR EITHER THE CABLES OR U-BOLTS AS REQUIRED.
6. ALL WELDING ON PRESSURIZED PIPING TO REMAIN IN SERVICE SHALL BE PERFORMED BY WELDERS QUALIFIED AND TESTED THRU CPG AND API 1104.
7. EXISTING UNDERGROUND UTILITIES LOCATIONS SHOWN ON DRAWINGS ARE APPROXIMATE AND BASED ON FIELD LOCATES, RECORDS, DOCUMENTS, AND OPERATING PERSONNEL. CONTRACTOR MUST FOLLOW ALL CPG AND STATE REGULATIONS REGARDING UTILITY LOCATES.
8. THE EXISTING ADJACENT PIPELINE SHALL BE ENERGIZED DURING CONSTRUCTION. EXTREME CAUTION SHALL BE REQUIRED AT ALL TIMES DURING CONSTRUCTION ON OR ALONG THE EXISTING COLUMBIA PIPELINES. A MINIMUM OF 2 FEET OF SOIL,TIMBER MATTING OR OTHER CPG APPROVED COVER SHALL BE PLACE OVER ENERGIZED PIPELINES TO ALLOW EQUIPMENT TO CROSS, TRAVERSE ALONG OR OTHERWISE WORK OVER THE LOADED LINES.
9. FOREIGN PIPELINES ENCOUNTERED DURING THE ABANDONMENT PROCESS WILL BE CROSSED USING THE OWNER'S PRE-APPROVED CROSSING METHODS.
10. CONTRACTOR SHALL CONFINE EQUIPMENT AND WORK ACTIVITY WITHIN THE PIPELINE RIGHT-OF-WAY AND ANY DESIGNATED WORK AREAS.
11. EROSION CONTROL DEVICES SHALL MEET APPLICABLE STATE, FEDERAL, AND COLUMBIA STANDARDS. THESE DEVICES SHALL BE INSTALLED AND MAINTAINED USING GOOD ENVIRONMENTAL PRACTICES AND IN ACCORDANCE WITH APPLICABLE PERMITS.
12. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL WHEREVER CONSTRUCTION ACTIVITIES INTERFACE WITH PUBLIC ROADWAYS, ENSURING PUBLIC SAFETY IN THE FORM OF PERSONNEL BARRIERS AND FENCES, WARNING SIGNS, FLASHING LIGHTS, FLAG-PERSONS, ETC. ALL CONSTRUCTION AND DETOUR SIGNING SHALL BE IN STRICT ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD)
13. AREAS DISTURBED DURING CONSTRUCTION OUTSIDE OF PROPOSED FENCE, SHALL BE RESTORED TO ORIGINAL CONDITION. REFER TO CGT STANDARDS FOR SEEDING REQUIREMENTS.
14. ALL PIPELINE ABANDONMENT PROCESESS WILL FOLLOW CPG SPECIFICATION 220.01.01-PIPE REMOVAL AND ABANDONMENT IN PLACE.

	GENERAL CONSTRUCTION NOTES
1	CLEAR ALL WOODY AND ORGANIC MATERIAL AND TREES FROM THE SITE BEFORE BEGINNING CUTS/FILLS.
2	ALL TREES 10 INCHES DBH AND LARGER ARE TO BE CUT INTO POLE LENGTHS (12' TO 14') AND STACKED.
3	STOCKPILE THE TOPSOIL IN DESIGNATED LOCATIONS.
4	NO FILL IS TO BE PLACED ON FROZEN MATERIAL.
5	FILL MATERIAL SHALL BE CLEAN SOIL AND BE PLACED IN LIFTS OR LAYERS IN ACCORDANCE WITH DETAILS IN THIS PLAN.
6	PROPER COMPACTION SHALL BE ACCOMPLISHED BEFORE BEGINNING THE NEXT FILL LIFT.
7	NO FILLS ARE TO BE PLACED AT GREATER THAN A 2:1 SLOPE.
8	ROCK LIFTS OR ROCK DIMENSIONS SHALL NOT EXCEED 36 INCHES.
9	ENSURE THAT EMBANKMENT MATERIALS EXHIBIT ADEQUATE SOIL STRENGTH AND PROPER MOISTURE CONTENT.
10	DURING OR AFTER ANY RAIN EVENT PAD SUMPS SHALL BE INSPECTED FOR ANY CONTAMINANTS OR SHEEN ON THE WATER SURFACE PRIOR TO RELEASING PAD RUNOFF. IF CONTAMINANTS OR SHEEN ARE OBSERVED, FOLLOW APPROVED PROCEDURES IN THE WELLSITE SAFETY PLAN.

	SEQUENCE OF CONSTRUCTION
1	MAKE ALL AGENCY NOTIFICATIONS ACCORDING TO PERMIT REQUIREMENTS.
2	SURVEY AND STAKE CONTROL CENTERLINES AND WORK AREA LIMITS.
3	HOLD PRE-CONSTRUCTION CONFERENCE WITH ENVIRONMENTAL INSPECTORS. CONTRACTOR TO PROVIDE PROPOSED SEQUENCE OF EARTH DISTURBANCE WITH TIMELINES BY STATIONING.
4	PERFORM TREE CLEARING AND INSTALL BMPS AS NEEDED TO CONTROL INITIAL DISTRUBANCES.
5	INSTALL CONSTRUCTION ENTRANCES.
6	CLEAR AND GRUB FOR INSTALLATION OF PERIMETER CONTROLS.
7	INSTALL PERIMETER CONTROLS (SILT FENCE, COMPOST FILTER SOCK, OUTLET STRUCTURES, ETC.).
8	COMPLETE SITE CLEARING AND GRUBBING.
9	STRIP TOPSOIL FROM DESIGNATED AREAS.
10	GRADE SITE TO CIVIL DESIGN PLANS.
11	AFTER PIPELINE IS INSTALLED, GRADE SITE TO FINAL RESTORATION CONTOURS.
12	COMPLETE FINAL STABILIZATION BY PERFORMING SEEDBED PREPARATIONS, TOPSOIL APPLICATION, SOIL AMENDMENT APPLICATIONS, SEEDING AND MULCHING.
13	AFTER SITE IS PERMANENTLY STABILIZED AND UPON FINAL INSPECTION AND COMPANY APPROVAL, REMOVE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AND THEN STABILIZE AREAS DISTURBED BY REMOVAL.
NOTE	ON COMPLETION OR TEMPORARY CESSATION OF EARTH DISTURBANCE ACTIVITY OR AT ANY STAGE OR PHASE WHERE CESSATION OF EARTH DISTURBANCE WILL EXCEED SEVEN DAYS, IMMEDIATELY SEED AND MULCH OR OTHERWISE PROTECT THE SITE FROM ACCELERATED EROSION AND SEDIMENTATION.

	STANDARD GRADING NOTES
A	APPLICABLE CODES AND STANDARDS:
1	ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS (AASHTO)
2	AMERICAN CONCRETE INSTITUTE – "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", (ACI-318-02).
B	MATERIALS
1	AASHTO #57 STONE
2	GEOTEXTILE FABRIC, WEED BARRIER, TYPE AR 3201 OR APPROVED EQUAL (IF APPLICABLE TO BE DETERMINED BY ENGINEER)
C	INSTALLATION
1	EXCAVATE TO PROPER ELEVATION AND GRADE.
2	AFTER SUBGRADE GRADING HAS BEEN COMPLETED A GEOTEXTILE FABRIC FOR WEEK CONTROL SHALL BE INSTALLED.
3	AFTER THE INSTALLATION OF THE GEOTEXTILE HAS BEEN COMPLETED, BACKFILL AND COMPACT STONE IN SIX-INCH LIFTS.

	STANDARD CONCRETE NOTES
1	CONCRETE AND REBAR SPECIFICATIONS PER COLUMBIA SPECIFICATION CON-101.
2	ALL CONCRETE SHALL BE PROTECTED BY ONE OR MORE CURING MATERIALS, POLYETHYLENE SHEETING WILL BE PERMITTED AS CURING ONLY ON AREAS WHERE INTIMATE CONTACT WITH THE CONCRETE SURFACE CAN BE OBTAINED AND MAINTAINED FOR AT LEAST SEVEN DAYS. MEMBRANE FORMING CURING COMPOUND MAY BE USED IF IMMEDIATELY APPLIED AFTER ACCEPTANCE OF THE CONCRETE FINISH.
3	ALL FOUNDATIONS SHALL BE PLACED ON FIRM UNDISTURBED SOIL FREE OF FROST AND NOT FROZEN, BOULDERS, SOFT SPOTS, EXCESSIVE WATER AND ORGANIC MATERIALS. IF UNSUITABLE CONDITIONS ARE ENCOUNTERED, NOTIFY THE COLUMBIA PIPELINE GROUP ENGINEER BEFORE PROCEEDING.
4	ALL EXPOSED CONCRETE SURFACES SHALL BE A FLOAT FINISH AND STEEL TROWELED TO PRODUCE A SMOOTH, UNIFORM SURFACE. UPON REMOVAL OF FORMS ALL FINS AND IRREGULAR PROJECTIONS SHALL BE REMOVED. CAVITIES PRODUCED BY FORM TIES AND OTHER HOLES, HONEYCOMB SPOTS, BROKEN CORNERS OR EDGES AND OTHER DEFECTS SHALL BE REPAIRED AND THEN RUBBED.
5	ALL CORROSION CONTROL WORK TO BE PERFORMED PER THE REFERENCED PROCEDURE / SPECIFICATION.

	STANDARD GRATING NOTES
1	GRATING SHALL HAVE 3/16" BEARING BARS MATCHING THE DEPTH SHOWN ON THE PLANS WITH CROSS BARS @ 4" O.C.
2	SUPPORT GRATING WITH SADDLE CLIPS AT 24" O.C. PROVIDE MIN (2) CLIPS AT THE ENDS OF EACH PANEL
3	ALL OPENINGS LARGERS THAT 4" SHALL BE BANDED
4	GRATING SHALL MEET THE FOLLOWING CRITERIA:
	-UNIFORM LIVE LOAD 60 PSF
	-CONCENTRATED LIVE LOAD 300 LB (OVER 1 SQ. FT.)
	-MAXIMUM DEFLECTION 3/8"

MATERIAL SUMMARY - WELL PAD 12598

ITEM	QUANTITY	UNIT	DESCRIPTION
CE	1	EACH	CONSTRUCTION ENTRANCE
SF	1,600.00	LINEAR FEET (LF)	SILT FENCE/ SOCK
ECB	5,333.00	SQUARE YARD (SY)	EROSION CONTROL BLANKET

TABLE 2A – PERMANENT SEED MIX FOR UPLAND ROW AND WATERBODY CROSSINGS

TYPE	RATE (lbs/ACRE)
SEED[1]	
ORCHARD GRASS AND/OR TALL FESCUE[2]	29
BIRDSFOOT TREFOIL (EMPIRE)[3]	9
ANNUAL RYE	12
FERTILIZER	
10-10-10 (OR EQUIVALENT)	600[4]
MULCH	
HAY OR STRAW	4,000
AGRICULTURAL LIME	4,000

[1] PURE LIVE SEED WITHIN 12 MONTHS OF TESTING

[2] IF TALL FESCUE IS USED, PLANT ENDOPHYTE-FREE CERTIFIED SEED

[3] LEGUMES TO BE INOCULATED BY MANUFATURER'S RECOMMENDATIONS, IF NOT AVAILABLE LEGUMES ARE TO BE INOCULATED AT 4 TIMES RECOMMENDED RATE FOR CONVENTIONAL METHODS AND 10 TIMES RECOMMENDED RATE FOR HYDRO SEEDING

[4] WHERE WOOD CHIPS ARE SPREAD, ADDITIONAL NITROGEN (12 TO 15 lbs/TON OF CHIPS) WILL BE SPREAD

[5] SEED RATE MUST BE DOUBLED FOR BROADCAST SEEDING.

TABLE 2B – SEED MIX FOR TEMPORARY STABILIZATION

TYPE	RATE (lbs/ACRE)
SEED	
ANNUAL RYE	40
MULCH	
HAY OR STRAW	6,000

TABLE 2C – SEED MIX REQUIREMENTS IN WETLANDS

TYPE	RATE (lbs/ACRE)
SEED[1]	
ANNUAL RYE	40

[1] ANNUAL RYE IS USED AS TEMPORARY RE-VEGETATIVE MEASURE UNTIL INDIGENOUS PLANTS RE-ESTABLISH COVER. A MONITORING PROGRAM WILL BE IN EFFECT TO INSURE ADEQUATE COVER IS ESTABLISHED.

Columbia Pipeline Group — TABLES PROJECT SEED MIXES

BID SET ISSUED: 11/29/2016

MOTT MACDONALD — NON-SCALED

NO.	REVISIONS	BY	DATE
B	RE-ISSUED FOR BID	MM	11/29/2016
		MM	11/29/2016
		MM	11/29/2016

DESIGN PRESSURE ___ PSIG AT ___ °F (___DESIGN FACTOR). MAXIMUM HOOP STRESS LEVEL AT ___ PSIG ___ % SMYS. BASED ON ___. MAOP OF ___ PSIG AT ___ °F IS LIMITED BY ___. MINIMUM TEST PRESSURE ___ PSIG. MAXIMUM TEST PRESSURE ___ PSIG. TEST LIMITED BY ___. TEST PERIOD ___ HOURS. TEST MEDIUM ___. SERVICE ___. NONDESTRUCTIVE INSPECTION REQUIREMENTS ___.

CERTIFICATE
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DWG NO. — REFERENCE

PROJECT DELIVERY
PROJECT ENGINEERING
P.O. BOX 1273 CHARLESTON, WV 25325-1273
1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

Columbia Gas Transmission

RIPLEY WELL SITE 12598

TITLE: GENERAL NOTES

DRAWN BY	MM	DATE	09/01
PROJECT NUMBER:	22890	DRAWING NUMBER	D-7119-NOT
W.O. NUMBER:	47110	ISSUE	B

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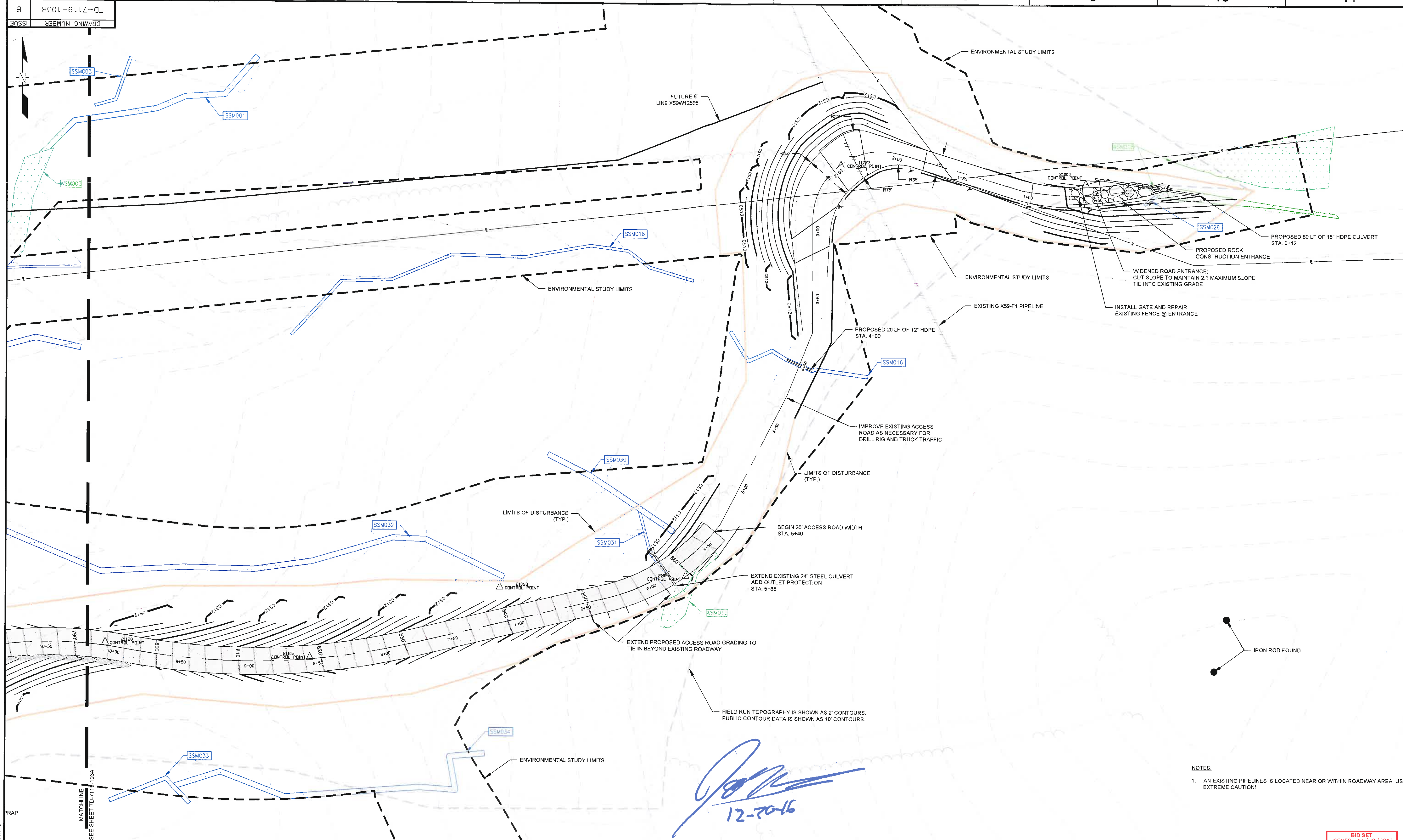

NOTES:

1. AN EXISTING PIPELINES IS LOCATED NEAR OR WITHIN ROADWAY AREA. USE EXTREME CAUTION!

BID SET
ISSUED: 11/29/2016

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NO.	REVISIONS	BY / APPROVED	DATE
B	RE-ISSUED FOR BID	MM	11/29/2016

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SCALE: 1" = 30'-0"

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CERTIFICATE
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DESIGN ENGINEER — DATE

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DWG. NO.	REFERENCE
TD-7119-103D	RIPLEY WELL SITE 12598 - ACCESS ROAD PROFILE & SECTION

PROJECT DELIVERY
PROJECT ENGINEERING
P.O. BOX 1273 CHARLESTON, WV 25325-1273
1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

Columbia Gas Transmission

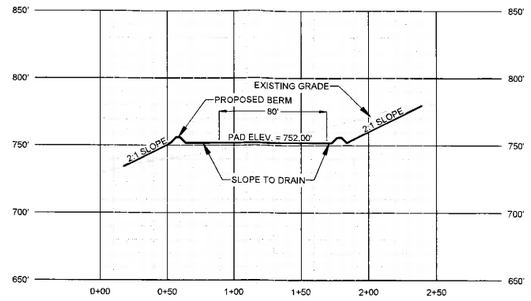
RIPLEY WELL SITE 12598

TITLE: LAYOUT & GRADING PLAN

DRAWN BY	MM	DATE	09/01
PROJECT NUMBER:	22890		
W.O. NUMBER:	47110		

DRAWING NUMBER: TD-7119-103B ISSUE: B

DRAWING NUMBER	ISSUE
TD-7119-103C	B



12598 PAD CROSS SECTION B-B'

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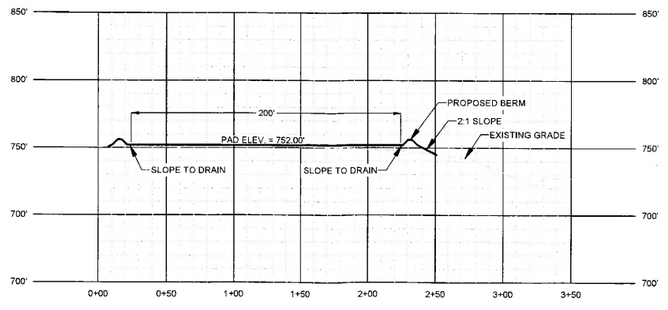
VERTICAL SCALE: 1" = 50'



12598 PAD CROSS SECTION A-A'

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 50'

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NO.	REVISIONS	BY	DATE
		APPROVED	DATE

NO.	REVISIONS	BY	DATE
		APPROVED	DATE

NO.	REVISIONS	BY	DATE
B	RE-ISSUED FOR BID	MM	11/29/2016
		MM	11/29/2016
		MM	11/29/2016
		BY	DATE
		APPROVED	DATE

MOTT MACDONALD

AS NOTED

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DESIGN PRESSURE ___ PSIG AT ___ °F (___ DESIGN FACTOR), MAXIMUM HOOP STRESS LEVEL AT ___ PSIG ___ % SMYS, BASED ON _____.
MAOP OF ___ PSIG AT ___ °F IS LIMITED BY _____.
MINIMUM TEST PRESSURE ___ PSIG. MAXIMUM TEST PRESSURE ___ PSIG.
TEST LIMITED BY _____ TEST PERIOD ___ HOURS.
TEST MEDIUM _____ SERVICE _____.
NONDESTRUCTIVE INSPECTION REQUIREMENTS _____.

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_____ - _____
DESIGN ENGINEER DATE

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DWG. NO.	REFERENCE
TD-7119-103A	RIPLEY WELL SITE 12598 - LAYOUT & GRADING PLAN

BID SET
ISSUED: 11/29/2016

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PROJECT ENGINEERING
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1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

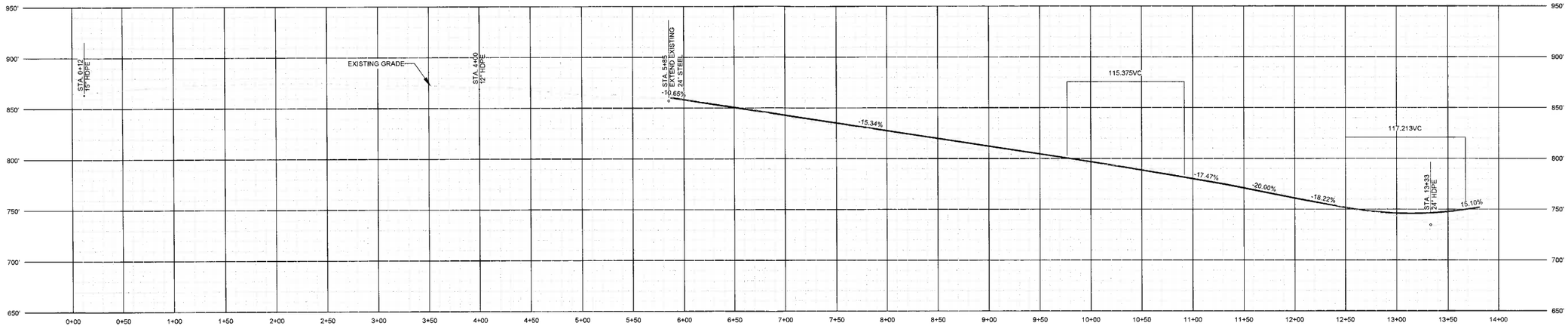
Columbia Gas Transmission

RIPLEY WELL SITE 12598

TITLE: BASELINE & PAD CROSS SECTIONS

DRAWN BY	DATE	DRAWING NUMBER	ISSUE
MM	09/01	TD-7119-103C	B
PROJECT NUMBER:	22890		
W.O. NUMBER:	47110		

ISSUE	DRAWING NUMBER
B	TD-7119-103D



12598 ACCESS ROAD CENTERLINE PROFILE

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 50'

BID SET
ISSUED: 11/29/2016

NO.	REVISIONS	BY	DATE
		APPROVED	DATE
B	RE-ISSUED FOR BID	MM	11/29/2016
		MM	11/29/2016
		MM	11/29/2016

MOTT MACDONALD

AS NOTED

DESIGN PRESSURE ___ PSIG AT ___ °F (___ DESIGN FACTOR); MAXIMUM HOOP STRESS LEVEL AT ___ PSIG, ___ % SMYS. BASED ON _____.
MAOP OF ___ PSIG AT ___ °F IS LIMITED BY _____.
MINIMUM TEST PRESSURE ___ PSIG. MAXIMUM TEST PRESSURE ___ PSIG.
TEST LIMITED BY _____ TEST PERIOD ___ HOURS.
TEST MEDIUM _____ SERVICE _____.
NONDESTRUCTIVE INSPECTION REQUIREMENTS

CERTIFICATE
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DESIGN ENGINEER DATE

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03/03/2017

DWG. NO.	REFERENCE
TD-7119-103A	RIPLEY WELL SITE 12598 - LAYOUT & GRADING PLAN
TD-7119-103B	RIPLEY WELL SITE 12598 - LAYOUT & GRADING PLAN

PROJECT DELIVERY
PROJECT ENGINEERING
P.O. BOX 1273 CHARLESTON, WV 25325-1273
1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

Columbia Gas Transmission

RIPLEY WELL SITE 12598

TITLE: ACCESS ROAD PROFILE

DRAWN BY	DATE	DRAWING NUMBER	ISSUE
MM	09/01	TD-7119-103D	B

PROJECT NUMBER: 22890
W.O. NUMBER: 47110

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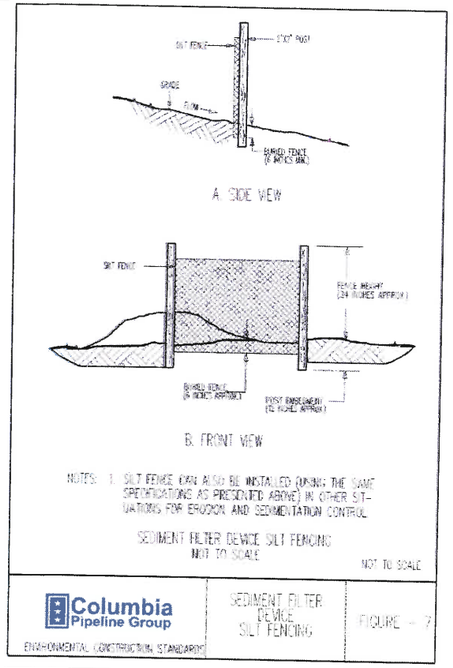
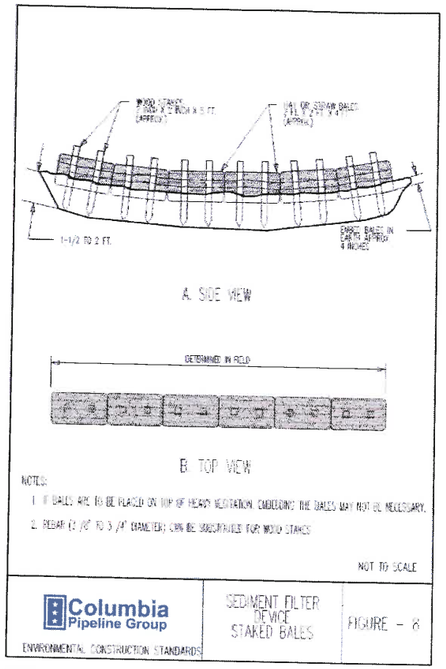


NOTES: 1. SILT FENCE CAN ALSO BE INSTALLED USING THE SAME SPECIFICATIONS AS PRESENTED ABOVE IN OTHER SITUATIONS FOR EROSION AND SEDIMENTATION CONTROL.

SEDIMENT FILTER DEVICE SILT FENCING
NOT TO SCALE

NOT TO SCALE

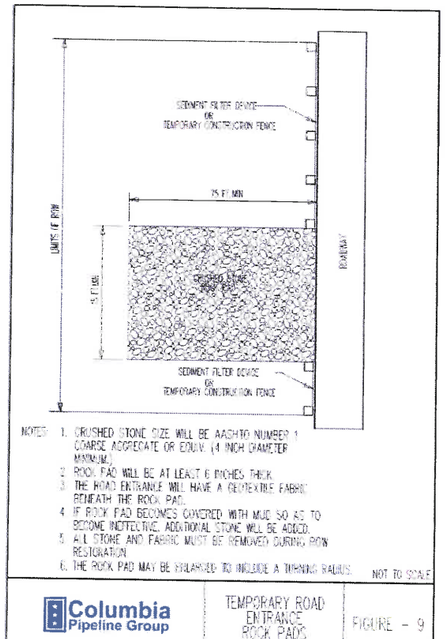
Columbia Pipeline Group — ENVIRONMENTAL CONSTRUCTION STANDARDS | SEDIMENT FILTER DEVICE SILT FENCING | FIGURE - 7



NOTES:
1. IF BALES ARE TO BE PLACED ON TOP OF HEAVY VEGETATION, CONSIDERING THE BALES MAY NOT BE NECESSARY.
2. REBAR (1/2" TO 3/4" DIAMETER) CAN BE SUBSTITUTED FOR WOOD STAKES.

NOT TO SCALE

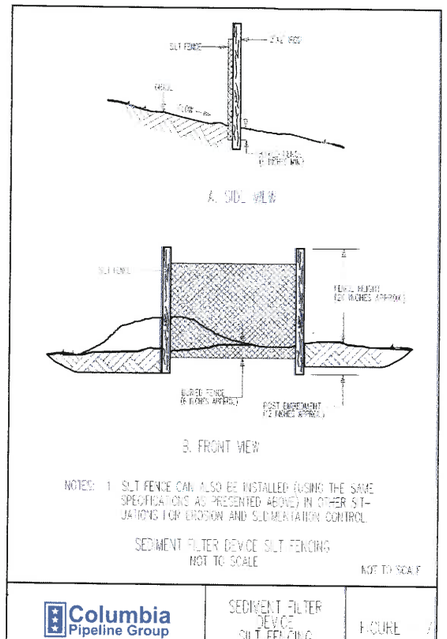
Columbia Pipeline Group — ENVIRONMENTAL CONSTRUCTION STANDARDS | SEDIMENT FILTER DEVICE STAKED BALES | FIGURE - 8



NOTES: 1. CRUSHED STONE SIZE WILL BE AASHTO NUMBER 1 COARSE AGGREGATE OR EQUIV. (4 INCH DIAMETER MAXIMUM.)
2. ROCK PAD WILL BE AT LEAST 6 INCHES THICK.
3. THE ROAD ENTRANCE WILL HAVE A GEOTEXTILE FABRIC BENEATH THE ROCK PAD.
4. IF ROCK PAD BECOMES COVERED WITH MUD SO AS TO BECOME INEFFECTIVE, ADDITIONAL STONE WILL BE ADDED.
5. ALL STONE AND FABRIC MUST BE REMOVED DURING ROW RESTORATION.
6. THE ROCK PAD MAY BE RELAXED TO INCLUDE A TURNING RADIUS.

NOT TO SCALE

Columbia Pipeline Group — ENVIRONMENTAL CONSTRUCTION STANDARDS | TEMPORARY ROAD ENTRANCE ROCK PADS | FIGURE - 9

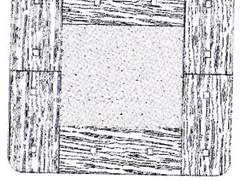


NOTES: 1. SILT FENCE CAN ALSO BE INSTALLED USING THE SAME SPECIFICATIONS AS PRESENTED ABOVE IN OTHER SITUATIONS FOR EROSION AND SEDIMENTATION CONTROL.

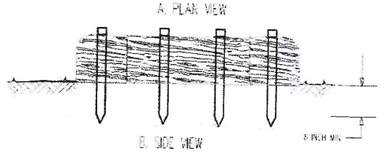
SEDIMENT FILTER DEVICE SILT FENCING
NOT TO SCALE

NOT TO SCALE

Columbia Pipeline Group — ENVIRONMENTAL CONSTRUCTION STANDARDS | SEDIMENT FILTER DEVICE SILT FENCING | FIGURE -



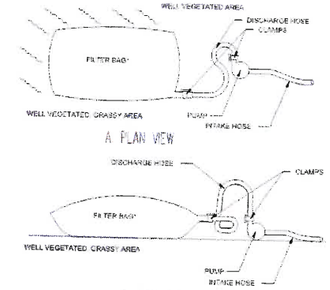
A. PLAN VIEW



NOTES: 1. INSTALL BALES AS SHOWN. IF ADDITIONAL STORAGE VOLUME IS NECESSARY, SECURE ADDITIONAL BALES ON TOP OF INITIAL BOTTOM LAYER AND/OR BY INCREASING THE NUMBER BALES IN BOTTOM LAYER.
2. SECURE EACH BALE IN EACH LAYER OF BALES USING EITHER TWO REBARS OR TWO WOODEN STAKES PER BALE.
3. PLACE A 5 TO 6 INCH DEEP LAYER OF 3/4 TO 1.0 INCH CLEAN STONE (AS GROUND COVER) INSIDE BALES AS AN ALTERNATIVE, LINE THE INSIDE OF TRAP WITH GEOTEXTILE FABRIC.
4. THE SEDIMENT TRAP WILL NOT BE GREATER THAN TWO BALES IN HEIGHT FOR SIX-BALE BOTTOM CONSTRUCTION WITHOUT ADDITIONAL REINFORCEMENT OF TRAP WALLS.

NOT TO SCALE

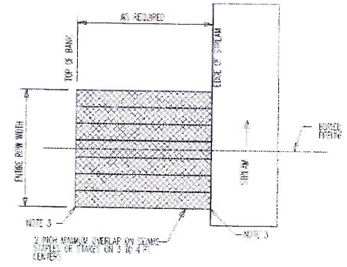
Columbia Pipeline Group — ENVIRONMENTAL CONSTRUCTION STANDARDS | SEDIMENT TRAP | FIGURE - 14A



NOTES:
1. FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS.
2. BAGS MUST BE PLACED WITHIN THE PERMITTED AREA IF ACCESSING THE BAG WITH MACHINERY IS REQUIRED FOR DISPOSAL PURPOSES. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED.
3. BAGS SHOULD BE LOCATED IN WELL-VEGETATED (GRASSY) AREAS, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE FLOW PATH CAN BE PROVIDED OR ALLOW DISCHARGE FROM BAG TO FLOW THROUGH A SERIES OF SEDIMENT LOGS ETC... BAGS CAN BE USED BEFORE SEDIMENT TRAPS (FIGURE 14A).
4. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%.
5. THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAG IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. DO NOT ALTER OR CUT BAGS.

NOT TO SCALE

Columbia Pipeline Group — ENVIRONMENTAL CONSTRUCTION STANDARDS | FILTER BAG (DIRT BAG) | FIGURE - 14D



NOTES: 1. INSTALL JUTE NETTING DURING RESTORATION.
2. LIME, FERTILIZE, SEED AND MULCH DISTURBED AREA PRIOR TO JUTE NETTING.
3. TRENCH IN AND BURY UPHILL AND UPSTREAM EDGE OF JUTE NETTING.
4. AN INTERCEPTOR DIVERSION WILL BE INSTALLED IMMEDIATELY ABOVE JUTE NETTING ON STEEP BANKS.
5. ON SHORT BANKS (LESS THAN 10') JUTE NETTING CAN BE PERPENDICULAR TO BANK SLOPE.
6. INSTALL ON STEEP SLOPES OR ON THE BANKS OF FLOWING STREAMS, OR IN UPLAND AREAS.

NOT TO SCALE

Columbia Pipeline Group — ENVIRONMENTAL CONSTRUCTION STANDARDS | EROSION CONTROL BLANKET | FIGURE - 16

BID SET
ISSUED: 11/29/2016

NO.	REVISIONS	BY	DATE
		APPROVED	

NO.	REVISIONS	BY	DATE
		APPROVED	

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NO.	REVISIONS	BY	DATE
B	RE-ISSUED FOR BID	MM	11/29/2016
		MM	11/29/2016
		MM	11/29/2016
		BY	DATE
		APPROVED	DATE

DESIGN PRESSURE ___ PSIG AT ___ °F (___ DESIGN FACTOR). MAXIMUM HOOP STRESS LEVEL AT ___ PSIG ___ % SMYS. BASED ON _____.
MAOP OF ___ PSIG AT ___ °F IS LIMITED BY _____.
MINIMUM TEST PRESSURE ___ PSIG. MAXIMUM TEST PRESSURE ___ PSIG.
TEST LIMITED BY _____ TEST PERIOD ___ HOURS.
TEST MEDIUM _____ SERVICE _____.
NONDESTRUCTIVE INSPECTION REQUIREMENTS _____.

CERTIFICATE
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DESIGN ENGINEER — DATE

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03/03/2017

DWG. NO. REFERENCE

PROJECT DELIVERY
PROJECT ENGINEERING
P.O. BOX 1273 CHARLESTON, WV 25325-1273
1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

Columbia Gas Transmission

RIPLEY WELL 12598

TITLE: TYPICALS

DRAWN BY	MM	DATE	09/01
PROJECT NUMBER	22890		
W.O. NUMBER	47110		

DRAWING NUMBER: D7119-TYP-1 | ISSUE: B

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ISSUE	DRAWING NUMBER
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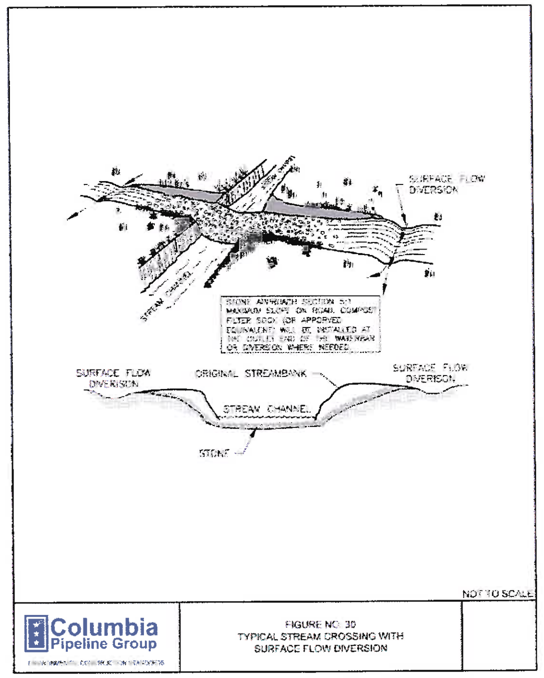

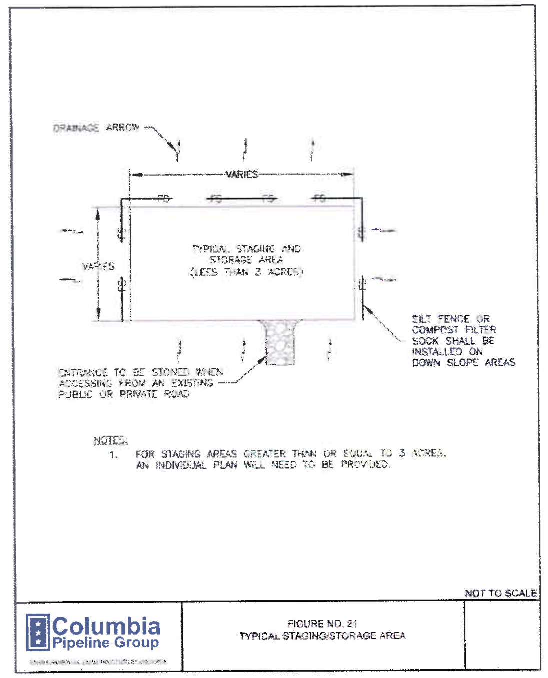

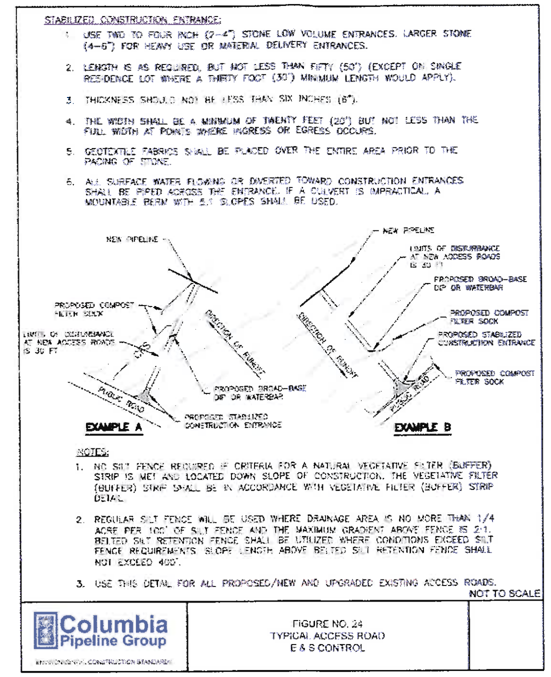

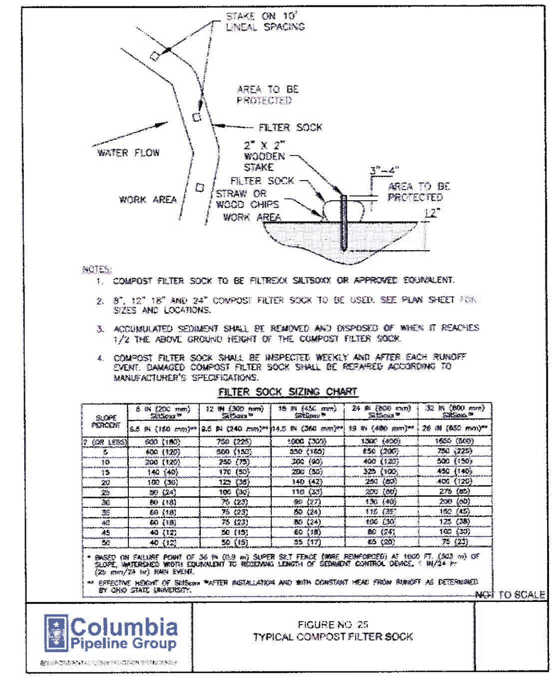

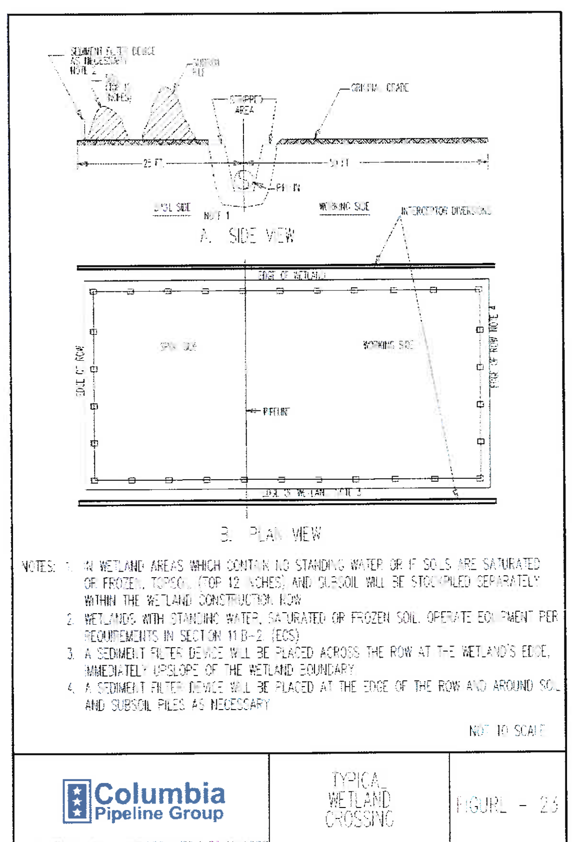

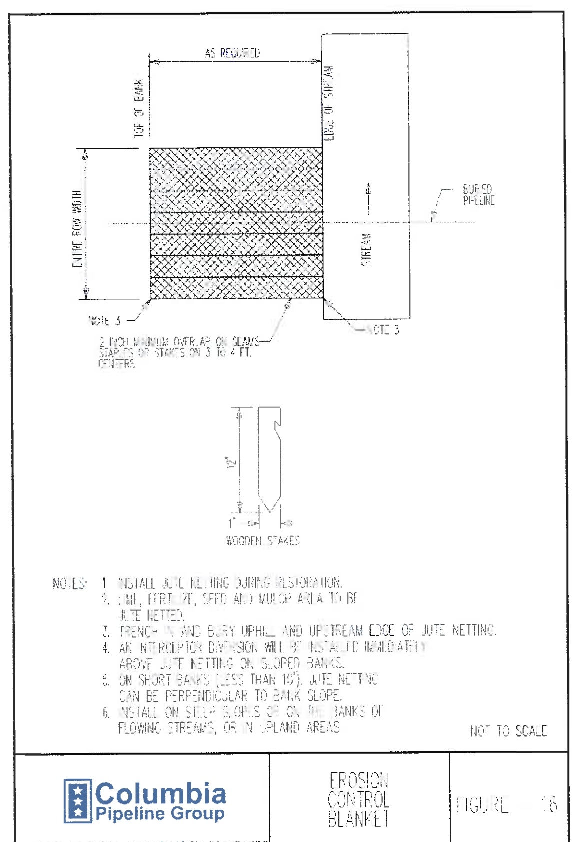

BID SET
ISSUED: 11/29/2016

MOTT MACDONALD

NON-SCALED

DESIGN PRESSURE ___ PSIG AT ___ °F (___ DESIGN FACTOR). MAXIMUM HOOP STRESS LEVEL AT ___ PSIG ___ % SMYS. BASED ON ___.
MAOP OF ___ PSIG AT ___ °F IS LIMITED BY ___.
MINIMUM TEST PRESSURE ___ PSIG. MAXIMUM TEST PRESSURE ___ PSIG.
TEST LIMITED BY ___. TEST PERIOD ___ HOURS.
TEST MEDIUM ___. SERVICE ___.
NONDESTRUCTIVE INSPECTION REQUIREMENTS ___.

CERTIFICATE
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DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

03/03/2017

NO.	REVISIONS	BY	APPROVED	DATE
B	RE-ISSUED FOR BID	MM	MM / MM	11/29/2016

DWG. NO.	REFERENCE

PROJECT DELIVERY
PROJECT ENGINEERING
P.O. BOX 1273 CHARLESTON, WV 25325-1273
1700 MACCORKLE AVENUE SE, CHARLESTON, WV 25314

Columbia Gas Transmission

RIPLEY WELL 12598

TITLE: TYPICALS

DRAWN BY	DATE	DRAWING NUMBER	ISSUE
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