

**Alternative Analysis Table  
Wetland Resources  
Luzerne County**

Wetland ID and Crossing Number <sup>1</sup>	State Wetland Classification <sup>2</sup>	Cowardin Classification <sup>3</sup>	Milepost <sup>4</sup>	Latitude	Longitude	Primary Pipeline Crossing Method <sup>5</sup>	Secondary Pipeline Crossing Method <sup>5</sup>	Tertiary Pipeline Crossing Method <sup>5</sup>	Geology Constraints	Topography Constraints	Insufficient Workspace to Stage Trenchless	Practicality	Other (See Justification)	Implementing Trenchless Technology	Routing to Minimize	Crossing at Narrowest Location	Co-Locating	Reducing LOD	Minimizing Construction Duration	Adhering to Construction Timing Windows	Implementing BMPs	Justification
050715_JC_1001_PSS	Exceptional (iii)	PSS1	0R1	41.346512	-75.944958	CL - Open Cut	-	Matted				X	X				X	X	X		X	Wet soil conditions will challenge effective dewatering activities. (Time to cross justifies open-cut). Existing route not conducive to other trenchless methods like HDD. Project is co-located with the Springville Gathering Pipeline ROW.
050715_JC_1001b_PEM	Exceptional (iii)	PEM1	0.1	41.345911	-75.943878	N/A - Workspace	-	Matted				X	X			X	X	X	X		X	Feature is not crossed by the centerline, Project is co-located with the Springville Gathering Pipeline ROW.
050715_JC_1001a_PEM	Exceptional (iii)	PEM1	0.1	41.346172	-75.944391	N/A - Workspace	-	Matted				X	X			X	X	X	X		X	Feature is not crossed by the centerline, Project is co-located with the Springville Gathering Pipeline ROW.
032818_WA_001_PFO	Exceptional (iii)	PFO4	1.4	41.341598	-75.922439	CL - Open Cut	-	Matted				X	X					X	X	X	X	Time to cross justifies open-cut, workspace reduced to 75'.
050416_DB_1001_PFO	Other	PFO1	2.1	41.337798	-75.910673	CL - Open Cut	-	Matted				X	X			X		X	X	X	X	Wetland is part of an intermittent stream. Time to cross justifies open-cut.
011815_JC_002_PFO	Exceptional (iii)	PFO1	3.1	41.325880	-75.899503	CL - Open Cut	-	Matted				X	X					X	X	X	X	Time to cross justifies open-cut. Steep topography would require bore pits deeper than 3 feet, and adjacent residence units limit the workspace required for other trenchless construction methods. Workspace reduced to 75' in stream and floodway. Stream can be crossed in less than 24 hours due to its width been less than 3'.
092314_GO_001_PSS	Other	PSS1	6	41.308190	-75.853972	CL - Open Cut	-	Matted				X	X			X		X	X		X	Alignment crossing the wetland at top/narrowest location. Time to cross justifies open-cut. Existing route not conducive to other trenchless methods like HDD.
110915_WA_003_PEM	Other	PEM1	6.6R2	41.304294	-75.844284	N/A - Workspace	-	Matted				X	X			X		X	X		X	Feature is not crossed by the centerline, workspace adjusted to minimize impacts to feature.
072219_MU_1000_PEM - 1	Other	PEM1	12.1R3	41.256207	-75.782337	CL - Open Cut	-	Matted				X	X				X		X	X	X	Project is co-located with an adjacent pipeline ROW. Workspace reduced to 75'. Length of feature infeasible for conventional trenchless technology. Alignment not conducive for HDD.
072219_MU_1000_PEM - 2	Other	PEM1	12.1R3	41.255463	-75.781777	CL - Open Cut	-	Matted				X	X				X		X	X	X	Project is co-located with an adjacent pipeline ROW. Workspace reduced to 75'. Length of feature infeasible for conventional trenchless technology. Alignment not conducive for HDD.
072219_MU_1000_PEM - 3	Other	PEM1	12.1R3	41.255126	-75.781507	CL - Open Cut	-	Matted				X	X				X		X	X	X	Project is co-located with an adjacent pipeline ROW. Workspace reduced to 75'. Length of feature infeasible for conventional trenchless technology. Alignment not conducive for HDD.
072219_MU_1001_PFO	Exceptional (iii)	PFO1	12.2R3	41.254714	-75.780757	N/A - Workspace	-	Matted				X	X				X		X		X	Feature is not crossed by the centerline, Project is co-located with an adjacent pipeline ROW. Workspace reduced to 75'.
072219_MU_1002_PEM	Other	PEM1	12.2R3	41.254615	-75.781	CL - Open Cut	-	Matted				X	X				X		X	X	X	Project is co-located with an adjacent pipeline ROW. Workspace reduced to 75'.
060618_WA_002_PEM	Other	PEM1	13.2	41.248682	-75.770947	CL - Open Cut	-	Matted				X	X					X	X		X	Additional workspace needed for I-476 road bore.
121814_JC_001_PEM	Other	PEM1	13.7	41.242790	-75.765697	N/A - Workspace	-	Matted	X			X	X			X	X	X	X		X	Feature is not crossed by the centerline, workspace adjusted to minimize impacts to feature, Project is co-located with existing ROW.

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111014_JC_002_PFO	Exceptional (iii)	PFO1	14.1	41.238804	-75.760698	N/A - Workspace	-	Matted				X	X			X	X	X	X	X	X	Feature is not crossed by the centerline, workspace adjusted to minimize impacts to feature, Project is co-located with existing ROW.
042417_GM_1001_PFO	Exceptional (iii)	PFO1	14.7	41.232205	-75.752559	CL - Open Cut	-	Matted	X			X	X			X	X	X	X	X	X	Steep slope and terrain issues make a bore unfeasible, Project is co-located with existing ROW.
043015_JC_1001_PFO	Exceptional (iii)	PFO1	15	41.229655	-75.749365	CL - Open Cut	-	Matted	X							X	X	X	X	X	X	Alignment crossing the wetland at top/narrowest location. Time to cross justifies open-cut.
043015_JC_1001_PEM - 1	Exceptional (iii)	PEM1	15	41.229800	-75.749688	N/A - Workspace	-	Matted	X			X					X	X	X		X	Feature is not crossed by centerline, steep side slope and terrain issues make a bore impractical, Project is co-located with existing ROW. Workspace reduced to 75' through riparian zone.
043015_JC_1001_PEM - 2	Exceptional (iii)	PEM1	15	41.229630	-75.749473	N/A - Workspace	-	Matted	X			X					X	X	X		X	Feature is not crossed by centerline, steep side slope and terrain issues make a bore impractical, Project is co-located with existing ROW. Workspace reduced to 75' through riparian zone.
112114_JC_003A_PSS - 2	Other	PSS1	16.2	41.217227	-75.733371	-	-	Matted	X			X	X				X	X	X		X	Time to cross justifies open-cut. Project is co-located with existing ROW. Workspace reduced to 75'. Steep slope southeast of crossing (17%) is impractical for trenchless crossing.
112114_JC_003B_PFO - 1	Other	PFO1	16	41.218772	-75.735831	CL - Open Cut	-	Matted	X			X	X				X	X	X	X	X	Time to cross justifies open-cut. Project is co-located with existing ROW. Workspace reduced to 75'. Steep slope northwest of crossing (40%) is impractical for trenchless crossing.
112114_JC_003B_PFO - 2	Other	PFO1	16.1	41.217366	-75.733870	N/A - Workspace	-	Matted	X			X	X				X	X	X	X	X	Time to cross justifies open-cut. Project is co-located with existing ROW. Workspace reduced to 75'. Steep slope northwest of crossing (40%) is impractical for trenchless crossing.
112114_JC_003B_PFO - 3	Other	PFO1	16.2	41.217306	-75.733786	N/A - Workspace	-	Matted	X			X	X				X	X	X	X	X	Time to cross justifies open-cut. Project is co-located with existing ROW. Workspace reduced to 75'. Steep slope northwest of crossing (40%) is impractical for trenchless crossing.
112114_JC_003B_PSS - 1	Other	PSS1	16.2	41.217361	-75.733585	N/A - Workspace	-	Matted	X			X	X			X	X	X	X	X	X	Time to cross justifies open-cut. Project is co-located with existing ROW. Workspace reduced to 75'. Steep slope northwest of crossing (40%) is impractical for trenchless crossing.
112114_JC_002_PSS	Other	PSS1	16.4	41.215455	-75.730569	CL - Open Cut	-	Matted	X								X	X	X		X	Steep slope and terrain issues make a bore unfeasible, workspace adjusted to minimize impacts to feature, Project is co-located with PPL Northeast Reliability ROW. Workspace reduced to 75' in stream and floodway. Steep topography on the north side of crossing (15%) presents challenges to trenchless construction methods (HDD, Direct Pipe & Microtunnel). Due to the elevation change, deep boring pits would be required (over 35 feet deep).
112114_JC_002_PEM	Other	PEM1	16.4	41.215373	-75.730334	N/A - Workspace	-	Matted	X				X			X	X	X	X		X	Workspace reduced to 75' in stream and floodway.

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112014_JC_002_PFO	Other	PFO4	16.8	41.211214	-75.723831	CL - Open Cut	-	Matted				X	X				X	X	X	X	X	Timing to cross justifies open-cut, Project is co-located with PPL Northeast Reliability ROW. Workspace reduced to 75'.
112014_JC_002_PEM	Other	PEM1	16.8	41.210961	-75.723339	N/A - Workspace	-	Matted				X	X				X	X	X		X	Feature is not crossed by centerline, Project is co-located with PPL Northeast Reliability ROW.
112014_JC_001_PFO	Exceptional (iii, iv)	PFO1	17.7	41.202828	-75.711320	CL - Open Cut	-	Matted				X	X				X	X	X	X	X	Timing to cross justifies open-cut, Project is co-located with PPL Northeast Reliability ROW. Workspace reduced to 75' in stream, floodway, and abutting wetlands. Stream can be crossed in less than 24 hours. Proximity to Meadow Run Road and residences limits workspace availability for trenchless construction methods.
112014_JC_001_PEM	Exceptional (iii)	PEM1	17.8	41.202849	-75.711255	N/A - Workspace	-	Matted				X	X		X	X	X	X	X		X	Feature is not crossed by centerline, Project is co-located with PPL Northeast Reliability ROW.
121614_JC_001_PEM	Exceptional (iii)	PEM1	19.7	41.178122	-75.696743	N/A - Workspace	-	Matted			X		X		X	X	X	X	X		X	Feature is not crossed by the centerline, Limited workspace and constructability concerns with the SR 115 bore make trenchless technology unfeasible, Route shifted to minimize impacts to feature.
121614_JC_001_PFO - 1	Exceptional (iii)	PFO4	19.6	41.179513	-75.696593	CL - Open Cut	-	Matted			X		X		X	X	X	X	X	X	X	Limited workspace and constructability concerns with the SR 115 bore make trenchless technology unfeasible, route was shifted to minimize impacts to feature, Project is co-located with existing ROW.
121614_JC_001_PFO - 2	Exceptional (iii)	PFO4	19.7	41.178672	-75.696555	CL - Open Cut	-	Matted			X		X		X	X	X	X	X	X	X	Limited workspace and constructability concerns with the SR 115 bore make trenchless technology unfeasible, route was shifted to minimize impacts to feature, Project is co-located with existing ROW.
102115_WA_003_PFO	Other	PFO1	22.7	41.135683	-75.689330	N/A - Workspace	-	Matted				X	X		X	X	X	X	X	X	X	Feature is not crossed by centerline, workspace adjusted to minimize impacts, Project is co-located with existing ROW.

**Notes:**

1. In instances where a wetland is crossed by the proposed pipeline or workspace multiple times, crossing numbers (e.g. "-1", "-2") have been added to the Wetland ID.

2. Resource Value Definitions: Pennsylvania Exceptional Value Wetland as defined by PA Code §105.17 (relating to special criteria for projects affecting important wetlands). Criteria are:

(ix) Serves as habitat for fauna or flora listed as "threatened" or "endangered"

(x) Is hydrologically connected to or located within a 1/2-mile from habitat for fauna or flora listed as "threatened" or "endangered" and wetland dependent;

(xi) Located in or along the floodplain of the reach or tributaries of a wild trout stream or waters listed as exceptional value;

(xii) Located along an existing public or private drinking water supply.

3. Wetland Cover Type based on Cowardin, 1979

Key: PEM1 = palustrine emergent, persistent; PEM2 = palustrine emergent, non-persistent; PFO1 = palustrine forested, broad-leaved deciduous; PFO4 = palustrine forested, needle-leaved evergreen; PSS1 = palustrine scrub-shrub, broad-leaved deciduous; PSS3 = palustrine scrub-shrub, broad-leaved evergreen.

4. All route deviations implemented after the FERC Certificate Application are denoted with an "R" and indicate a MP equation. MPs with an "R1" indicate route deviations implemented and provided to FERC prior to the issuance of the DEIS. MPs with an "R2" indicate route deviations implemented as part of the September 2016 Route Update. MPs with an "R3" indicate route deviations implemented post-FERC Certificate issuance. All MPs without an "R" indicate that the route has not changed since the Certificate Application.

5. Crossing Type Key for Wetlands:

- CL-Bore = Pipeline centerline crosses under wetland. Construction method is bore.
- CL-HDD = Pipeline centerline crosses under wetland. Construction method is HDD.
- CL-Open Cut = Pipeline centerline impacts wetland. Construction method is open cut.
- Matted = Wetland will be matted for temporary equipment crossing.
- N/A = Not affected by pipeline construction.
- N/A-Workspace = Pipeline trench does not impact wetland.
- "-" = No alternative construction method is proposed.