SUNOCO PIPELINE L.P.

Pennsylvania Pipeline Project

Wetland Functions and Values Assessment

-Cumberland County

Joint Permit Application for a

Pennsylvania Water Obstruction & Encroachment Permit and a U.S. Army Corps of Engineers Section 404 Permit Application

Revised October 2016

TETRA TECH

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WETLAND FUNCTIONS AND VALUES ASSESSMENT

1.0 INTRODUCTION

Sunoco Pipeline's, L.P. (SPLP) is seeking Pennsylvania Department of Environmental Protection (PADEP) Chapter 105 Water Obstruction and Encroachment and U.S. Army Corps of Engineers (USACE) Section 404 permits to allow temporary impacts to aquatic resources associated with the installation and operation of the Pennsylvania Pipeline Project (Project). To support the Cumberland County Joint Application, and in accordance with *25 Pa Code §105.13(e)(3),* a wetland functions and values assessment is required and has been prepared for the proposed wetland impacts. The USACE Highway Methodology (USACE 1999) was chosen as the assessment method as it is generally acceptable to the PADEP and the USACE.

SPLP has been diligent in siting and designing the Project to avoid and minimize adverse effects to environmental resources located along the approximately 300-mile route. As part of the application materials, an in-depth alternatives analysis is presented to demonstrate these efforts. Within that alternatives analysis it is apparent that the highest quality wetlands on the Project area being avoided through reroutes and use of horizontal directional drill (HDD) technology. Direct impacts to almost all forested wetlands, the majority of scrub-shrub wetlands, and all federally listed endangered species occupied wetlands are avoided. The remaining impacted wetlands are often small, man-made, palustrine emergent, and limited to occurring within existing rights-of-way. This functions and values assessment provides further characterization of the impacted wetlands to assist the PADEP in its evaluation of the Chapter 105 application.

2.0 METHODS

As stated, the USACE Highway Methodology (USACE 1999) was chosen as the assessment method as it is generally acceptable to the PADEP and the USACE. In accordance with the method the eight functions and five values listed below were assessed for each impacted wetland. A Wetland Function-Value Evaluation Form is provided within the method's workbook and was used in the assessment of this Project's exceptional value (EV) wetlands. As first step, descriptor information on the wetland or wetland complex is provided within the header portion of the form and allows for information in respect to surround landscape as well as the impacts to be entered. As a second step, the suitability of the wetland to provide the function is assessed. Those determined to not provide the function or value or provide it at an insignificant level were considered not to be providing the function and "No" was checked. The rational for making the suitability decision and the considerations/qualifiers are then listed by code within the form in accordance with those listed in Table 1. Having a consideration/qualifier present did not automatically qualify the wetland as suitable for the function or value, but was a result of a combination of the presence and the evaluator's best professional judgment. Wetland delineation data sheets, pictures, topographical maps, soils maps, aerial maps, wetland and stream delineations, agency information (e.g., endangered species presence, designated exceptional value), other field survey information (e.g., threatened and endangered species), and best professional judgement were used during each evaluation. The third and final step, was to identify principle functions and values as those determined to be the most important. The objective of filling out the form is to document an unbiased record of the wetland, including

its location, function, appearance and relationship to its adjacent land use (USACE 1999). For non-exceptional value wetlands or "other wetlands" the same methodology was used but the results are presented in tabular format and lists only the principle functions provided.

GROUNDWATER RECHARGE/DISCHARGE — this function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where groundwater can be discharged to the surface.

FLOODFLOW ALTERATION (Storage & Desynchronization) — This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.

FISH AND SHELLFISH HABITAT — This function considers the effectiveness of seasonal or permanent waterbodies associated with the wetland in question for fish and shellfish habitat.

SEDIMENT/TOXICANT/PATHOGEN RETENTION — This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens.

NUTRIENT REMOVAL/RETENTION/TRANSFORMATION — This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

PRODUCTION EXPORT (Nutrient) — This function relates to the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

SEDIMENT/SHORELINE STABILIZATION — This function relates to the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.

WILDLIFE HABITAT — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/ or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.

RECREATION (Consumptive and Non-Consumptive) — This value considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive activities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland, whereas non-consumptive activities do not.

EDUCATIONAL/SCIENTIFIC VALUE — This value considers the effectiveness of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

UNIQUENESS/HERITAGE — This value relates to the effectiveness of the wetland or its associated waterbodies to produce certain special values. Special values may include such things as archaeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geologic features.

VISUAL QUALITY/AESTHETICS — This value relates to the visual and aesthetic qualities of the wetland.

THREATENED or ENDANGERED SPECIES HABITAT — This value relates to the effectiveness of the wetland or associated waterbodies to support threatened or endangered species.

Table 1 – Function-Value Considerations/Qualifiers

FUNCTION/VALUE	CONSIDERATIONS/QUALIFIERS
Groundwater Recharge/Discharge	1. Public or private wells occur downstream of the wetland. 2. Potential exists for public or private wells downstream of the wetland. 3. Wetland is underlain by stratified drift. 4. Gravel or sandy soils present in or adjacent to the wetland. 5. Fragipan does not occur in the wetland. 6. Fragipan, impervious soils, or bedrock does occur in the wetland. 7. Wetland is associated with a perennial or intermittent watercourse. 8. Signs of groundwater recharge are present or piezometer data demonstrates recharge. 9. Wetland is associated with a watercourse but lacks a defined outlet or contains a constricted outlet. 10. Wetland contains only an outlet, no inlet. 11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards. 12. Quality of water associated with the wetland is high. 13. Signs of groundwater discharge are present (e.g., springs). 14. Water temperature suggests it is a discharge site. 15. Wetland shows signs of variable water levels. 16. Other
Floodflow Alteration	1. Area of this wetland is large relative to its watershed. 2. Wetland occurs in the upper portions of its watershed. 3. Effective flood storage is small or non-existent upslope of or above the wetland. 4. Wetland watershed contains a high percent of impervious surfaces. 5. Wetland contains hydric soils which are able to absorb and detain water. 6. Wetland exists in a relatively flat area that has flood storage potential. 7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.

FUNCTION/VALUE	CONSIDERATIONS/QUALIFIERS
	8. During flood events, this wetland can retain higher volumes of water than under normal or average rainfall conditions. 9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands. 10. In the event of a large storm, this wetland may receive and detain excessive flood water from a nearby watercourse. 11. Valuable properties, structures, or resources are located in or near the floodplain downstream from the wetland. 12. The watershed has a history of economic loss due to flooding. 13. This wetland is associated with one or more watercourses. 14. This wetland watercourse is sinuous or diffuse. 15. This wetland outlet is constricted. 16. Channel flow velocity is affected by this wetland. 17. Land uses downstream are protected by this wetland. 18. This wetland contains a high density of vegetation. 19. Other
Fish and Shellfish Habitat	1. Forest land dominant in the watershed above this wetland. 2. Abundance of cover objects present. STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE 3. Size of this wetland is able to support large fish/shellfish populations. 4. Wetland is part of a larger, contiguous watercourse. 5. Wetland has sufficient size and depth in open water areas so as not to freeze solid and retain some open water during winter. 6. Stream width (bank to bank) is more than 50 feet. 7. Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations. 8. Streamside vegetation provides shade for the watercourse. 9. Spawning areas are present (submerged vegetation or gravel beds). 10. Food is available to fish/shellfish populations within this wetland. 11. Barrier(s) to anadromous fish (such as dams, including beaver dams, waterfalls, road crossing) are absent from the stream reach associated with this wetland. 12. Evidence of fish is present. 13. Wetland is stocked with fish. 14. The watercourse is persistent. 15. Man-made streams are absent. 16. Water velocities are not too excessive for fish usage. 17. Defined stream channel is present. 18. Other
Sediment/Toxicant/Pathogen Retention	1. Potential sources of excess sediment are in the watershed above the wetland. 2. Potential or known sources of toxicants are in the watershed above the wetland. 3. Opportunity for sediment trapping by slow moving water or deepwater habitat are present in this wetland.

FUNCTION/VALUE	CONSIDERATIONS/QUALIFIERS
	4. Fine grained mineral or organic soils are present. 5. Long duration water retention time is present in this wetland. 6. Public or private water sources occur downstream. 7. The wetland edge is broad and intermittently aerobic. 8. The wetland is known to have existed for more than 50 years. 9. Drainage ditches have not been constructed in the wetland. STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE. 10. Wetland is associated with an intermittent or perennial stream or a lake. 11. Channelized flows have visible velocity decreases in the wetland. 12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present. 13. No indicators of erosive forces are present. No high water velocities are present. 14. Diffuse water flows are present in the wetland. 15. Wetland has a high degree of water and vegetation interspersion. 16. Dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation by dense vegetation is present. 17. Other
Nutrient Removal/Retention/Transformation	1. Wetland is large relative to the size of its watershed. 2. Deep water or open water habitat exists. 3. Overall potential for sediment trapping exists in the wetland. 4. Potential sources of excess nutrients are present in the watershed above the wetland. 5. Wetland saturated for most of the season. Ponded water is present in the wetland. 6. Deep organic/sediment deposits are present. 7. Slowly drained fine grained mineral or organic soils are present. 8. Dense vegetation is present. 9. Emergent vegetation and/or dense woody stems are dominant. 10. Opportunity for nutrient attenuation exists. 11. Vegetation diversity/abundance sufficient to utilize nutrients. STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE. 12. Waterflow through this wetland is diffuse. 13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation. 14. Water moves slowly through this wetland. 15. Other
Production Export (Nutrient)	1. Wildlife food sources grow within this wetland. 2. Detritus development is present within this wetland 3. Economically or commercially used products found in this wetland. 4. Evidence of wildlife use found within this wetland. 5. Higher trophic level consumers are utilizing this wetland. 6. Fish or shellfish develop or occur in this wetland. 7. High vegetation density is present. 8. Wetland exhibits high degree of plant community structure/species diversity.

FUNCTION/VALUE	CONSIDERATIONS/QUALIFIERS
	9. High aquatic vegetative diversity/abundance is present. 10. Nutrients exported in wetland watercourses (permanent outlet present). 11. "Flushing" of relatively large amounts of organic plant material occurs from this wetland. 12. Wetland contains flowering plants that are used by nectar-gathering insects. 13. Indications of export are present. 14. High production levels occurring, however, no visible signs of export (assumes export is attenuated). 15. Other
Sediment/Shoreline Stabilization	1. Indications of erosion or siltation are present. 2. Topographical gradient is present in wetland. 3. Potential sediment sources are present up-slope. 4. Potential sediment sources are present upstream. 5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland. 6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout. 7. Wide wetland (>10') borders watercourse, lake, or pond. 8. High flow velocities in the wetland. 9. The watershed is of sufficient size to produce channelized flow. 10. Open water fetch is present. 11. Boating activity is present. 12. Dense vegetation is bordering watercourse, lake, or pond. 13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond. 14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet). 15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events. 16. Other
Wildlife Habitat	1. Wetland is not degraded by human activity. 2. Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards. 3. Wetland is not fragmented by development. 4. Upland surrounding this wetland is undeveloped. 5. More than 40% of this wetland edge is bordered by upland wildlife habitat (e.g., brushland, woodland, active farmland, or idle land) at least 500 feet in width. 6. Wetland is contiguous with other wetland systems connected by a watercourse or lake. 7. Wildlife overland access to other wetlands is present. 8. Wildlife food sources are within this wetland or are nearby. 9. Wetland exhibits a high degree of interspersion of vegetation classes and/or open water.

FUNCTION/VALUE	CONSIDERATIONS/QUALIFIERS
	10. Two or more islands or inclusions of upland within the wetland are present. 11. Dominant wetland class includes deep or shallow marsh or wooded swamp. 12. More than three acres of shallow permanent open water (less than 6.6 feet deep), including streams in or adjacent to wetland, are present. 13. Density of the wetland vegetation is high. 14. Wetland exhibits a high degree of plant species diversity. 15. Wetland exhibits a high degree of diversity in plant community structure (e.g., tree/ shrub/vine/grasses/mosses) 16. Plant/animal indicator species are present. (List species for project) 17. Animal signs observed (tracks, scats, nesting areas, etc.) 18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons. 19. Wetland contains or has potential to contain a high population of insects. 20. Wetland contains or has potential to contain large amphibian populations. 21. Wetland has a high avian utilization or it's potential. 22. Indications of less disturbance-tolerant species are present. 23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources,
Recreation	1. Wetland is part of a recreation area, park, forest, or refuge. 2. Fishing is available within or from the wetland. 3. Hunting is permitted in the wetland. 4. Hiking occurs or has potential to occur within the wetland. 5. Wetland is a valuable wildlife habitat. 6. The watercourse, pond, or lake associated with the wetland is unpolluted. 7. High visual/aesthetic quality of this potential recreation site. 8. Access to water is available at this potential recreation site for boating, canoeing, or fishing. 9. The watercourse associated with this wetland is wide and deep enough to accommodate canoeing and/or non-powered boating. 10. Off-road public parking available at the potential recreation site. 11. Accessibility and travel ease is present at this site. 12. The wetland is within a short drive or safe walk from highly populated public and private areas. 13. Other
Education/Scientific Value	1. Wetland contains or is known to contain threatened, rare, or endangered species. 2. Little or no disturbance is occurring in this wetland. 3. Potential educational site contains a diversity of wetland classes which are accessible or potentially accessible. 4. Potential educational site is undisturbed and natural.

FUNCTION/VALUE	CONSIDERATIONS/QUALIFIERS
	5. Wetland is considered to be a valuable wildlife habitat. 6. Wetland is located within a nature preserve or wildlife management area. 7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.). 8. Off-road parking at potential educational site suitable for school bus access in or near wetland. 9. Potential educational site is within safe walking distance or a short drive to schools. 10. Potential educational site is within safe walking distance to other plant communities. 11. Direct access to perennial stream at potential educational site is available. 12. Direct access to pond or lake at potential educational site is available. 13. No known safety hazards exist within the potential educational site. 14. Public access to the potential educational site is controlled. 15. Handicap accessibility is available. 16. Site is currently used for educational or scientific purposes. 17. Other
Uniqueness/Heritage	1. Upland surrounding wetland is primarily urban. 2. Upland surrounding wetland is developing rapidly. 3. More than 3 acres of shallow permanent open water (less than 6.6 feet deep), including streams, occur in wetlands. 4. Three or more wetland classes are present. 5. Deep and/or shallow marsh or wooded swamp dominate. 6. High degree of interspersion of vegetation and/or open water occur in this wetland. 7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland. 8. Potential educational site is within a short drive or a safe walk from schools. 9. Off-road parking at potential educational site is suitable for school buses. 10. No known safety hazards exist within this potential educational site. 11. Direct access to perennial stream or lake exists at potential educational site. 12. Two or more wetland classes are visible from primary viewing locations. 13. Low-growing wetlands (marshes, scrub-shrub, bogs, and open water) are visible from primary viewing locations. 14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations. 15. Large area of wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons. 16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed. 17. Overall view of the wetland is available from the surrounding upland. 18. Quality of the water associated with the wetland is high. 19. Opportunities for wildlife observations are available.

FUNCTION/VALUE	CONSIDERATIONS/QUALIFIERS
	20. Historical buildings are found within the wetland. 21. Presence of pond or pond site and remains of a dam occur within the wetland. 22. Wetland is within 50 yards of the nearest perennial watercourse. 23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland. 24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species. 25. Wetland is known to be a study site for scientific research. 26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community. 27. Wetland has local significance because it serves several functional values. 28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique. 29. Wetland is known to contain an important archaeological site. 30. Wetland is hydrologically connected to a state or federally designated scenic river. 31. Wetland is located in an area experiencing a high wetland loss rate. 32. Other
Visual Quality/Aesthetics	1. Multiple wetland classes are visible from primary viewing locations. 2. Emergent marsh and/or open water are visible from primary viewing locations. 3. A diversity of vegetative species is visible from primary viewing locations. 4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons. 5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations. 6. Visible surrounding land use form contrasts with wetland. 7. Wetland views absent of trash, debris, and signs of disturbance. 8. Wetland is considered to be a valuable wildlife habitat. 9. Wetland is easily accessed. 10. Low noise level at primary viewing locations. 11. Unpleasant odors absent at primary viewing locations. 12. Relatively unobstructed sight line exists through wetland. 13. Other
Endangered Species Habitat	1. Wetland contains or is known to contain threatened or endangered species. 2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.

3.0 RESULTS AND IMPACT ASSESSMENT

The Project crosses a total of 11 exceptional value wetlands in Cumberland County. The Wetland Function-Value Evaluation Form is filled out for each of these wetlands and is located in Attachment A. For the non-exceptional value wetlands, the assessment is provided in Tabular format and is located in Attachment B. Please see the Alternative Analysis part of the application, specifically prepared in accordance with Title 25 of the Pennsylvania Code 105.18a(a), to demonstrate that the Project has avoided impacts to aquatic resources to the maximum extent practicable and has been designed to avoid significant adverse impact on wetlands, either through aerial extent or impacts on wetland function and values.

The Project crosses the 11 exceptional value wetlands and 65 other wetlands in Cumberland County. Wetland impacts associated with the Project are temporary, and original grades and hydrology will be restored. Wetland functions and values, including exceptional value wetlands, will not be significantly altered. Those wetlands crossed by an HDD have already implemented measures to reduce the potential for inadvertent return through design phase geotechnical study and careful drill alignment planning. No surface impact or function and value impact to these drilled wetlands is expected as a result of the Project. During drill operation an inadvertent return contingency plan will be implemented at all times to further reduce the potential for impacts to wetlands or the functions and values provided.

Extra precautions are taken at each wetland to protect functions and values. Before construction begins, all Project workspaces are surveyed and marked including wetland boundaries. During construction these areas are inspected often to ensure these limits are adhered too. This ensures that only permitted wetland disturbances occur. Limiting the disturbance level to the authorized and minimum amount practicable significantly reduces the potential for unplanned impacts to functions and values.

The Project will be constructed under a PADEP Chapter 102 Erosion and Sediment Control General Permit authorization. This authorization, provides for the construction sequence and requires the installation of BMPs to protect the wetland during and post-construction. The BMPs are derived directly from PADEP manuals and are designed to protect aquatic resource function and value. For example, the installation of trench breakers at wetland entry and exit points is designed to protect wetland hydrology and maintain preconstruction groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, and production export when these functions are present. The erosion and control permit will also stipulate top-soil separation in non-saturated wetlands to ensure proper restoration of the native seedbank. In addition, permit authorizations will require monitoring and that monitoring will establish criteria for contour, hydrology, and vegetation restoration. This monitoring and required agency reporting will further ensure functions and values are not lost.

Stream bed and banks are required to be restored to stabilized condition, and as a result, for wetlands directly abutting stream banks the sediment/shoreline stabilization function is expected to remain unchanged. Fish and shellfish habitat is often degraded as a result of undue sedimentation at Project areas or within downstream waters. The implementation of dry crossing methods at all flowing streams, reduces during construction sedimentation impacts and restoration of stream beds and banks after installation further protects adjacent wetlands and downstream waters. In addition, stream bed substrate is required to be separated and restored to protect important fish spawning habitat. Most streams will be traversed

(trenched and backfilled) within 24 hours to reduce exposure to Project activities and unforeseen weather events.

Although many impacts are avoided and minimized, some functions and values would be temporarily affected by construction of the Project. All noted functions and values may be temporarily lost during construction as in the case of very small wetlands completely impacted by Project activities. However, these smaller wetlands often do not provide principal functions, unless an endangered species or unique/heritage value is noted. Large wetlands extending beyond the Project boundaries would still continue to provide the noted functions and values during construction as the impact area relative to the size of the wetland is minor. Several wetlands are noted as providing the wildlife habitat function. While temporary, short-term impacts may be unavoidable to non-mobile wildlife occupying these wetlands, the wetland will be restored and re-occupation is expected by the general wildlife community. More mobile species are expected to occupy adjacent habitats and all sensitive species occupied wetlands have been avoided through re-routes or Project design (e.g., HDD).

In summary, the exceptional value and other wetlands impacted provide functions and values at varying levels. SPLP has taken great steps to avoid and minimize wetland impacts across Cumberland County. Permanent and temporary wetland impacts are based on PADEP definitions. Permanent impacts are those areas affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result from the placement or construction of a water obstruction or encroachment and include areas necessary for the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into the floodway. Although PADEP defines operation and maintenance activities as permanent impacts, all wetlands affected by the Project will be restored to pre-construction conditions including the presence of wetland soils, hydrology, and hydrophytic vegetation. In addition, the Project does not involve any permanent fill and there will be no permanent loss of wetland area associated with the Project. SPLP will not maintain the ROW through wetland areas (i.e., no mowing); therefore, the pre- and post-construction conditions of the wetland areas will be the same, except for a nominal areal extent of forested wetland that will be converted to emergent wetland.

Temporary impacts are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into the floodway.

Given the PADEP permanent and temporary impact definitions, Permanent ROW impacts total 5.068 acres and temporary impacts total 0.548 acre for the 32.0 miles of construction ROW located in Cumberland County. These impacts include 0.070 acres of cover type conversion in forested wetlands. As indicated in Attachment B, wetlands affected by the Project lack several of the 13 functions and values and are of low value. Impacts are not only small-scale, but also are minimal in nature with respect to functions and values. Impacts to functions and values will be temporary, especially given restoration will occur immediately following construction and revegetation of wetlands (with the exception of the forested wetlands) will occur within the first growing season.

4.0 REFERENCES

USACE. 1999. The Highway Methodology Workbook Supplemental. US Army Corps of Engineers New England Division. 39 pp. NAEEP-360-1-30a.

Attachment A

Wetland Function-Value Evaluation Form

Total area of wetland 0.051 ac. Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Residential, Forested, Pipeline ROW Distance to nearest roadway or other development 0 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-BB15

Latitude 40.244314 Longitude -77.200261

Prepared by: KMM Date 10/14/2016

Wetland Impact:

See General Permit Table

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✔		2, 4, 5, 7, 15		
Floodflow Alteration	✔		5, 6, 7, 8, 9, 13	✔	
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1, 2, 4, 5, 6, 10	✔	
Nutrient Removal	✔		4, 5, 7		
Production Export	✔		1, 7, 12		
Sediment/Shoreline Stabilization	✔		1, 3, 4, 6, 9		
Wildlife Habitat	✔		6, 7, 8		
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other					

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-BB15-WP1 (PEM)

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Persicaria pensylvanica	25%	✔	FACW
2. Phalaris arundinacea	25%	✔	FACW
3. Impatiens capensis	5%		FACW
4. Carex sp.	25%	✔	ND
5. Pilea pumila	15%		FACW
6. Rumex crispus	5%		FAC
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND- Not determined

*Vegetation not ID'd down to species level not included in dominance test.

Wetland Function-Value Evaluation Form

Total area of wetland 0.27 ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agricultural Distance to nearest roadway or other development 50 feet

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-I31

Latitude 40.228964 Longitude -77.139449

Prepared by: HBS Date 11/03/2015

Wetland Impact:

See General Permit Table

Evaluation based on:

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✔			
Floodflow Alteration		✔			
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1,2,6,10,14,16	✔	
Nutrient Removal	✔		3,4,8,9,10,12	✔	
Production Export		✔			
Sediment/Shoreline Stabilization	✔		2,3,4,6,7,12,15		
Wildlife Habitat		✔			
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other		✔			

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-I31

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	75	✔	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	10	✔	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	75	✔	FACW
2. Apocynum cannabinum	10		FACU
3. Carex sp.	10		ND
4. Dipsacus fullonum	5		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND: Not determined

Wetland Function-Value Evaluation Form

Total area of wetland 1.2 ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Woodland, Highway Distance to nearest roadway or other development 20 feet

Dominant wetland systems present PEM, PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-I30

Latitude 40.228842 Longitude -77.132121

Prepared by: HBS Date 11/03/2015

Wetland Impact:

See General Permit Table

Evaluation based on:

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✔		1,2,7		
Floodflow Alteration	✔		5,6,9,10		
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1,2,3,10,16	✔	
Nutrient Removal		✔			
Production Export		✔			
Sediment/Shoreline Stabilization		✔			
Wildlife Habitat		✔			
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other		✔			

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-I30 PEM

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	80	✔	FACW
2. Impatiens capensis	10		FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✔ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-I30 PFO

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	65	✔	FAC
2. Celtis occidentalis	15		FACU
3. Acer rubrum	15		FAC
4.			
5.			
6.			
7.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		

Sapling/Shrub Stratum (Plot size: 15')			
1. Acer negundo	50	✔	FAC
2. Lonicera tatarica	20	✔	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		

Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	5	✔	FACW
2. Allium cernuum	5	✔	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Wetland Function-Value Evaluation Form

Total area of wetland 0.148 ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agricultural Distance to nearest roadway or other development 90 feet

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-I25

Latitude 40.192618 Longitude -76.941602

Prepared by: HBS Date 11/03/2015

Wetland Impact:

See General Permit Table

Evaluation based on:

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✔		1,2,7		
Floodflow Alteration		✔			
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1,2,3,6,10,14,	✔	
Nutrient Removal	✔		3,4,8,9,10	✔	
Production Export		✔			
Sediment/Shoreline Stabilization		✔			
Wildlife Habitat		✔			
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other		✔			

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-I25

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Scirpus atrovirens	40	✔	OBL
2. Juncus effusus	35	✔	FACW
3. Lycopus americanus	20		OBL
4. Agrimonia parviflora	15		FACW
5. Carex lurida	15		OBL
6. Mentha spicata	5		FACW
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
50% of total cover: 65	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Wetland Function-Value Evaluation Form

Total area of wetland 0.29 ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Industrial, Woodland Distance to nearest roadway or other development 10 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-I32

Latitude 40.228645 Longitude -77.140381

Prepared by: HBS Date 11/03/2015

Wetland Impact:

See General Permit Table

Evaluation based on:

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✔			
Floodflow Alteration		✔			
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1,2,6,10,14,16	✔	
Nutrient Removal	✔		3,4,8,9,10,12	✔	
Production Export		✔			
Sediment/Shoreline Stabilization	✔		2,3,4,6,7,12,15		
Wildlife Habitat		✔			
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other		✔			

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-I32

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	50	✔	FACW
2. Acer negundo	20	✔	FAC
3.			
4.			
5.			
6.			
7.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	20	✔	FACU
2. Acer negundo	20	✔	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	5	✔	FACW
2. Reynoutria japonica	5	✔	FACU
3. Viola sp.	5	✔	ND
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND - Not determined

*Vegetation not ID'd down to species level not included in dominance test.

Wetland Function-Value Evaluation Form

Total area of wetland >0.810 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Residential, Forest, Gas Pipeline ROW Distance to nearest roadway or other development 0 ft.

Dominant wetland systems present PEM, PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-I38

Latitude 40.240612 Longitude -77.22045

Prepared by: KMM Date 10/14/2016

Wetland Impact:

See General Permit Table

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✔	2, 4, 5, 7, 15		
Floodflow Alteration	✔		5, 6, 7, 8, 9, 10, 13	✔	
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1, 2, 4, 5, 6, 9, 10, 14	✔	
Nutrient Removal	✔		3, 4, 5, 7, 10, 11, 14	✔	
Production Export		✔	1, 7		
Sediment/Shoreline Stabilization	✔		1, 3, 4,6, 7, 9		
Wildlife Habitat	✔		5, 6, 7, 8		
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other					

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-I38 PEM

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	40	✔	FAC
2. Dichanthelium clandestinum	15	✔	FAC
3. Scirpus atrovirens	10		OBL
4. Solidago sp.	10		ND
5. Carex sp.	10		ND
6. Carex vulpinoidea	5		OBL
7. Allium cernuum	5		FACU
8. Impatiens sp.	5		ND
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND - Not determined

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-I38 PFO (1)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	70	✔	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	30	✔	FACU
2. Lindera benzoin	30	✔	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	20	✔	FAC
2. Symplocarpus foetidus	15	✔	OBL
3. Carex striata	10		OBL
4. Impatiens sp.	10		ND
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND - Not determined

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-I38 PFO (2)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	20	✔	FACW
2. Alnus glutinosa	20	✔	FACW
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	30	✔	FACU
2. Lindera benzoin	30	✔	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	10	✔	FAC
2. Toxicodendron radicans	10	✔	FAC
3. Alliaria petiolata	5	✔	FACU
4. Allium cernuum	5	✔	FACU
5. Onoclea sensibilis	5	✔	FACW
6. Rubus allegheniensis	5	✔	FACU
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Wetland Function-Value Evaluation Form

Total area of wetland 0.265 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Field, Woodland, Residential Distance to nearest roadway or other development 125 feet

Dominant wetland systems present PEM, PSS Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-J13 PEM

Latitude 40.244131 Longitude -77.195931

Prepared by: KMM Date 03/11/2016

Wetland Impact:

See General Permit Table

Evaluation based on:

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✔		1, 2, 7		
Floodflow Alteration	✔		3, 5, 6, 9, 11, 13	✔	Stormwater outlets from adjacent residential development contained and diffused within W-J13.
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1, 2, 6, 10, 14, 16	✔	AMD precipitate visibly being retained/filtered by wetland.
Nutrient Removal	✔		3, 4, 5, 8, 9, 11, 12, 13, 14	✔	This wetland filters nutrients contributed from adjacent residential subdivision.
Production Export	✔		1, 2, 7		
Sediment/Shoreline Stabilization		✔			
Wildlife Habitat	✔		5, 6, 7, 8, 13		
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other		✔			

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-J13 PEM (1)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	60	✔	FACW
2. Juncus effusus	10		FACW
3. Impatiens sp.	10		ND
4. Typha angustifolia	5		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND- Not Determined

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-J13 PEM (2)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	60	✔	FACW
2. Juncus effusus	10		FACW
3. Impatiens sp.	10		ND
4. Typha angustifolia	5		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND- Not Determined

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-J13

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	5	✔	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix nigra	50	✔	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 5')			
1. Poa trivialis	20	✔	FACW
2. Impatiens sp.	15	✔	ND
3. Microstegium vimineum	10	✔	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND- Not Determined

*Vegetation not ID'd down to the species level is not included in the dominance test.

Wetland Function-Value Evaluation Form

Total area of wetland >8.852 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Residential, Pipeline ROW Distance to nearest roadway or other development 10 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-J10

Latitude 40.240868 Longitude -77.183033

Prepared by: KMM Date 10/17/2016

Wetland Impact:

See General Permit Table

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✔		2, 4, 5, 7, 15		
Floodflow Alteration	✔		5, 6, 7, 8, 9, 13	✔	
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1, 2, 4, 5, 6, 10	✔	
Nutrient Removal		✔	4, 5, 7		
Production Export		✔	1, 7		
Sediment/Shoreline Stabilization	✔		1, 3, 4, 6, 9		
Wildlife Habitat	✔		6, 7, 8		
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other					

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-J10

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	35	✔	FACW
2. Persicaria pensylvanica	20	✔	FACW
3. Dactylis glomerata	20	✔	FACU
4. Juncus effusus	5		FACW
5. Cornus alba	2		FACW
6. Lycopus sp.	2		ND
7. Solanum carolinense	2		FACU
8. Apocynum androsaemifolium	2		FACU
9. Sambucus nigra	2		FAC
10. Carex sp.	2		ND
11.			
	92 = Total Cover		
50% of total cover: 46	20% of total cover: 18.4		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND- Not Determined

Wetland Function-Value Evaluation Form

Total area of wetland 0.679 ac. Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Residential, Pipeline ROW Distance to nearest roadway or other development 10 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-J11

Latitude 40.242007 Longitude -77.187611

Prepared by: KMM Date 10/17/2016

Wetland Impact:

See General Permit Table

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✔		2, 4, 5, 7, 15		
Floodflow Alteration	✔		5, 6, 7, 8, 9, 13	✔	
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1, 2, 4, 5, 6, 10	✔	
Nutrient Removal		✔	4, 5, 7		
Production Export		✔	1, 7		
Sediment/Shoreline Stabilization	✔		1, 3, 4, 6, 9		
Wildlife Habitat	✔		6, 7, 8		
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other					

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-J11

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	30	✔	FACW
2. Dactylis glomerata	30	✔	FACU
3. Apocynum androsaemifolium	15		FACU
4. Juncus effusus	10		FACW
5. Persicaria pensylvanica	10		FACW
6. Carex sp.	5		ND
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	50	x 2 =	100
FAC species		x 3 =	
FACU species	45	x 4 =	180
UPL species		x 5 =	
Column Totals:		(A)	(B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ✔ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND- Not Determined

Wetland Function-Value Evaluation Form

Total area of wetland 0.026 ac. Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Residential, Forested, Pipeline ROW Distance to nearest roadway or other development 0 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-J14

Latitude 40.244422 Longitude -77.19768

Prepared by: KMM Date 10/14/2016

Wetland Impact:

See General Permit Table

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✔		2, 5, 7, 15		
Floodflow Alteration	✔		5, 6, 8, 9, 10, 13, 15, 16	✔	Wetland J14 appears to be an old E&S measure for the nearby residential development. May have functioned as the development's detention basin.
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1, 2, 3, 4, 5, 6, 10, 12	✔	Wetland J14 appears to be an old E&S measure for the nearby residential development. May have functioned as the development's detention basin.
Nutrient Removal	✔		3, 4, 5, 7, 9, 10, 13	✔	Wetland J14 appears to be an old E&S measure for the nearby residential development. May have functioned as the development's detention basin.
Production Export		✔	1, 7		
Sediment/Shoreline Stabilization	✔		1, 3, 4, 9		
Wildlife Habitat		✔			
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other					

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-J14

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha angustifolia	95	✔	OBL
2. Persicaria pensylvanica	5		FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Wetland Function-Value Evaluation Form

Total area of wetland >0.518 ac. Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Residential, Electric Transmission ROW, Gas ROW Distance to nearest roadway or other development 0 ft.

Dominant wetland systems present PEM, PSS, PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-J15

Latitude 40.24456 Longitude -77.199796

Prepared by: KMM Date 10/14/2016

Wetland Impact:

See General Permit Table

Office ✔ Field

Corps manual wetland delineation completed? Y ✔ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✔		2, 4, 5, 7, 13, 15	✔	
Floodflow Alteration	✔		5, 6, 7, 9, 13		
Fish and Shellfish Habitat		✔			
Sediment/Toxicant Retention	✔		1, 2, 4, 5, 6, 10	✔	
Nutrient Removal	✔		4, 5, 7, 14		
Production Export		✔	1, 7		
Sediment/Shoreline Stabilization	✔		1, 2, 3, 4, 6, 9		
Wildlife Habitat	✔		5, 6, 7, 8		
Recreation		✔			
Educational/Scientific Value		✔			
Uniqueness/Heritage		✔			
Visual Quality/Aesthetics		✔			
ES Endangered Species Habitat		✔			
Other					

Notes: Evaluation based on delineated wetland within a 200-foot study corridor.

* Refer to backup list of numbered considerations.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-J15 PEM

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha angustifolia	35	✔	OBL
2. Dichanthelium clandestinum	20	✔	FAC
3. Phalaris arundinacea	20	✔	FACW
4. Solidago sp.	10		ND
5. Rubus allegheniensis	10		FACU
6. Carex sp.	5		ND
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No __

Remarks: (Include photo numbers here or on a separate sheet.)

ND- Not Determined

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-J15 PSS

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix nigra	20%	✔	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 0)			
1. Typha latifolia	10%	✔	OBL
2. Carex sp.	2.5%	✔	ND
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	12.5 = Total Cover		
50% of total cover: 6.25	20% of total cover: 2.5		
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND- Not determined

*Vegetation not ID'd down to species level not included in dominance test.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-J15 PFO

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	30	✔	FACW
2. Viburnum lentago	15	✔	FAC
3. Ulmus rubra	15	✔	FAC
4.			
5.			
6.			
7.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	20	✔	FACU
2. Viburnum lentago	15	✔	FAC
3. Fraxinus pennsylvanica	15	✔	FACW
4.			
5.			
6.			
7.			
8.			
9.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 5')			
1. Poa trivialis	10	✔	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Woody Vine Stratum (Plot size: 15')			
1. Toxicodendron radicans	5	✔	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Attachment B

Pennsylvania Pipeline Project Other Wetland Function and Value Assessment

Wetland	Cowardin[1]	County	Provided Principal Functions[2]	Within Existing ROW	Assessed Quality[3]	Unique Functions and Values (for only "Good" or "Excellent")
A20A	PEM	Washington	Sediment/Toxicant Retention	X	Poor	N/A
SZ1	PEM	Washington	None	X	Poor	N/A
SZ2	PEM	Washington	None	X	Poor	N/A
T1	PEM	Washington	Groundwater Recharge/Discharge, Floodflow Alteration,	X	Fair	N/A
T27	PEM	Washington	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient	X	Fair	N/A
T28	PEM	Washington	Sediment/Toxicant Retention	X	Poor	N/A
W12	PEM	Washington	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
W13	PEM	Washington	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
W14	PEM	Washington	Sediment/Toxicant Retention	X	Poor	N/A
W204	PEM	Washington	None	X	Poor	N/A
W37	PEM	Washington	Nutrient Removal	X	Poor	N/A
W42	PEM	Washington	Sediment/Toxicant Retention	X	Poor	N/A
W43	PEM	Washington	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, and Nutrient Removal		Fair	N/A
W44	PEM	Washington	Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline stabilization		Fair	N/A
W5	PEM	Washington	Sediment/Toxicant Retention	X	Poor	N/A
W8	PEM	Washington	Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline stabilization	X	Fair	N/A
W46-1	PEM	Allegheny	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
W62	PEM	Allegheny	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
W63	PEM	Allegheny	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
BB77	PEM	Westmoreland	Sediment/Toxicant Retention, and Nutrient Removal		Poor	N/A
BB80	PEM/PSS	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal		Fair	N/A
CS1	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
CS3	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
M67	PEM	Westmoreland	None		Poor	N/A
M69	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
M71	PEM/PSS	Westmoreland	Sediment/Toxicant Retention, Export Production, Nutrient Removal		Fair	N/A
M72	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
M73	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
M75	PEM/PFO	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, Floodflow Alteration, Nutrient Removal, Sediment/Shoreline stabilization	X	Good	HQ watershed, large aerial extent (>1 ac including wetlands off-ROW), riparian to Porters Run, landscape support present (provides downstream benefits, part of larger contiguous habitat)
M76	PEM	Westmoreland	none		Poor	N/A
M77	PEM	Westmoreland	none	X	Poor	N/A
M78	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
N28	PEM/PFO	Westmoreland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment Shoreline Stabilization, Wildlife Habitat	X	Excellent	Located within PGC State Gameland, large aerial extent, large buffer to UNT to Conemaugh River, landscape support present (provides downstream benefits, part of larger contiguous habitat)
N72	PEM	Westmoreland	Sediment/ Toxicant Retention, and Nutrient Removal	X	Poor	N/A
N76	PEM	Westmoreland	Sediment/ Toxicant Retention, Nutrient Removal	X	Poor	N/A
N78	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention	X	Poor	N/A
N79	PEM	Westmoreland	Sediment/ Toxicant Retention, and Nutrient Removal	X	Poor	N/A
N80	PEM	Westmoreland	Nutrient Removal	X	Poor	N/A
N81	PEM	Westmoreland	None	X	Poor	N/A
N82	PEM/PSS	Westmoreland	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
O45	PEM/PFO	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
P13	PEM	Westmoreland	Groundwater Recharge/ Discharge, Sediment/ Toxicant Retention, and Nutrient Removal	X	Good	Provides buffer and is riparian to UNT of Boatyard Run
P14	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
P15	PEM/PFO	Westmoreland	Groundwater Recharge/ Discharge, Sediment/ Toxicant Retention, and Nutrient Removal	X	Good	Wetland is buffered by forested habitat, provides buffer and is riparian to UNT of Boatyard Run, landscape support present (provides downstream benefits, part of larger contiguous habitat), adjacent land use natural
P16	PEM	Westmoreland	Sediment/ Toxicant Retention, and Nutrient Removal	X	Poor	N/A
P17	PEM	Westmoreland	None	X	Poor	N/A
P18	PEM	Westmoreland	Sediment/ Toxicant Retention, and Nutrient Removal		Poor	N/A
P20	PEM	Westmoreland	Sediment/ Toxicant Retention, Nutrient Removal	X	Poor	N/A
P22	PEM	Westmoreland	Sediment/ Toxicant Retention	X	Poor	N/A
P25	PEM/PFO	Westmoreland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Good	HQ watershed, large aerial extent (>1 ac including wetlands off-ROW), provides buffer and riparian to UNT to Beaver Run, landscape support present (provides downstream benefits, part of larger contiguous habitat), wildlife corridor, wetland buffered by forested habitat, adjacent land use natural
P26	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, Floodflow Alteration, Nutrient Removal, Sediment/Shoreline stabilization	X	Good	HQ watershed, large aerial extent (>1 ac on and off-ROW), riparian to UNT to Porters Run, provides only buffer to UNT to Porters Run
P27	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, Floodflow Alteration, Nutrient Removal, Sediment/Shoreline stabilization	X	Good	HQ watershed, large aerial extent (>1 ac on and off-ROW), riparian to UNT to Porters Run, provides only buffer to UNT to Porters Run
P28	PEM	Westmoreland	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A

Pennsylvania Pipeline Project Other Wetland Function and Value Assessment

Wetland	Cowardin[1]	County	Provided Principal Functions[2]	Within Existing ROW	Assessed Quality[3]	Unique Functions and Values (for only "Good" or "Excellent")
P29	PEM	Westmoreland	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
P30	PEM	Westmoreland	None	X	Poor	N/A
P33	PEM/PFO	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Good	HQ watershed, large aerial extent (>1 ac including wetlands off-ROW), provides buffer and riparian to UNT to Beaver Run, landscape support present (provides downstream benefits, part of larger contiguous habitat), wetland is buffered by forested habitat, adjacent land use low intensity (residential)
P34	PEM	Westmoreland	None	X	Poor	N/A
P35	PEM	Westmoreland	None	X	Poor	N/A
P7	PEM	Westmoreland	Sediment/Toxicant Retention	X	Poor	N/A
Q4	PEM	Westmoreland	Groundwater Recharge/Discharge	X	Poor	N/A
Q6	PEM/PFO	Westmoreland	Sediment/Toxicant Retention,Groundwater Recharge/Discharge	X	Poor	N/A
Q69	PEM, PSS, PFO	Westmoreland	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat	X	Good	Large aerial extent (>1 ac in ROW), buffer to several UNTs to Conemaugh River, landscape support present (provides downstream benefits, part of larger contiguous habitat), wetland is buffered by extensive forested habitat, wildlife habitat and corridor.
Q7	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
Q70	PFO/PEM	Westmoreland	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat		Good	Large aerial extent (>1 ac in ROW), buffer to several UNTs to Conemaugh River, landscape support present (provides downstream benefits, part of larger contiguous habitat), wetland is buffered by extensive forested habitat, habitat is contiguous with PGC State Gameland to the north, adjacent land use is natural
Q8	PSS	Westmoreland	Sediment/Toxicant Retention	X	Poor	N/A
Q92	PEM/PSS	Westmoreland	Sediment/Toxicant Retention		Poor	N/A
SZ6	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
SZ7	PEM	Westmoreland	Nutrient Removal	X	Poor	N/A
W48	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline stabilization	X	Fair	N/A
W49	PEM, PFO	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline stabilization	X	Good	N/A
W52	PEM	Westmoreland	None	X	Poor	N/A
W53	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline stabilization	X	Good	N/A
W54	PEM	Westmoreland	None	X	Poor	N/A
W56	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
W58	PEM	Westmoreland	None	X	Poor	N/A
W60	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline stabilization	X	Poor	N/A
W61	PSS	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal, Wildlife Habitat	X	Fair	N/A
W64	PEM	Westmoreland	Nutrient Removal	X	Poor	N/A
W65	PEM	Westmoreland	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, and Nutrient Removal, Wildlife Habitat	X	Good	N/A
W68	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
W69	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
W70	PEM	Westmoreland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
W71	PEM	Westmoreland	Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline stabilization	X	Fair	N/A
CC30	PEM	Indiana	Sediment/Toxicant Retention and Nutrient Removal		poor	N/A
J51	PEM/PFO/PSS	Indiana	Sediment/Toxicant Retention and Nutrient Removal	X	Poor	N/A
J52	PEM	Indiana	None	X	Poor	N/A
J53	PEM	Indiana	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
N34	PEM, PFO	Indiana	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Wildlife Habitat	X	Good	N/A
N35	PSS	Indiana	Sediment/Toxicant Retention and Nutrient Removal		Poor	N/A
N37	PEM	Indiana	None	X	Poor	N/A
N38	PEM, PSS	Indiana	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
N39	PEM	Indiana	Groundwater Recharge/ Discharge	X	Poor	N/A
N45	PEM	Indiana	Groundwater Recharge/ Discharge, Sediment/ Toxicant Retention		Poor	N/A
N47	PEM	Indiana	Sediment/ Toxicant Retention	X	Poor	N/A
N49	PEM	Indiana	Sediment/ Toxicant Retention	X	Poor	N/A
N50	PEM	Indiana	Sediment/ Toxicant Retention	X	Poor	N/A
N52	PEM	Indiana	None	X	Poor	N/A
N53	PEM	Indiana	Sediment/Toxicant Retention and Nutrient Removal	X	Poor	N/A
N54	PEM	Indiana	Sediment/Toxicant Retention and Nutrient Removal	X	Poor	N/A
N55	PEM	Indiana	Groundwater Recharge/ Discharge, Sediment/ Toxicant Retention		Poor	N/A
N56	PEM	Indiana	Groundwater Recharge/ Discharge, Sediment/ Toxicant Retention, Nutrient Removal	X	Poor	N/A
N57	PEM, PSS	Indiana	Groundwater Recharge/ Discharge, Sediment/ Toxicant Retention, Nutrient Removal	X	Poor	N/A
N60	PEM	Indiana	Sediment/ Toxicant Retention	X	Poor	N/A
N61	PEM	Indiana	Groundwater Recharge/ Discharge, Sediment/ Toxicant Retention	X	Poor	N/A
N69	PEM	Indiana	None	X	Poor	N/A
N70	PEM	Indiana	Sediment/Toxicant Retention, Nutrient Removal, and Export Removal		Fair	N/A
N71	PEM	Indiana	Sediment/Toxicant Retention, Nutrient Removal, and Export Removal		Fair	N/A
O51	PEM	Indiana	Sediment/ Toxicant Retention	X	Poor	N/A
O56	PEM, PSS	Indiana	Sediment/Toxicant Retention and Nutrient Removal	X	Poor	N/A

Pennsylvania Pipeline Project Other Wetland Function and Value Assessment

Wetland	Cowardin[1]	County	Provided Principal Functions[2]	Within Existing ROW	Assessed Quality[3]	Unique Functions and Values (for only "Good" or "Excellent")
O57	PEM	Indiana	None	X	Poor	N/A
O58	PEM	Indiana	Sediment/Toxicant Retention and Nutrient Removal	X	Poor	N/A
O59	PEM	Indiana	Groundwater Recharge/ Discharge		Poor	N/A
O60	PEM	Indiana	Groundwater Recharge/ Discharge, Sediment/ Toxicant Retention, Nutrient Removal	X	Poor	N/A
O61	PEM	Indiana	Sediment/ Toxicant Retention	X	Poor	N/A
O62	PEM	Indiana	Sediment/ Toxicant Retention	X	Poor	N/A
O68	PEM	Indiana	None	X	Poor	N/A
O70	PEM, PFO	Indiana	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
O71	PEM	Indiana	None	X	Poor	N/A
O72	PEM	Indiana	Sediment/Toxicant Retention and Nutrient Removal	X	Poor	N/A
O77	PEM, PSS	Indiana	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Wildlife Habitat	X	Good	Large aerial extent (>1 ac in ROW), buffer to UNT to Bucklick Creek, landscape support present (provides downstream benefits, part of larger contiguous habitat)
P1	PEM	Indiana	None	X	Poor	N/A
P2	PEM/PSS	Indiana	Sediment/Toxicant Retention and Nutrient Removal	X	poor	N/A
Pond-N6	PUB	Indiana	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
BB141	PEM	Cambria	None		Poor	N/A
BB142	PEM, PSS	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention		Poor	N/A
BB144	PEM, PSS	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention		Poor	N/A
BB145	PEM	Cambria	None		Poor	N/A
BB146	PEM	Cambria	None		Poor	N/A
BB147	PEM, PSS	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal		Fair	N/A
BB148	PEM	Cambria	Sediment/Toxicant Retention		Poor	N/A
BB67	PEM, PSS, PFO	Cambria	Sediment/Toxicant Retention	X	Poor	N/A
BB89	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention		Poor	N/A
CC12	PEM	Cambria	None		Poor	N/A
CC13	PEM	Cambria	None		Poor	N/A
CC15	PEM, PFO	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Fair	N/A
CC16	PEM	Cambria	Sediment/Toxicant Retention	X	Poor	N/A
CC18	PEM	Cambria	None		Poor	N/A
CC19	PEM	Cambria	Sediment/Toxicant Retention	X	Poor	N/A
CC2	PEM	Cambria	None		Poor	N/A
CC20	PEM	Cambria	Sediment/Toxicant Retention		Poor	N/A
K28	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
K30	PFO	Cambria	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
K31	PEM, PSS, PFO	Cambria	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat		Excellent	Large aerial extent (>1 ac on and off-ROW), floodplain/large buffer to Little Conemaugh River, landscape support present (provides downstream benefits, is part of larger contiguous habitat), buffered by forested habitat
L63	PEM, PFO	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention		Poor	N/A
L64	PEM, PFO	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention		Poor	N/A
L65	PEM, PFO	Cambria	Sediment/Toxicant Retention		Poor	N/A
L66	PEM	Cambria	None	X	Poor	N/A
M60	PEM, PSS	Cambria	Sediment/Toxicant Retention	X	Poor	N/A
M61	PEM, PSS	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
N1	PEM, PFO	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
N10	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
N11	PEM, PFO, PUB	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
N12	PEM, PFO	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
N14	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
N15	PEM, PSS, PFO	Cambria	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Good	Large aerial extent (>1 ac including wetlands off-ROW), buffer and riparian to UNT to North Branch Little Conemaugh River, landscape support present (provides downstream benefits, is part of larger contiguous habitat), buffered by forested habitat
N17	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
N18	PEM, PSS, PFO	Cambria	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Good	Large aerial extent (>1 ac on and off-ROW), floodplain/large buffer to North Branch Little Conemaugh River, landscape support present (provides downstream benefits, is part of larger contiguous habitat), buffered by forested habitat
N2	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention		Poor	N/A
N20	PEM, PFO	Cambria	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal		Good	Large aerial extent (on and off-ROW), large buffer and riparian to UNT to Hinckston Run, landscape support present (provides downstream benefits, part of larger contiguous habitat), buffered by forested habitat, adjacent land use intensity low (residential)
N24	PEM, PFO	Cambria	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal		Good	Large aerial extent (on and off-ROW), buffer and riparian to Hinckston Run, landscape support present (provides downstream benefits, part of larger contiguous habitat), buffered by forested habitat, adjacent land use intensity low (residential)
N25	PSS	Cambria	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
N26	PEM, PSS	Cambria	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
N27	PEM	Cambria	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A

Pennsylvania Pipeline Project Other Wetland Function and Value Assessment

Wetland	Cowardin[1]	County	Provided Principal Functions[2]	Within Existing ROW	Assessed Quality[3]	Unique Functions and Values (for only "Good" or "Excellent")
N31	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
N5	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
N6	PEM	Cambria	Groundwater Recharge/Discharge		Poor	N/A
N8	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
N9	PEM, PFO	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
O1	PEM, PSS	Cambria	None	X	Poor	N/A
O10	PEM	Cambria	Groundwater Recharge/Discharge	X	Poor	N/A
O12	PEM	Cambria	Sediment/Toxicant Retention	X	Poor	N/A
O15	PEM	Cambria	None		Poor	N/A
O17	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Fair	N/A
O2	PEM, PSS	Cambria	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Good	HQ watershed, large aerial extent (>1 ac on and off-ROW), floodplain/large buffer and riparian to UNT to Noels Creek, landscape support present (provides benefits downstream, part of larger contiguous habitat), adjacent land use natural
O21	PEM	Cambria	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
O23	PEM	Cambria	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
O24	PEM	Cambria	Sediment/Toxicant Retention		Poor	N/A
O25	PEM	Cambria	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
O27	PEM	Cambria	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
O3	PEM, PFO	Cambria	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Excellent	HQ watershed, large aerial extent (>1 ac on and off-ROW), floodplain/large buffer and riparian to UNT to Noels Creek, landscape support present (provides benefits downstream, part of larger contiguous habitat), adjacent land use natural
O35	PSS	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, and Nutrient Removal		Fair	N/A
O4	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
O5	PEM	Cambria	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
O6	PEM	Cambria	None	X	Poor	N/A
O8	PEM	Cambria	Sediment/Toxicant Retention	X	Poor	N/A
O9	PEM	Cambria	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
Q49	PEM	Cambria	None	X	Poor	N/A
Q50	PEM	Cambria	None	X	Poor	N/A
Q51	PEM	Cambria	None	X	Poor	N/A
Q65	PEM	Cambria	None		Poor	N/A
BB159	PEM	Blair	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
BB59	PEM	Blair	None		Poor	N/A
L42	PEM	Blair	Groundwater Recharge/Discharge	X	Poor	N/A
L43	PEM	Blair	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
L44	PEM	Blair	Nutrient Removal	X	Poor	N/A
L59	PEM	Blair	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
Q54	PEM	Blair	None		Poor	N/A
Q56	PEM	Blair	None		Poor	N/A
Q58	PEM	Blair	None		Poor	N/A
BB127	PEM, PSS, PFO	Huntingdon	Sediment/Toxicant Retention		Poor	N/A
CC27	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
CC28	PEM	Huntingdon	Sediment/Toxicant Retention		Poor	N/A
K63	PEM	Huntingdon	None		Poor	N/A
K65	PEM	Huntingdon	None		Poor	N/A
K66	PEM	Huntingdon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention		Fair	N/A
K67	PEM	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention		Fair	N/A
K68	PEM, PSS, PFO	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal		Good	Large aerial extent (>1 ac on and off-ROW), landscape support present (provides large buffer to UNT to George Creek, downstream benefits, part of larger contiguous habitat), larger wetland system buffered by forested land
K69	PEM	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Large aerial extent (>1 ac on and off-ROW), landscape support present (provides large buffer to Blacklog Creek, downstream benefits, part of larger contiguous habitat), provides wildlife corridor
K70	PEM	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Large aerial extent (>1 ac on and off-ROW), landscape support present (provides large buffer to Blacklog Creek, downstream benefits, part of larger contiguous habitat), provides wildlife corridor
K72	PEM	Huntingdon	None	X	Poor	N/A
L10	PEM	Huntingdon	None	X	Poor	N/A
L11	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
L12	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
L13	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
L14	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
L15	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
L16	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
L17	PEM	Huntingdon	None	X	Poor	N/A

Pennsylvania Pipeline Project Other Wetland Function and Value Assessment

Wetland	Cowardin[1]	County	Provided Principal Functions[2]	Within Existing ROW	Assessed Quality[3]	Unique Functions and Values (for only "Good" or "Excellent")
L18	PEM	Huntingdon	None	X	Poor	N/A
L20	PEM	Huntingdon	None	X	Poor	N/A
L21	PEM	Huntingdon	None	X	Poor	N/A
L24/L25	PEM	Huntingdon	Groundwater Recharge/Discharge		Poor	N/A
L27	PEM	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Large aerial extent (>1 ac on and off-ROW), landscape support present (provides large buffer to Little Trough Creek and UNT to Little Trough Creek, downstream benefits, part of larger contiguous habitat), provides wildlife corridor
L28	PEM	Huntingdon	None	X	Poor	N/A
L29	PEM	Huntingdon	Sediment/Toxicant Retention	X	Poor	N/A
L31	PEM	Huntingdon	Sediment/Toxicant Retention		Poor	N/A
L32	PEM	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
L33a [L33]	PEM	Huntingdon	Sediment/Toxicant Retention		Poor	
L36	PSS	Huntingdon	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal		Fair	N/A
L5	PEM	Huntingdon	None	X	Poor	N/A
L6	PEM	Huntingdon	None	X	Poor	N/A
L7	PEM	Huntingdon	Sediment/Toxicant Retention		Poor	N/A
L8	PEM	Huntingdon	None		Poor	N/A
L9	PEM	Huntingdon	None		Poor	N/A
LK-2 (Raystown Lake)	PUB	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat, Recreation, Educational/Scientific Value, Uniqueness/Heritage, and Visual Quality/Aesthetics		Excellent	Large aerial extent (>1 ac on and off-ROW), provides opportunity for boating, fishing, and other recreational uses, serves as a wildlife habitat and corridor, aestheticly pleasing, managed floodflow control, amoung other miscellaneous uses.
M1	PEM	Huntingdon	Floodflow Alteration, Sediment/Toxicant Retention	X	Poor	N/A
M10	PEM	Huntingdon	Floodflow Alteration, Sediment/Toxicant Retention	X	Poor	N/A
M12	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
M13	PEM	Huntingdon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline Stabilization	X	Good	Provides buffer to Hares Valley Creek, landscape support present (provides downstream benefits)
M15	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
M17	PEM	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
M2	PEM	Huntingdon	Floodflow Alteration, Sediment/Toxicant Retention	X	Poor	N/A
M3	PEM, PSS	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
M6	PEM	Huntingdon	None	X	Poor	N/A
M7	PEM	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
M8	PEM	Huntingdon	None	X	Poor	N/A
M9	PEM	Huntingdon	Sediment/Toxicant Retention	X	Poor	N/A
Pond-I4	PUB	Huntingdon	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal, Wildlife Habitat	X	Good	Deepwater habitat provides opportunity for downstream benefits such as floodflow control, sediment and nutrient settling and attenuation, and wildlife habitat and corridor; landscape support present (provides large buffer to an UNT to Little Trough Creek.
W332	PEM	Huntingdon	None		Poor	N/A
W333	PEM	Huntingdon	None		Poor	N/A
Y1	PFO	Huntingdon	None	X	Poor	N/A
Y12	PEM	Huntingdon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
Y13	PEM	Huntingdon	None	X	Poor	N/A
Y14	PEM	Huntingdon	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
Y2	PSS	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	In PGC State Gameland, large areal extent (>1 ac on and off-ROW), provides buffer to James Creek, landscape support present (provides benefits downstream, part of larger contiguous habitat), provides wildlife corridor
Y3	PSS	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	In PGC State Gameland, large areal extent (>1 ac on and off-ROW), provides buffer to James Creek, landscape support present (provides benefits downstream, part of larger contiguous habitat), provides wildlife corridor
Y4	PFO	Huntingdon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	In PGC State Gameland, large areal extent (>1 ac on and off-ROW), provides buffer to UNT to Raystown Branch Juniata River, landscape support present (provides benefits downstream, part of larger contiguous habitat), provides wildlife corridor
Y6	PFO	Huntingdon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
Y7	PEM, PFO	Huntingdon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
Y9	PFO	Huntingdon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Wildlife Habitat	X	Fair	N/A
K58	PEM	Juniata	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
K59	PEM	Juniata	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
K60	PFO	Juniata	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A

Pennsylvania Pipeline Project Other Wetland Function and Value Assessment

Wetland	Cowardin[1]	County	Provided Principal Functions[2]	Within Existing ROW	Assessed Quality[3]	Unique Functions and Values (for only "Good" or "Excellent")
L3	PEM	Juniata	None	X	Poor	N/A
Q64	PEM	Juniata	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
K50	PEM	Perry	Sediment/Toxicant Retention	X	Poor	N/A
W36d	PEM	Perry	Recreation	X	Poor	N/A
BB129	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
BB15	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention		Poor	N/A
BB151	PEM	Cumberland	None		Poor	N/A
BB155	PEM, PSS, PFO	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export		Good	Provides buffer to UNT to Bloser Creek, landscape support present (provides downstream benefits)
BB43	PEM	Cumberland	None		Poor	N/A
BB44	PEM	Cumberland	Groundwater Recharge/Discharge, Sediment/Toxicant Retention		Fair	N/A
H54	PEM	Cumberland	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
I24	PEM, PFO	Cumberland	Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
I26	PEM	Cumberland	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
I27	PEM	Cumberland	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
I36	PEM, PFO	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline Stabilization	X	Good	Large aerial extent (>1 ac), provides buffer to Conodoguinet Creek, landscape support present (provides downstream
I39	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Good	Provides buffer to UNT to Conodoguinet Creek, landscape support present (provides downstream benefits, contiguous with other riparian areas along UNT to Conodoguinet Creek)
I41	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
I43	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
I44	PEM	Cumberland	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
I45	PEM	Cumberland	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
I46	PEM	Cumberland	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
I48	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
I49	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal		Fair	N/A
I52	PEM	Cumberland	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
I53	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Good	HQ watershed, headwater of UNT to Opossum Creek, landscape support present (provides downstream benefits)
I54	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
I55	PEM	Cumberland	Sediment/Toxicant Retention	X	Poor	N/A
I56	PEM	Cumberland	None	X	Poor	N/A
I58	PEM	Cumberland	None	X	Poor	N/A
I60	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
I61	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Good	Potential bog turtle habitat, large aerial extent (>1 ac with off-ROW wetlands), provides buffer for UNT to Conodoguinet Creek, landscape support present (provides downstream benefits)
I62	PEM	Cumberland	Sediment/Toxicant Retention	X	Poor	N/A
I63	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
I64	PEM	Cumberland	Sediment/Toxicant Retention	X	Poor	N/A
J20	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
J21	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
J22	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
J23	PEM	Cumberland	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
J24	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient	X	Fair	N/A
J25	PEM	Cumberland	None	X	Poor	N/A
J26	PEM	Cumberland	None	X	Poor	N/A
J27	PEM	Cumberland	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
J31	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A
J32	PEM	Cumberland	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Fair	N/A
J35	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Excellent	Large aerial extent (>1 ac on and off-ROW), potential bog turtle habitat, provides large buffer to Locust Creek, landscape support present (provides downstream benefits, part of larger contiguous habitat)
J36	PEM	Cumberland	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A

Pennsylvania Pipeline Project Other Wetland Function and Value Assessment

Wetland	Cowardin[1]	County	Provided Principal Functions[2]	Within Existing ROW	Assessed Quality[3]	Unique Functions and Values (for only "Good" or "Excellent")
J40	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration,	X	Good	HQ watershed, potential bog turtle habitat, large aerial extent
J9	PEM	Cumberland	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
K1	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
K11	PEM	Cumberland	Sediment/Toxicant Retention	X	Poor	N/A
K12	PEM	Cumberland	None	X	Poor	N/A
K13	PEM	Cumberland	None	X	Poor	N/A
K14	PEM	Cumberland	None	X	Poor	N/A
K15	PEM	Cumberland	Sediment/Toxicant Retention	X	Poor	N/A
K16	PEM	Cumberland	Sediment/Toxicant Retention	X	Poor	N/A
K2	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal		Fair	N/A
K3	PEM	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
K41	PEM	Cumberland	None		Poor	N/A
K44	PEM, PFO	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Good	Large aerial extent (>1 ac on and off-ROW), provides buffer to two UNTs to Conodoguinet Creek, landscape support present (provides downstream benefits, part of larger contiguous habitat)
K5	PEM	Cumberland	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
K6	PEM	Cumberland	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
K7	PEM	Cumberland	None	X	Poor	N/A
K9	PEM	Cumberland	None	X	Poor	N/A
Pond-J3	PUB	Cumberland	None		Poor	N/A
Pond-J4	PUB	Cumberland	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal		Fair	N/A
W14e	PEM	Cumberland	None	X	Poor	N/A
W177	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal		Good	Large aerial extent (>1 ac), provides buffer to Bloser Creek, landscape support present (provides downstream benefits)
W19d	PEM	Cumberland	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal		Good	Provides buffer to UNT to Bloser Creek, landscape support present (provides downstream benefits)
W22d	PEM	Cumberland	None	X	Poor	N/A
W33d	PEM	Cumberland	Sediment/Toxicant Retention	X	Poor	N/A
BB1	PEM	York	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
BB152	PEM	York	Floodflow Alteration, Sediment/Toxicant Retention	X	Poor	N/A
BB21	PEM	York	Sediment/Toxicant Retention	X	Poor	N/A
H50	PEM	York	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
H51	PEM, PFO	York	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Large aerial extent (>1 ac on and off-ROW), potential bog turtle habitat, provides buffer to UNT to Susquehanna River, buffered by adjacent forested area, landscape support present (part of larger contiguous habitat that is contiguous with the Susquehanna River)
I20	PEM	York	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
I22	PEM	York	None	X	Poor	N/A
I23	PEM	York	None	X		N/A
J63	PFO	York	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
W3c	PEM	York	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
A16	PEM	Dauphin	Sediment/Toxicant Retention	X	Poor	N/A
A17	PEM	Dauphin	Sediment/Toxicant Retention	X	Poor	N/A
A18	PSS	Dauphin	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Good	Saturated PFO, large areal extent (>ac and riparian to Susquehanna River), provides buffer to Susquehanna River, landscape support present (part of larger contiguous riverine habitat)
A22	PEM	Dauphin	Groundwater Recharge/Discharge, Sediment/Toxicant Retention		Fair	N/A
A23	PEM	Dauphin	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
A25	PEM	Dauphin	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Large aerial extent (>1 ac with off-ROW wetlands), provides buffer for Spring Creek, landscape support present (part of larger contiguous habitat, provides downstream benefits)
A27	PEM	Dauphin	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
B55	PEM	Dauphin	None	X	Poor	N/A
B56	PEM	Dauphin	Floodflow Alteration and Sediment/Toxicant Retention	X	Poor	N/A
B57	PEM	Dauphin	Floodflow Alteration and Sediment/Toxicant Retention	X	Poor	N/A
B58	PEM, PFO	Dauphin	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Good	Large aerial extent (>1 ac on and off-ROW), provides large buffer for Iron Run, landscape support present (part of larger contiguous habitat, provides downstream benefits)
B59	PEM	Dauphin	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
B60	PEM	Dauphin	Sediment/Toxicant Retention, Nutrient Removal	X	Poor	N/A
B61	PEM, PFO	Dauphin	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Good	Large aerial extent (>1 ac on and off-ROW), provides large buffer for Iron Run, landscape support present (part of larger contiguous habitat, provides downstream benefits)
B64	PFO	Dauphin	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Large aerial extent (>1 ac with off-ROW wetlands), provides buffer to UNT to Lisa Lake, landscape support present (provides downstream benefits)
B76	PSS	Dauphin	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Provides buffer to UNT to Lisa Lake, landscape support present (provides downstream benefits), adjacent land use intensity low (residential), buffered by surrounding forested
BB36	PEM	Dauphin	None		Poor	N/A
BB39	PEM	Dauphin	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
C26	PEM, PFO	Dauphin	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Large aerial extent (>1 ac on and off-ROW), provides large buffer for Iron Run, landscape support present (part of larger contiguous habitat, provides downstream benefits)

Pennsylvania Pipeline Project Other Wetland Function and Value Assessment

Wetland	Cowardin[1]	County	Provided Principal Functions[2]	Within Existing ROW	Assessed Quality[3]	Unique Functions and Values (for only "Good" or "Excellent")
C27	PEM, PSS	Dauphin	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
C28	PEM	Dauphin	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
CC22	PEM	Dauphin	None	X	Poor	N/A
J47	PEM, PFO	Dauphin	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Large aerial extent (>1 ac on and off-ROW), provides large buffer for UNT to Spring Creek, landscape support present (part of larger contiguous habitat, provides downstream benefits), buffered by adjacent forested lands
K23	PEM	Dauphin	None	X	Poor	N/A
S2	PEM, PFO	Dauphin	Sediment/Toxicant Retention, Nutrient Removal		Fair	N/A
A1	PEM	Lebanon	None	X	Poor	N/A
A11	PEM	Lebanon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	X	Good	Potential bog turtle habitat, riparian to Beck Creek - provides buffer
A13	PEM	Lebanon	None	X	Poor	N/A
A2	PEM	Lebanon	None	X	Poor	N/A
A3	PEM	Lebanon	None	X	Poor	N/A
A6	PEM	Lebanon	None	X	Poor	N/A
A9	PEM	Lebanon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
B66	PEM	Lebanon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
BB154	PEM	Lebanon	None	X	Poor	N/A
C16	PEM, PFO	Lebanon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal	X	Fair	N/A
C17	PEM	Lebanon	Groundwater Recharge/Discharge, Sediment/Toxicant Retention	X	Poor	N/A
H13	PEM, PSS, PFO	Lebanon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Excellent	On PGC State Game Land, potential bog turtle habitat, large aerial extent (>1 ac on and off-ROW), large buffer to Middle Creek, landscape support present (provides benefits downstream, part of larger contiguous habitat), provide wildlife corridor to Middle Creek Reservoir
H14	PEM, PFO	Lebanon	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Excellent	On PGC State Game Land, potential bog turtle habitat, large aerial extent (>1 ac on and off-ROW), large buffer to Middle Creek, landscape support present (provides benefits downstream, part of larger contiguous habitat), provide wildlife corridor to Middle Creek Reservoir
B10	PEM	Lancaster	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal		Fair	N/A
B11	PEM	Lancaster	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
B5	PEM	Lancaster	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal		Fair	N/A
B7	PEM	Lancaster	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal		Fair	N/A
B72	PEM	Lancaster	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal		Good	Large aerial extent (>1 ac), provides buffer to Harnish Run, landscape support present (provides downstream benefits)
B74	PEM	Lancaster	Groundwater Recharge/Discharge, Sediment/Toxicant Retention,		Fair	N/A
H28	PEM	Lancaster	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
J54	PFO	Lancaster	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal		Good	HQ watershed, large aerial extent (>1 ac on and off-ROW), provides buffer to UNT to Cocalico Creek, landscape support present (provides downstream benefits), provides wildlife corridor to forested areas to south and southeast
W8c	PEM	Lancaster	None		Poor	N/A
A37	PEM	Berks	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Good	Nutrient removal prior to discharge to UNT to East Branch Conestoga which flows to nutrient impaired Conestoga River, landscape support present, buffer present, creates buffer to East Branch Conestoga River, adjacent land use intensity low (forested and school)
A45	PEM	Berks	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
A49	PEM	Berks	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Good	Potential bog turtle habitat, landscape support present, buffer present, adjacent land use intensity low (forested and residential)
B16	PEM	Berks	Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
B18	PEM	Berks	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Good	Large aerial extent (>1 ac with off-ROW wetland), potential bog turtle habitat, landscape support present (adjacent to and benefits UNT to Little Cocalico Creek, part of larger surrounding extensive habitat)
B40	PEM	Berks	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, and Nutrient Removal	X	Fair	N/A
B48	PEM	Berks	Sediment/Toxicant Retention, and Nutrient Removal	X	Poor	N/A
BA10	PEM	Berks	None	X	Poor	N/A
H23	PEM	Berks	None	X	Poor	N/A
J48	PEM, PFO	Berks	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, and Wildlife Habitat	X	Excellent	Large aerial extent (>1 ac), nutrient removal prior to discharge to UNT to East Branch Conestoga which flows to nutrient impaired Conestoga River, landscape support present, buffer present, creates buffer to East Branch Conestoga River, adjacent land use intensity low (forested and school)
W35	PEM	Berks	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal	X	Good	Nutrient removal prior to discharge to UNT to East Branch Conestoga which flows to nutrient impaired Conestoga River, landscape support present, adjacent land use low overall (forested and residential)
B15	PEM	Chester	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	X	Fair	N/A

Pennsylvania Pipeline Project Other Wetland Function and Value Assessment

Wetland	Cowardin[1]	County	Provided Principal Functions[2]	Within Existing ROW	Assessed Quality[3]	Unique Functions and Values (for only "Good" or "Excellent")
B19	PEM	Chester	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	**X**	Fair	N/A
B71	PFO	Chester	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Production Export	**X**	Good	Large aerial extent (>1 ac on and off-ROW), buffers UNT to Valley Creek, provides benefits downstream to Valley Creek - impaired waterbody (impairment unknown)
C42	PEM	Chester	None	**X**	Poor	N/A
C43	PEM, PFO	Chester	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export,	**X**	Excellent	Potential bog turtle habitat, large aerial extent (>1 ac), nutrient removal prior to discharge to UNT to Marsh Creek,
C47	PEM	Chester	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export	**X**	Good	Potential bog turtle habitat, large aerial extent (>1 ac), buffered by other habitat, buffers UNT to Marsh Creek, landscape support present (upstream of DCNR State Park - Marsh Creek - provides downstream benefits, part of larger contiguous habitat)
C48	PEM	Chester	Sediment/Toxicant Retention, Nutrient Removal	**X**	Poor	N/A
C49	PEM	Chester	Sediment/Toxicant Retention	**X**	Poor	N/A
H15	PEM, PFO	Chester	Sediment/Toxicant Retention, Nutrient Removal	**X**	Poor	N/A
H16	PEM	Chester	Sediment/Toxicant Retention	**X**	Poor	N/A
H17	PEM, PFO	Chester	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	**X**	Good	Potential bog turtle habitat, large aerial extent (>1 ac), buffers UNT to Marsh Creek, landscape support present (upstream of DCNR State Park - Marsh Creek - provides downstream benefits, part of larger contiguous habitat)
K21	PEM	Chester	None	**X**	Poor	N/A
Q75	PFO	Chester	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	**X**	Good	Buffers UNT to Marsh Creek, landscape support present (upstream of DCNR State Park - Marsh Creek - provides downstream benefits, part of larger contiguous habitat)
Q76	PSS	Chester	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	**X**	Good	Buffers UNT to Marsh Creek, landscape support present (upstream of DCNR State Park - Marsh Creek - provides downstream benefits, part of larger contiguous habitat)
Q77	PEM	Chester	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal	**X**	Good	Buffers UNT to Marsh Creek, landscape support present (upstream of DCNR State Park - Marsh Creek - provides downstream benefits, part of larger contiguous habitat)
BA5	PFO	Delaware	Sediment/Toxicant Retention		Poor	N/A
BA6	PFO	Delaware	Sediment/Toxicant Retention, Nutrient Removal		Poor	N/A
C21	PFO	Delaware	Wildlife Habitat	**X**	Poor	N/A
H41	PEM, PSS	Delaware	Sediment/Toxicant Retention	**X**	Poor	N/A
I1	PEM, PSS	Delaware	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Production Export	**X**	Good	N/A
I16	PEM, PFO	Delaware	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention	**X**	Fair	N/A
I5	PEM	Delaware	Sediment/Toxicant Retention, Nutrient Removal	**X**	Poor	N/A

Footnotes:	
[1]Cowardin classification only included for impacted portion of the wetland.	
[2]Wetland functions were determined using the Highway Method.	
[3]Not a Highway Method category, assigned based on presence of principle functions given the presences absence of the consderations and qualifiers listed below, as well as best	
X	Part or all of the assessed wetland [complex] is located within an existing [maintained] right-of-way.

Generalized Assessment of Quality[3]	
Excellent	Many to All Functions and Values
Good	Several to Many Functions and Values
Fair	Few to Several Functions and Values
Poor	Few to No Functions and Values

Unique Functions and Values Considered
Size - at least one acre of wetland visible on topo/NWI (large aerial extent)
Saturated PFO or PSS wetland
Bog or fen possible
HQ or EV watershed
On state or Federal land
In NRCS easement
Provides nutrient removal or other benefit upstream of a USEPA 303(b) impaired waterbody
Bog turtle habitat (O = occupied) or potential habitat (1P or 2P), or pending (P*) / T&E habitat
Landscape Support (habitat surrounding wetland extensive/part of larger habitat, provides benefits to water quality and wildlife using wetland)
Buffer (habitat surrounding wetland not extensive but buffered such that impacts to water quality and wildlife minimized, or provides a buffer to a feature)
Adjacent Land Use (not intense such that water flowing into wetland anticipated to be better quality and land use result in minor disturbance to wildlife using wetland)
Wildlife Corridor