

*Atlantic Sunrise Project – PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC
Susquehanna County*

ATTACHMENT Q -1
SUSQUEHANNA COUNTY MITIGATION MASTER PLAN
(UNDER SEPARATE COVER)

Revised April 2017

Permittee-Responsible Mitigation Master Plan for the Atlantic Sunrise Project

Susquehanna County, Pennsylvania
Transcontinental Gas Pipe Line Company, LLC.



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1.0 Introduction

First Pennsylvania Resource, LLC. (FPR), a wholly-owned subsidiary of Resource Environmental Solutions (“RES”), has prepared this Permittee-Responsible Mitigation (PRM) Master Plan for the Atlantic Sunrise Project (Project) on behalf of Transcontinental Gas Pipe Line Company, LLC. (Permittee or Transco). The purpose of this plan is to compensate for unavoidable impacts to waters of the United States (U.S.) associated with Project activities in Susquehanna County, Pennsylvania (PA). This PRM Master Plan includes one site-specific PRM Plan as Appendix C: Towanda Creek PRM Plan, which provides additional detail for the Towanda Creek PRM Site (PRM Site or PRM Project) where mitigation will occur to offset the proposed wetland impacts within Susquehanna County. Appendix A, Figure 1: Project Location Map provides an overview of the proposed Project and associated PRM Site. The PRM site has obtained all necessary biological, cultural, and erosion and sediment control clearances and permits necessary for construction.

2.0 Objectives

The objectives of the PRM Plan are to restore, enhance, and preserve wetland and riparian resources to replace the functions and values lost in association with unavoidable temporary (construction) and permanent (operational) impacts to exceptional value (EV) Palustrine Scrub Shrub (PSS) wetlands and EV and non-EV Palustrine Forested (PFO) wetlands associated with the Project in Susquehanna County. As described in this PRM Master Plan for Susquehanna County, and in the individual PRM Plan prepared for the PRM Site (Appendix C: Towanda Creek PRM Plan), the proposed mitigation approach employs a functional based, watershed scale approach to provide optimal replacement of PSS and PFO functions and values lost as a result of the Project. This PRM Master Plan for Susquehanna County also uses ratio based replacement requirements to ensure that the functional replacement being provided adequately replaces the physical acreage of the functional areas being impacted in Susquehanna County. Additionally, while the PRM Site will mitigate for impacts that occur across multiple counties as a result of the Project, this PRM Plan (Attachment C: Towanda Creek PRM Plan) addresses impacts that occur only in Susquehanna County.

Overarching Approach and Mitigation Site

Developing multiple smaller mitigation projects along the entire length of the Project closer to the individual impact locations would result in a piecemeal mitigation approach and diminished overall functional uplift and watershed benefit, while also having a lower probability of long-term success for each individual PRM location. Therefore the proposed approach concentrates on a smaller number of sites strategically located in the headwaters and floodplains of watersheds that will benefit from the mitigation efforts while ensuring optimal replacement of functions and values lost as a result of the Project.

Mitigation for Project impacts in Susquehanna County will occur within one PRM Site as shown in Table 1: Proposed PRM Site for the Atlantic Sunrise Project (Susquehanna County).

PRM Site	Watershed	County	PRM Plan Appendix
Towanda Creek	4	Bradford	C

The PRM Site contains PFO, PSS, and PEM wetlands and an unnamed tributary (UNT) to Towanda Creek, designated as a trout-stocked and migratory fishery stream (TSF, MF) according to section 93.9: Designated Water Uses and Water Quality Criteria of the PA Code Chapter 93: Water

Quality Standards. Mitigation of these resources will optimize ecological uplift to replace the functions and values that will be lost as a result of the Project.

The mitigation efforts proposed at the PRM Site listed above will replace the primary functions and values impacted at the impact site, which include wildlife habitat, flood flow alteration, nutrient removal and retention, and sediment/toxicant reduction. Additional information on the evaluated functions and values at the impact locations as well as the proposed mitigation site is provided in Section 6.0: Determination of Mitigation Needs.

3.0 Site Selection

The General Compensatory Mitigation Requirements of the Compensatory Mitigation Final Rule ["Final Rule," (33 CFR 332.3(b)(2))] establish mitigation credits as the preferred method of compensatory mitigation for impacts to aquatic resources of the U.S., followed by In-Lieu Fee credits (ILF), and finally on-site or off-site mitigation. Transco investigated each of these options through the site selection process, as described below.

Mitigation Banking

Transco first sought to purchase approved mitigation credits from the Upper Susquehanna River Mitigation Bank – Phase I (USRMB I) within the Upper Susquehanna River Subbasin (State Water Plan Watershed 4) for impacts to PSS and PFO wetlands resulting from the Project. There are not enough available credits from USRMB I to compensate for the proposed impacts, and credits are needed to offset Project impacts in other Watersheds. There are no other available banks from which to purchase credits in other impact watersheds, and therefore mitigation banking is not a viable option.

In-Lieu Fee

ILF crediting is not an option for this project because no active ILF programs are available.

On-Site Mitigation

In order to minimize impacts to aquatic features and habitat areas, the Permittee has limited the width of the proposed construction limits of disturbance (LOD) and permanent easements to the greatest extent practicable. This narrowed easement does not allow room for on-site restoration, and not all homeowners are interested in providing larger easements which would provide space for on-site restoration. Lastly, even with larger easements which would allow for on-site restoration, not all of the sites have land suitable for restoration. Restoration could be done outside of an area with a permanent easement, however this would not be acceptable mitigation as there is no guarantee this area would be preserved into perpetuity. The avoidance measure of using a narrow LOD thereby narrows the potential area available for resource restoration. Even if possible, small on-site restorations would provide minimal benefit to the local watersheds relative to the impacts proposed within the LOD.

Completing on-site mitigation would create multiple, small, spacially separate PRM projects. These smaller isolated projects have been shown to be less ecologically beneficial, have a lower likelihood for long-term success, are more susceptible to invasive species due to increased edge effect. They also create an increased number of maintenance plans to be reviewed, increasing the long-term regulatory burden on the state by requiring reviews and field visits to multiple small restoration sites.

The Permittee therefore has determined that the on-site mitigation opportunities are less conducive to complying with the “no net loss” and/or “watershed approach” policy(s) commensurate with the Final Rule.

Off-Site Permittee-Responsible Mitigation

Due to the ecological demands of the PRM, Transco concludes that using a restoration approach which combines construction and operational impacts from multiple locations into a few larger restoration sites will provide the best ecological uplift, long-term sustainability, and functional replacement of the impacted wetland resources. In making that determination, Transco decided that entrusting the legal, logistical, and environmental aspects of compensatory mitigation to FPR will ensure the greatest chance of success for this Project and most effectively address watershed needs. The proposed PRM Site embodies many of the critical components of the Final Rule including the likelihood for success and sustainability, the significance of the restored water body within the watershed, and the proximity of the impact and mitigation sites from a watershed perspective. The likelihood of success was the most important factor that the Permittee considered while evaluating the following mitigation options. By selecting primarily exceptional value riparian and headwaters mitigation sites, the restoration approach will provide watershed-scale benefits and functional uplift well suited to replace functions and values lost as a result of the Project.

FPR will act as the mitigation services agent (“Agent”) on behalf of Transco. FPR on behalf of Transco, will be responsible for implementation of the PRM plan in addition to meeting performance standards, monitoring, and long-term management of the property as described in 33 CFR §332.3(l). The Permittee will remain responsible for legal duties and responsibilities associated with wetland mitigation as necessary in accordance with PADEP Chapter 105 Rules and Regulations regarding wetland replacement criteria guidelines and 33 CFR § 332.

4.0 Site Protection Instrument(s)

The PRM Site will be permanently protected by a declaration of restrictive covenant in advance of the proposed activities outlined in the mitigation plan, ensuring the long-term protection of the PRM Site. The site protection instrument will be recorded in the county courthouse within 60 days following the U.S. Army Corps of Engineers (USACE) and PA Department of Environmental Protection (PADEP) (“Agencies”) approvals. A copy of the site protection instrument to be filed upon permit approval is included in the PRM Plan (Appendix C: Towanda Creek PRM Plan). The site protection instrument restricts activities that are incompatible with the objectives of the PRM Plan.

FPR will act as the initial long-term steward unless another qualified, watershed-focused, entity is willing to assume long-term stewardship responsibilities. FPR’s heirs, assigns, or purchasers will be responsible for protecting lands contained within the PRM Site in perpetuity in accordance with the terms of the PRM Plan, unless the lands are transferred or sold to a local, state, or federal resource agency or non-profit conservation organization.

Should a trustworthy, willing third-party conservation easement holder wish to protect the PRM Site in perpetuity, they will have the option to switch the declaration of restrictive covenant to a conservation easement. Entrusting the PRM Site to a third-party conservation easement holder may commence only when FPR, the Permittee, and the Agencies have mutually concluded that the PRM Site has achieved all of its objectives and sufficiently satisfied performance standards.

5.0 Baseline Data

Baseline site investigations were conducted to develop an appropriate mitigation plan for the PRM Site. These baseline site investigations yielded a significant amount of existing condition project information including, but not limited to:

- Waters of the U.S. delineation and Global Positioning System (GPS) location of the boundary;
- USACE Jurisdictional Determination of wetland boundaries and nexuses;
- Surface soil borings;
- Flora community composition data;
- Informal terrestrial and aquatic fauna community composition data;
- Topographic survey (up to 6-inch accuracy) throughout the proposed conservation area;
- Land steward interviews relative to historical and present site conditions including land use practices;
- Extensive photo and field note documentation;
- Cultural Resources Geographic Information System (CRGIS) searches,
- Pennsylvania Natural Diversity Inventory (PNDI) searches,
- General documentation of site conditions including constraints, access, potential staging areas, and a resulting plan for probable construction sequencing.

Specific baseline data collected for the PRM Site is provided in Section 5.0: Baseline Data of the PRM Plan (Appendix C: Towanda Creek PRM Plan). The following table, Table 2: Summary of Existing PRM Site Resources provides a summary of existing resources at the PRM Site. The PRM Plan contains further detail regarding the existing PRM Site resources based upon the wetland delineations and other environmental surveys.

Resource Type		PRM Site Pre-Mitigation Resources
Total Acres		36.93
Uplands		22.28
Wetlands¹ (Acres)	PEM	2.22
	PSS	4.38
	PFO	8.05
	TOTAL	14.65
Streams (Linear Feet)	Perennial	-
	Intermittent	66.77
	Ephemeral	-
	TOTAL	66.77

Notes:

1. PEM – Palustrine Emergent; PSS – Palustrine Scrub Shrub; PFO – Palustrine Forested

The following table, Table 3: Summary of PRM Site Clearances and Approvals provides a summary of clearances and approvals received for the PRM Site. Further detail regarding the status and history of these clearances, including copies of individual approvals, is provided within the PRM Plan (Appendix C: Towanda Creek PRM Plan).

Table 3: Summary of PRM Site Clearances and Approvals		
PRM Site	Approval Type	Approval Status
Towanda Creek	USACE Section 404/401 WQC	Under Review
	PHMC	Clearance received 5/8/15
	<i>Rare, Threatened, and Endangered Species</i>	<i>PNDI clearance renewed 3/21/17</i>
	E&S Control (PADEP Chapter 102)	Clearance received 7/15/15

6.0 Determination of Mitigation Needs

Project Impacts

The Project will result in 0.44-acre of impact to EV PSS and EV and non-EV PFO wetlands in Susquehanna County (excluding temporary impacts to PSS wetlands). Of the 0.44 wetland impact acre, 0.02 is EV PSS, 0.14 is non-EV PFO, and 0.28 is EV PFO impact. No non-EV PSS impacts are anticipated in Susquehanna County.

The PADEP defines EV wetlands under PA Code Title 25 § 105.17, and has requested separate mitigation ratios for EV and non-EV PSS and PFO wetlands. Project impacts in Susquehanna County are proposed within PA State Water Plan Watershed 4 (Upper Susquehanna-Tunkhannock). Appendix A, Figure 2: Mitigation Site/Impact Reference Location Map depicts the locations of the proposed mitigation in relation to the Project. No permanent fill of any wetland resources will occur as a result of the Project. All long-term impacts are expected to be a result of conversion from PFO to PEM or PSS wetlands. The temporary (construction) impacts will occur in the areas where construction will take place and existing wetlands will be allowed to revert to their previous state following construction in these areas. The permanent (operational) impacts will occur within the maintained ROW, where annual operational maintenance is required by Federal Energy Regulatory Commission (FERC) Wetland and Waterbody Construction and Mitigation Procedures. These permanent impacts will not involve dredging or filling of wetlands, but will involve annual mowing of PSS wetlands.

All temporary PFO impacts resulting from the Project in Susquehanna County are proposed to be mitigated for at the PRM Site. Some of the temporary and permanent PFO impact areas are also being replanted on-site, providing double mitigation for these areas. The PFO construction impacts which are not being replanted in the field, will be seeded following construction, under the site restoration requirements of the Erosion and Sediment Control Plan. Replanting of woody vegetation or wetland replacement species in the construction right-of-ways (ROWs) is not proposed because these areas are not protected under any easement and could be impacted by future landowner activities. Accounting for these areas at the PRM Site will provide greater functional replacement, and ensure the long-term success of mitigation for these temporary impacts.

The following wetland mitigation ratios apply to the PRM Site: 2.5:1 for EV PFO wetlands, 2:1 for non-EV PFO wetlands, 1.75:1 for EV PSS wetlands, and 1.5:1 for non-EV PSS wetlands. No non-EV PSS wetlands are anticipated to be impacted in Susquehanna County. Impact ratios were

discussed with both the PADEP and USACE during multiple meetings prior to and during permit submittal, and are based on previous ratios used for similar projects. Impact locations and proposed mitigation site locations are depicted by watershed in Appendix A, Figure 2: Mitigation Site/Impact Location Reference Map. As discussed in Section 2.0: Objectives, the PRM Site will provide a total of 4.67 acres of mitigation which will be used to offset Project impacts across two counties. Of the 4.67 mitigation acres provided by the PRM Site, 1.02 acre is required for impacts occurring in Susquehanna County. Table 4: Summary of Impacts In Susquehanna County and Required Mitigation provides a summary of mitigation needs and physical impacts. Total mitigation needed has been adjusted to account for 0.01-acre of proposed permanent impact to PEM Wetland W-2 within the Saddle Swamp easement area as a result of proposed upgrades/improvements to a permanent agricultural crossing at the PRM Site.

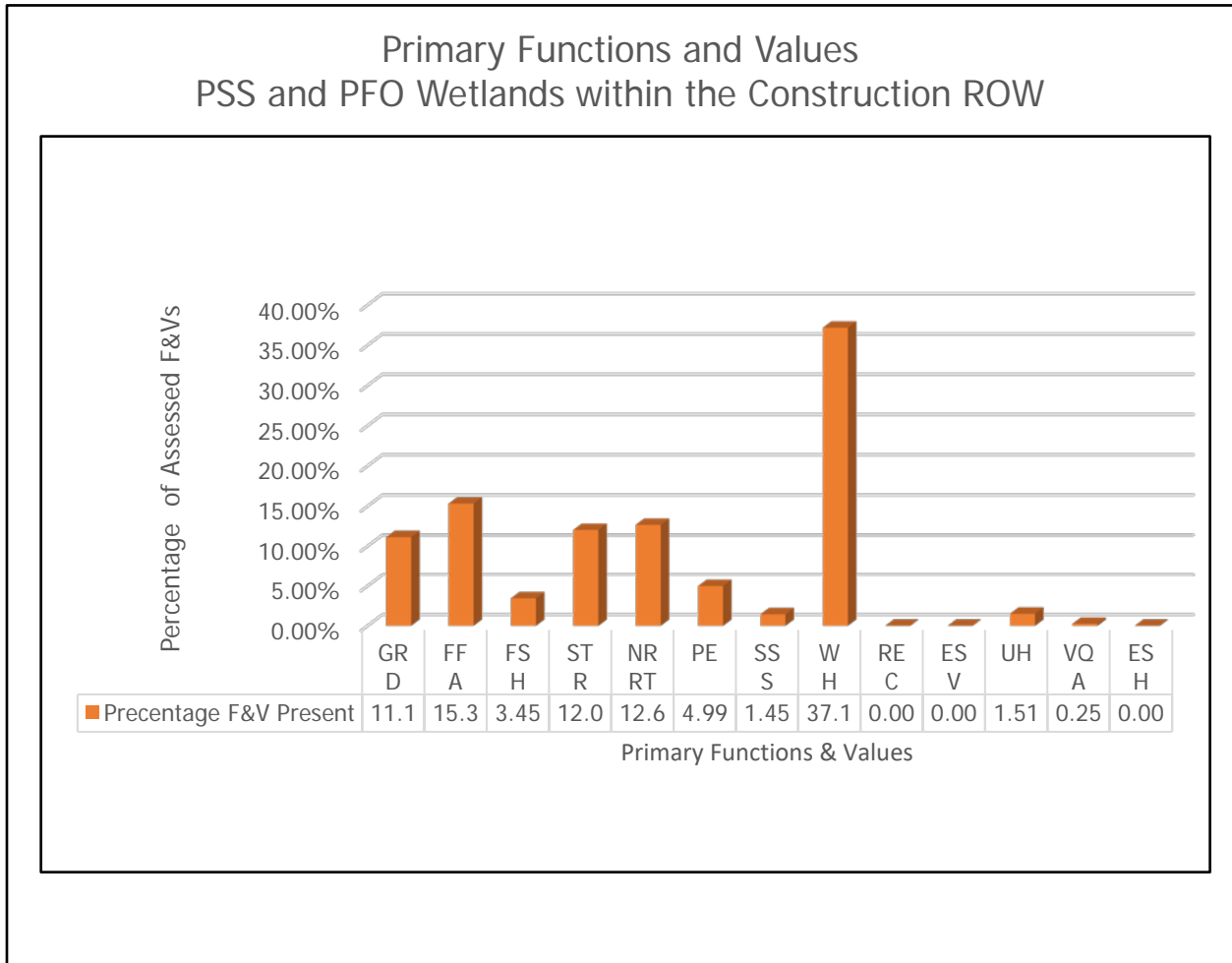
Table 4: Summary of Impacts in Susquehanna County and Required Mitigation				
Wetland Type	Wetland Impacts (Acres)	Proposed Mitigation Ratio (X:1)	Total Mitigation Needed	Total Mitigation Available (Acres)
EV PFO	0.28	2.5	0.70	4.67
Non-EV PFO	0.14	2.0	0.28	
EV PSS	0.02	1.75	0.04	
Non-EV PSS	0.00	1.5	0.00	
Total	0.44	-	1.02*	

*Note – Wetland impacts include 0.01 acre of proposed permanent impact to PEM Wetland W-2 within the Saddle Swamp easement area as a result of proposed upgrades/improvements to a permanent agricultural crossing at the PRM Site. This impact was subtracted from the mitigation total, as shown in Table 6: Wetland Mitigation Summary.

Functional Impacts

The USACE *Highway Methodology Workbook Supplement: Wetland Functions and Values* (Supplement, 1993) was used to evaluate the functions and values of the wetlands at the impact site and the PRM Site. The Supplement is a qualitative approach to describing the physical characteristics of and identifying the functions and values exhibited by a wetland. The approach to applying functions and values to the impacted wetlands and the mitigation wetlands was agreed upon between the PADEP, USACE, and Transco during a pre-application meeting on March 17, 2015. A bar graph showing the primary functional impacts associated with the Project is provided below.

Bar Graph 1. Summary of Impacted Wetland Functions and Values for All Wetlands within the Construction and Operational ROW in Susquehanna County



Key:

- **GRD** - Groundwater Recharge/Discharge
- **FFA** - Floodflow Alteration
- **FSH** - Fish and Shellfish Habitat
- **STR** - Sediment/Toxicant Retention
- **NRRT** - Nutrient Removal and Retention
- **PE** - Production Export
- **SSS** - Sediment/Shoreline Stabilization
- **WH** - Wildlife Habitat
- **REC** - Recreation
- **ESV** - Educational/Scientific Value
- **UH** - Uniqueness/Heritage
- **VQA** - Visual Quality and Aesthetics
- **ESH** - Endangered Species Habitat

Based on an assessment of any potential impacts to the functions and values of PEM wetlands in association with construction and operation of the Project, it was deemed no mitigation will be required. Impacts to PEM wetlands will be temporary, and all areas will be returned to grade, and reseeded following construction.

Permanent conversion impacts to PSS wetlands are anticipated in the operation footprints as a result of the Project, and mitigation will be provided at the PRM Site to offset these impacts. Construction (temporary) impacts to PSS wetlands will be temporary; these areas outside of the 10-foot wide operational ROW will be seeded with a native seed mix, and will naturally revert to PSS. The 10 foot-wide operational ROW will be maintained in PSS wetlands no more frequently than on an annual basis and in accordance with FERC Wetland and Waterbody Construction and Mitigation Procedures and the Transco plan.

Proposed Functional Uplift

The *Wetland Function-Value Evaluation Form* from the Supplement was used to document the existing functions and values that will be impacted as part of the Project. It was also used to determine the baseline and anticipated ecological lift the PRM Site will experience as a result of the proposed mitigation. The baseline field forms are included within the PRM Plan (Appendix C: Towanda Creek PRM Plan). These improvements to the wetland functions and values after restoration combined with the additional upland acreage restored as part of the PRM Site will more than offset the overall functions and values lost as a result of the Project. Table 5: Summary of Functional Uplift summarizes proposed functional uplift for the PRM Site.

Table 5: Summary of Functional Uplift			
Site Location	Functions and Values	Pre-Project Principal Function	Post-Project Principal Function
Project Impact Locations	Flood Flow Alteration	Yes	No
	Nutrient Removal	Yes	No
	Wildlife Habitat	Yes	No
Towanda Creek – Chippewa Swamp	Flood flow alteration	Yes	Yes
	Nutrient Removal	No	Yes
	Sediment/Toxicant Retention	No	Yes
	Wildlife Habitat	Yes	Yes
	Groundwater Recharge/Discharge	No	Yes
Towanda Creek – Saddle Swamp	Flood flow alteration	No	Yes
	Nutrient Removal	No	Yes
	Sediment/Toxicant Retention	Yes	Yes
	Wildlife Habitat	No	Yes
	Groundwater Recharge/Discharge	Yes	Yes

Proposed Mitigation Acreage

The mitigation ratios used to allocate mitigation acreage for each restoration activity at the PRM Site are based on previously used mitigation ratios. The mitigation ratios, in combination with the previously discussed impact ratios ensure that the functions and values being replaced at the mitigation sites provide an adequate physical replacement of those functions and values impacted

as a result of the Project, while also taking into account temporal losses. The proposed mitigation for the Project will include wetland enhancement and upland restoration in the amounts indicated in Table 6: Wetland Mitigation Summary, which includes the mitigation approach, wetland resources, applicable mitigation ratios and mitigation acreages provided by the PRM site. Appendix A, Figure 3 presents the resource development map for the proposed restoration activities at the PRM Site as summarized below.

PRM Site	Mitigation Approach	Wetland Type	Site Acreage	Mitigation Ratio (X:1)	Mitigation Acreage
Towanda Creek	Re-establishment	-	1.38	1:1	1.37 ¹
	Enhancement	PEM/PSS	6.60	2:1	3.30
	Preservation	PFO	8.05 ²	-	-
	Totals	-	16.03	-	4.67

Notes:

1 – The Mitigation Acreage Total accounts for 0.01 acre of proposed permanent impact to PEM Wetland W-2 within the Saddle Swamp easement area as a result of proposed upgrades/improvements to a permanent agricultural crossing at the PRM Site. This proposed impact has been deducted from the Mitigation Acreage Total.

2 - The PRM Project will preserve 8.05 acres of PFO wetlands within the Chippewa easement. While the USACE recognizes preservation as mitigation at a ratio of 6.66:1, the PADEP does not and therefore PFO preservation was not included in the final mitigation acreage total.

In addition to providing sufficient acreage to compensate for impacts to PSS and PFO resources as a result of the Project, mitigation at the PRM Site will additionally include upland restoration and preservation, providing additional ecological benefits beyond the required mitigation. Construction of the Project will not result in any permanent impacts to streams or other waterbodies. As such, none of the proposed stream enhancement work is being used for mitigation on this Project.

7.0 Mitigation Work Plan

The Mitigation Work Plan is included within the Mitigation Work Plan section of the PRM Plan (Appendix C: Towanda PRM Plan). This work plan discusses how the specific physical characteristics of the site (e.g. topography, hydrology, soils, past land use) factor into the mitigation design, and the proposed actions that will be undertaken to attain ecological uplift.

8.0 Maintenance Plan

The PRM Site will be monitored and maintained by FPR, as described in the Monitoring Requirements section of the PRM Plan. FPR will act as the willing agent to perform all duties associated with satisfying compensatory mitigation requirements. Through contractual agreement with the Permittee, FPR will commit to restoring, enhancing, and preserving wetland functions and maintaining wetland habitats in accordance with the provisions in the PRM Plan.

Yearly maintenance will be documented in the annual monitoring report along with a discussion of any anticipated maintenance events that will be needed the following year. In general, two to three site visits will be conducted annually during the first 3 years to monitor the sites for invasive species and adapt the yearly maintenance plans as needed based upon these observations.

In general, maintenance will be heaviest during the first 3 years of establishment, and will usually entail mechanical weed control events, along with two to three chemical control events, all targeting invasive species. Maintenance will focus on controlling any pockets of invasive species

that might still be present on-site and monitoring for the establishment of any new stands of invasive species. Control methods will be targeted to deal with the individual species as they are found and will include both mechanical and chemical control. The Agent projects that by the 4th and 5th years, the intensity of management efforts required will drop off significantly as the native plant community will be relatively well established and resilient against the establishment and encroachment of invasive species.

9.0 Performance Standards

The Permittee will monitor the PRM Site to demonstrate compliance with the Performance Standards detailed in Section 9.0: Performance Standards within the PRM Plan.

10.0 Monitoring Requirements

In accordance with the provisions detailed in Section 10.0: Monitoring Requirements of the PRM Plan (Appendix C: Towanda Creek PRM Plan), an as-built report will be submitted to the PADEP and USACE within 60 days following completion of all work outlined in the PRM Plan. The Permittee will monitor the PRM Site for 5 years to demonstrate compliance with the Performance Standards. A 5 year baseline monitoring time period is appropriate because the mitigation provided by the PRM Site will not be used to offset permanent fill impacts, and the majority of the restoration is enhancement of existing wetlands. FPR will submit a monitoring report to the PADEP and USACE by December 31st of the year monitoring occurs. The monitoring report will include data sufficient for comparison to the Performance Standards described in Section 9.0: Performance Standards of the Towanda Creek PRM Plan (Appendix C). FPR will also include a discussion of all activities that took place at the PRM Site. At a minimum, the monitoring report will include the monitoring program components detailed in Section 10.0: Monitoring Plan of the Towanda Creek PRM Plan (Appendix C).

11.0 Long-Term Management Plan

The following long-term management plan will apply to the PRM Site. Site-specific details are provided within the long-term management plan included in the PRM Plan.

To ensure the long-term sustainability of the restoration project, FPR will initially perform maintenance and long-term management. The Permittee anticipates that these activities will be minimal as the project is designed to be self-sustaining with limited management activities. After performance standards have been successfully attained, annual visual inspections will be conducted after each growing season to identify any need for invasive species control, additional signage, or boundary maintenance. The USACE and PADEP will be notified if any remedial action is necessary to ensure compliance with the original performance standards detailed in the PRM Plan. Specific items required as part of a Long-Term Management Plan are listed below.

Annual Patrols

Walk-through surveys will be conducted annually to qualitatively monitor the general condition of the habitats on the site. Notes to be made may include observations of species encountered, water quality, general extent of wetlands and streams, and any occurrences of erosion, structure failure, or invasive or non-native species establishment. If there are any noted items that require maintenance, this should be recorded and submitted in a report to the Agencies.

Invasive Species Monitoring

The walk-through survey will include a qualitative assessment (e.g. visual estimate of cover) of invasive species. If there is a continuous area exceeding 1/8 of an acre containing invasive species, the Long-Term steward should note this in a report to the agencies and conduct invasive species control to remove the noted species. Follow up monitoring should be conducted the following year, with follow up maintenance if needed.

Forestry Management Practices

Any practices to reduce diseased or dead vegetation will be allowed if the vegetation compromises the long-term viability of the PRM Site.

Trash and Trespass

If needed, trash will be removed and any necessary measures to prevent or repair damage from vandalism and trespass impacts should be taken.

Enforcement

The Long-term Steward will be responsible for the enforcement of the conservation easement.

FPR will be the initial designated Long-term Steward charged with long-term management and maintenance responsibility once performance standards as described in the PRM Plan are attained. FPR may appoint a third-party long-term Steward in accordance with 33 CFR 332.7(d)(1) to take over as the long-term easement holder for the PRM Site into perpetuity. At that time the new easement holder may if they wish transfer the Deed of Restrictive Covenant into a Conservation Easement. The long-term stewardship funding will transfer to the appointed long-term easement holder upon transfer of legal responsibility, to provide funding for the long-term maintenance and monitoring of the property. The appointment of such an entity will be approved by the PADEP and/or USACE.

12.0 Adaptive Management Plan

An adaptive management plan including contingency, and remedial responsibilities will be implemented in the event monitoring reveals that certain Performance Standards have not been met. In the event of a deficiency, FPR will provide notice to the PADEP and USACE. The notice will include an explanation for the deficiency and will outline specific practices and measures that will guide decisions for revising the compensatory mitigation plan if needed. An individual adaptive management plan based on project-specific performance standards is provided within the PRM Plan (Appendix C: Towanda Creek PRM Plan).

13.0 Financial Assurances

FPR will establish a performance bond to ensure that PRM Site construction is completed and all performance standards are met. A sample performance bond is provided in the PRM Plan (Appendix C: Towanda Creek PRM Plan). The financial assurance mechanism will be a surety bond for the PRM Site that will cover construction, maintenance and monitoring costs associated with the PRM Site. Proof that the surety bond has been executed will be provided to the agencies within 60 days after approval of the joint permit. The performance bond utilized by FPR is underwritten by a Surety with a rating of A+ (A.M. Best Ratings, 2010).

Once construction at the PRM Site is completed and the as built plans are approved by the PADEP and USACE, the bond will be reduced by 70 percent. The remaining 30 percent will be left in place for the life of the PRM Site to cover maintenance and monitoring costs. The bond will be

closed once all performance standards are met, and final sign-off on the PRM Site has been provided by the USACE and PADEP.

Long-term Stewardship Funding

Prior to construction of the Project, the Permittee will deposit funds into an escrow account to cover long-term stewardship of the PRM Site. These funds are anticipated to be sufficient to cover the full cost of long-term stewardship activities for the entire PRM Site. The total sum for the PRM Site escrow amount includes all expenses for long-term management and allocates funds for invasive species management contingency funds, and is provided in the PRM Plan.

14.0 References

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APPENDIX A

Figures

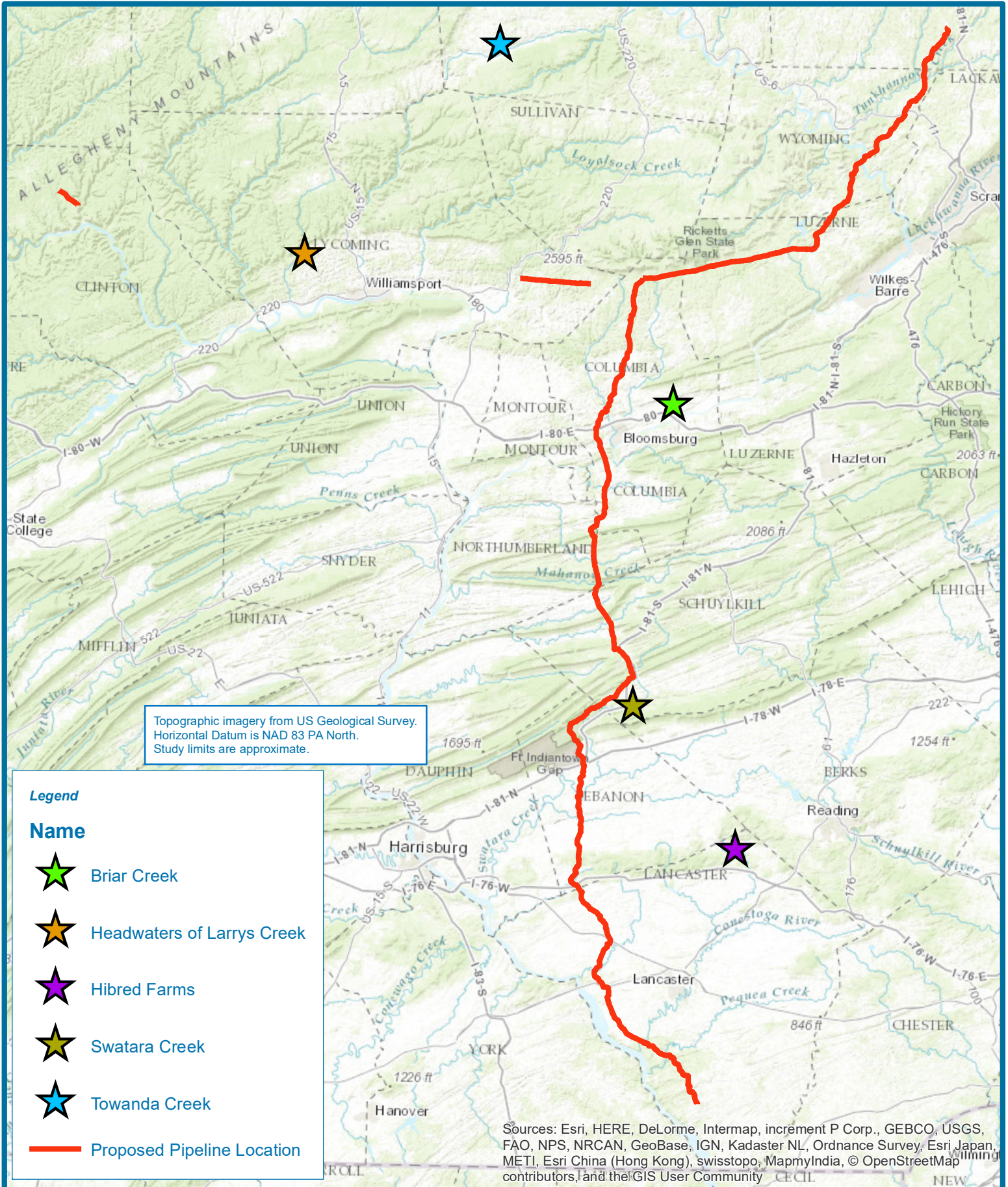
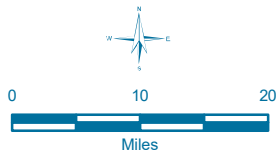


FIGURE 1

ATLANTIC SUNRISE PROJECT
PROJECT LOCATION MAP

PENNSYLVANIA



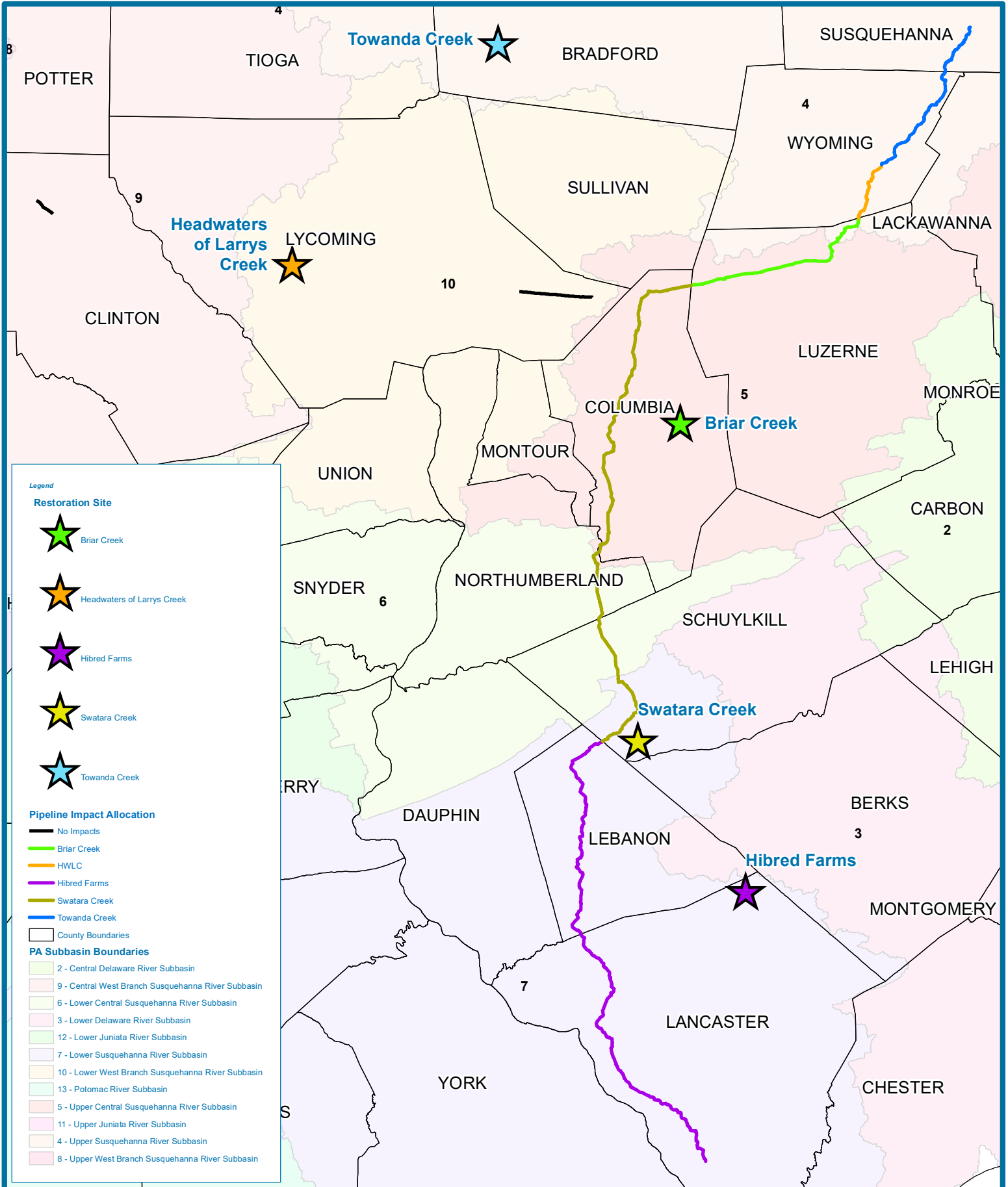
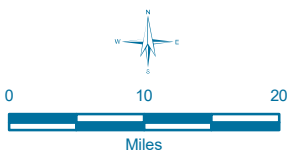
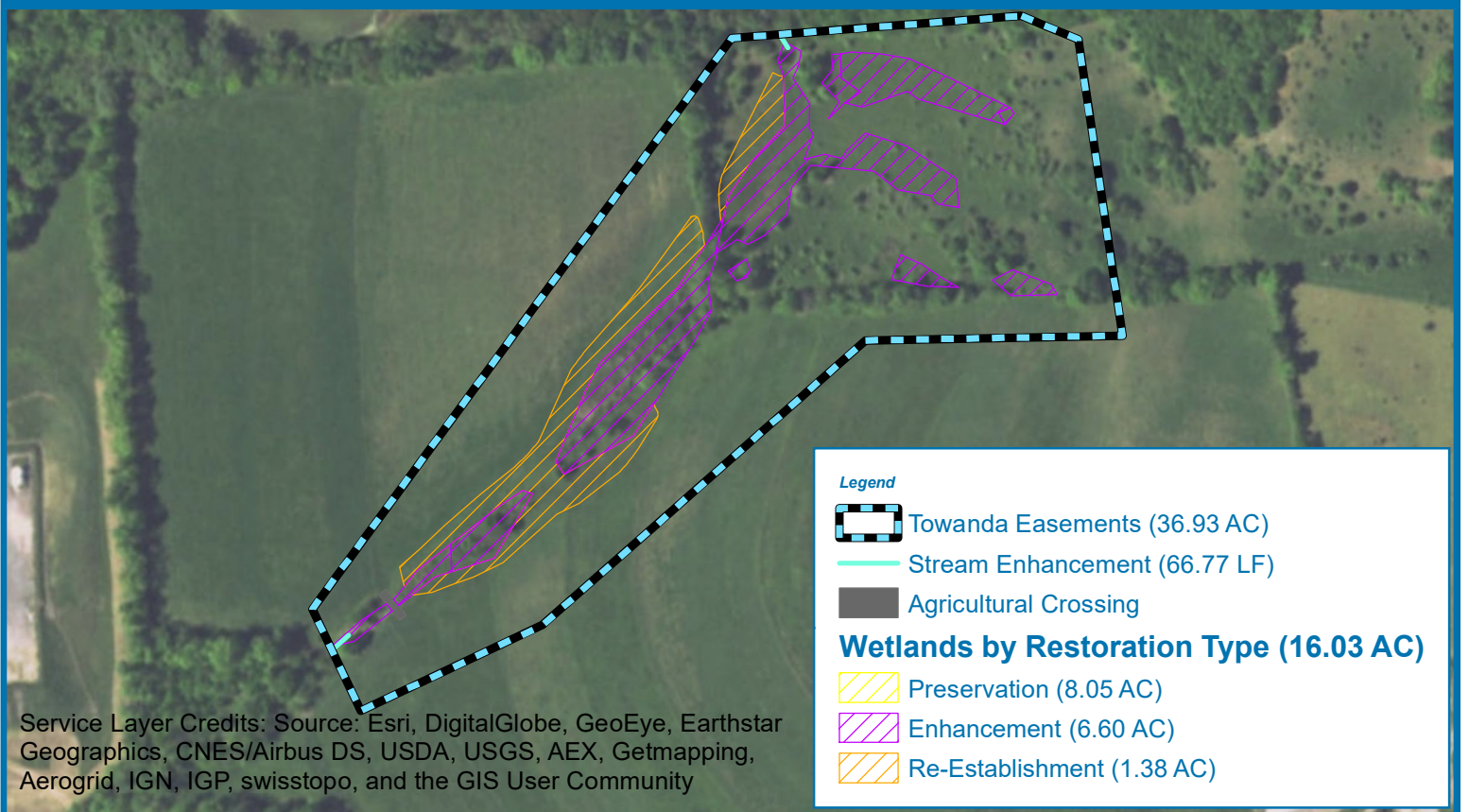


FIGURE 2




ATLANTIC SUNRISE PROJECT
MITIGATION SITE/IMPACT LOCATION
REFERENCE MAP

PENNSYLVANIA








Legend

-  Towanda Easements (36.93 AC)
-  Stream Enhancement (66.77 LF)
-  Agricultural Crossing

Wetlands by Restoration Type (16.03 AC)

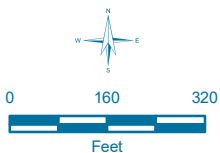
-  Preservation (8.05 AC)
-  Enhancement (6.60 AC)
-  Re-Establishment (1.38 AC)

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 3

ATLANTIC SUNRISE PROJECT
TOWANDA CREEK MITIGATION SITE
RESOURCE DEVELOPMENT MAP

BRADFORD COUNTY, PENNSYLVANIA



APPENDIX B

Impact Site Wetland Function-Value Evaluation Forms

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? _____ Is wetland part of a wildlife corridor? _____ or a "habitat island"? _____

Adjacent land use forest Distance to nearest roadway or other development _____

Dominant wetland systems present P&M 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? _____

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

Wetland I.D. W-730-2107

Latitude _____ Longitude _____

Prepared by: KP Date 10/23/2004

Wetland Impact:
Type _____ Area _____

Evaluation based on:

Office _____ Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6, 7, 13, 14	7	
Floodflow Alteration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5, 9, 10, 13,		
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7, 8 , ⁸ 7, 8, 9, 11, 14, 15,	16, 17	
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7, 5, 10, 12,		
Nutrient Removal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3, 7, 12,		
Production Export	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—		
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	—		
Wildlife Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3, 4, 5, 7 ⁸		
Recreation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—		
Educational/Scientific Value	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—		
Uniqueness/Heritage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—		
Visual Quality/Aesthetics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—		
ES Endangered Species Habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—		
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? _____ Is wetland part of a wildlife corridor? _____ or a "habitat island"? _____

Adjacent land use forest and ag lands Distance to nearest roadway or other development _____

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present _____

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? _____

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

Wetland I.D. W-130-21000

Latitude _____ Longitude _____

Prepared by: RP Date 10/23/2014

Wetland Impact:
Type _____ Area _____

Evaluation based on:

Office _____ Field

Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge		X	-		
Floodflow Alteration		X	3, 18		
Fish and Shellfish Habitat		X	-		
Sediment/Toxicant Retention		X	4		
Nutrient Removal	X		7, 8, 9, 10	X	
Production Export		X	1, 7		
Sediment/Shoreline Stabilization		X	-		
Wildlife Habitat		X	-		
Recreation		X	-		
Educational/Scientific Value		X	-		
Uniqueness/Heritage		X	-		
Visual Quality/Aesthetics		X	-		
ES Endangered Species Habitat		X	-		
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? NO Is wetland part of a wildlife corridor? NO or a "habitat island"? NO
 Adjacent land use Agriculture Distance to nearest roadway or other development _____
 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? Upper
 How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T12-21004
 Latitude 43°47'32.26 Longitude 46°12'15.71
 Prepared by: E. V. V. S. Date 6/23/14
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office _____ Field
 Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability Y N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	6, 7, 9, 13	7, 13	Wetland discharges to intermittent stream via constructed outlet
Floodflow Alteration	<input checked="" type="checkbox"/>		5	wetland contains hydric soils capable of retaining water
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>			
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>	4, 9, 10, 13	9	Drainage ditches have not been constructed
Nutrient Removal	<input checked="" type="checkbox"/>	7, 9	9	Emergent vegetation is dominant; cattle pasture
Production Export	<input checked="" type="checkbox"/>			
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>			
Wildlife Habitat	<input checked="" type="checkbox"/>	3, 7	3	wetland is not fragmented by development
Recreation	<input checked="" type="checkbox"/>			
Educational/Scientific Value	<input checked="" type="checkbox"/>	13	13	No known safety hazards are present.
Uniqueness/Heritage	<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>	7, 10, 12	7	No trash present in wetland
Endangered Species Habitat	<input checked="" type="checkbox"/>			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No
 Adjacent land use Agriculture Distance to nearest roadway or other development _____
 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? Upper
 How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T12-21003
 Latitude 43°59'32.14 Longitude 76°12'36.05
 Prepared by: F. Virts Date 6/23/14
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office _____ Field
 Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		6,7,9,13	7, 13	Wetland Discharges to intermittent stream via constructed outlet
Floodflow Alteration	<input checked="" type="checkbox"/>		2,5,7,13,15	5	wetland contains hydric soils capable of retaining water
Fish and Shellfish Habitat		<input checked="" type="checkbox"/>			
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		4,9,10,13	9	Drainage ditches have not been constructed
Nutrient Removal	<input checked="" type="checkbox"/>		7,9	9	Emergent vegetation in island wetland; cattle pasture
Production Export		<input checked="" type="checkbox"/>			
Sediment/Shoreline Stabilization		<input checked="" type="checkbox"/>			
Wildlife Habitat	<input checked="" type="checkbox"/>		3,7	3	wetland is not fragmented by development
Recreation		<input checked="" type="checkbox"/>			
Educational/Scientific Value	<input checked="" type="checkbox"/>		2, 13	13	No known safety hazards present
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>		7,10,12	7	No trash present in wetland
Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? No Is wetland part of a wildlife corridor? No ^{Yes} or a "habitat island"? No
 Adjacent land use Mtce forest and agriculture Distance to nearest roadway or other development 0.4 miles
 Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes
 Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____
 How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T12-21002
 Latitude 41.126288 Longitude 96.12176-27
 Prepared by: E.V. Itz Date 6/25/14
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office _____ Field
 Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		6, 8, 13	13	Spring fed wetland that quickly sinks in Rock fractures
Floodflow Alteration	<input checked="" type="checkbox"/>		5, 9	9	Depression receives & retains runoff from uplands.
Fish and Shellfish Habitat		<input checked="" type="checkbox"/>	9 - EV	9	There are no drainage ditches present ^{EV}
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		9	9	There are no drainage ditches present
Nutrient Removal			5	5	wetland is saturated due to presence of spring
Production Export		<input checked="" type="checkbox"/>			
Sediment/Shoreline Stabilization		<input checked="" type="checkbox"/>			
Wildlife Habitat	<input checked="" type="checkbox"/>		1, 3, 4, 5, 19, 20	20	Diverse Amphibian population likely present
Recreation		<input checked="" type="checkbox"/>			
Educational/Scientific Value	<input checked="" type="checkbox"/>		2, 5, 13,	5	Valuable habitat waterhole for ^{EV} wildlife
Uniqueness/Heritage	<input checked="" type="checkbox"/>		16	16	Wetland appears unpolluted
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>		5, 8, 10, 12	8	Valuable water hole for wildlife
Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No
 Adjacent land use Agriculture - Existing ^{Utility} segment Distance to nearest roadway or other development 400'
 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? _____
 How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T12-21001
 Latitude 43.47492 Longitude 46.1247974
 Prepared by: E. V. ITS Date 6/23/14
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office _____ Field
 Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability Y N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	2, 6, 7, 9, 13,	6	Wetland is underlain by shallow bedrock.
Floodflow Alteration	<input checked="" type="checkbox"/>	3, 5, 9, 13, 18	18	Vegetation (Herbaceous) is very dense in this wetland.
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>			
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>	4, 7, 9, 10, 13, 16	9	Hillside wetland that does not contain drainage ditches
Nutrient Removal	<input checked="" type="checkbox"/>	5, 7, 8, 9, 10, 12, 14	9	Vegetation (Emergent) is dense; therefore potential for attenuation
Production Export	<input checked="" type="checkbox"/>	7	7	Dense Emergent vegetation is present
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>			
Wildlife Habitat		4, 13,	4	Area surrounding on one side is open hay field.
Recreation	<input checked="" type="checkbox"/>			
Educational/Scientific Value	<input checked="" type="checkbox"/>			
Uniqueness/Heritage	<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>	7, 10, 12	12 7	Easily viewable wetland with no trash present
ES Endangered Species Habitat	<input checked="" type="checkbox"/>			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? NO Is wetland part of a wildlife corridor? _____ or a "habitat island"? _____

Adjacent land use _____ Distance to nearest roadway or other development _____

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present _____

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? _____

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

Wetland I.D. W-T12-21001A
 Latitude 43144664 Longitude 46128015
 Prepared by: D. HERRICK Date 6/28
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office _____ Field
 Corps manual wetland delineation completed? Y N

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		2, 6, 7, 9, 13	6	Wetland is underlain by shallow bedrock
Floodflow Alteration	<input checked="" type="checkbox"/>		3, 5, 9, 13, 14	13	Hill slope above wetland contains little flood storage
Fish and Shellfish Habitat		<input checked="" type="checkbox"/>			
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		4, 7, 9, 10, 13,	9	No drainage ditches constructed through wetland
Nutrient Removal	<input checked="" type="checkbox"/>		4,	4	Ag fields exist above wetland on hillside
Production Export	<input checked="" type="checkbox"/>		1, 4	21	Deer tracks noted in wetland
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>		2, 3	2	wetland located on Hill/slope
Wildlife Habitat	<input checked="" type="checkbox"/>		5, 7, 8, 17, 19, 21	17	Deer tracks observed in wetland
Recreation		<input checked="" type="checkbox"/>			
Educational/Scientific Value		<input checked="" type="checkbox"/>			
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>		1	1	PFO and PEM wetlands visible.
ES Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? NO Is wetland part of a wildlife corridor? _____ or a "habitat island"?

Adjacent land use _____ Distance to nearest roadway or other development _____

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present _____

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? _____

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

Wetland I.D. W-TD-21007
 Latitude 45°36.47 Longitude 46°51'44.60
 Prepared by: D. Moore Date 6/88
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office _____ Field
 Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		2,6,7	7	wetland follows stream downhill
Floodflow Alteration	<input checked="" type="checkbox"/>		3,5,8,9,10,13,14	10	wetland follows stream course downhill
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>		14,17	17	stream course has defined channel.
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		1,2,4,9,10,14	10	wetland follows stream downhill
Nutrient Removal	<input checked="" type="checkbox"/>		3,4,7,12	3	farm land and mowed fields above wetland
Production Export	<input checked="" type="checkbox"/>		4	4	animal tracks present in wetland
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>		2,3,4,9	9	streams contain defined channel
Wildlife Habitat	<input checked="" type="checkbox"/>		5,7,8,17,19,20,21	17	various animal tracks and sign present
Recreation	<input checked="" type="checkbox"/>		3,4	3	hunting permitted on private property
Educational/Scientific Value		<input checked="" type="checkbox"/>			
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>		11	11	No unpleasant odors present
ES Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? NA Is wetland part of a wildlife corridor? _____ or a "habitat island"? _____

Adjacent land use _____ Distance to nearest roadway or other development _____

Dominant wetland systems present PBM Contiguous undeveloped buffer zone present _____

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? _____

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

Wetland I.D. W-TR-21007A
 Latitude 41.92.01 Longitude 46.50.55.10
 Prepared by: D. Harris Date 6/28
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office _____ Field
 Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		2, 6, 7	7	wetland follows stream course
Floodflow Alteration	<input checked="" type="checkbox"/>		5, 8, 9, 10, 13, 14	5	wetland contains hydric soils because its a wetland
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>		1, 4, 14, 17	1	watershed above wetland is forested.
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		4, 9, 10	10	wetland follows stream course
Nutrient Removal	<input checked="" type="checkbox"/>		3, 12	3	potential to trap sediment exists
Production Export	<input checked="" type="checkbox"/>		4, 12	4	Animal signs present in wetland
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>		2	2	wetland on slope following stream
Wildlife Habitat	<input checked="" type="checkbox"/>		4, 5, 7, 8, 14, 20, 21	19	wetland area contained numerous insects
Recreation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	3	hunting permitted on private land
Educational/Scientific Value		<input checked="" type="checkbox"/>			
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics		<input checked="" type="checkbox"/>			
ES Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? NO Is wetland part of a wildlife corridor? _____ or a "habitat island"? _____

Adjacent land use _____ Distance to nearest roadway or other development _____

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present _____

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? _____

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

Wetland I.D. W-TD-21008

Latitude 410021 N Longitude 4613716 W

Prepared by: D. Moore Date 6/28

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field

Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		2,6,7	7	wetland drains to stream down slight slope
Floodflow Alteration	<input checked="" type="checkbox"/>		5,6,8,9,10,	5	the wetland contains hydric soils
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>		1,8	1	Forest exists above wetland on hill slope.
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		4,9,10,14	10	Wetland drains to stream.
Nutrient Removal	<input checked="" type="checkbox"/>		12, 11	12 11	water flow is diffuse in wetland.
Production Export		<input checked="" type="checkbox"/>			
Sediment/Shoreline Stabilization		<input checked="" type="checkbox"/>			
Wildlife Habitat	<input checked="" type="checkbox"/>		1,3,4,5,7,19,20,21	3	wetland not fragmented by development
Recreation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	3	hunting permitted on private property
Educational/Scientific Value		<input checked="" type="checkbox"/>			
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics		<input checked="" type="checkbox"/>			
ES Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? NO Is wetland part of a wildlife corridor? _____ or a "habitat island"? _____

Adjacent land use _____ Distance to nearest roadway or other development _____

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present _____

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? _____

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

Wetland I.D. W-T12-21009A
 Latitude 44221.50 Longitude 9616157.02
 Prepared by: D. Herrera Date 6/28
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office _____ Field
 Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability Y N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	2, 7	7	wetland flows into stream
Floodflow Alteration	<input checked="" type="checkbox"/>	5, 6, 8, 9, 10,		In a large storm wetland may contain more water
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>	1, 2, 7, 8, 9, 10, 11, 14, 16, 17	1	Area above watercourse forested
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>	1, 2, 3, 4, 10, 14,	10	wetland associated with stream course
Nutrient Removal	<input checked="" type="checkbox"/>	3, 4, 7, 12,	3	overall potential for sediment trapping in wetland
Production Export	<input checked="" type="checkbox"/>	1, 4, 14	1	wildlife food sources exist in wetland.
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>	2, 3, 4, 9,	2	wetland in sloped area along stream
Wildlife Habitat	<input checked="" type="checkbox"/>	1, 3, 5, 6, 7, 8, 17, 19, 20, 21	6	wetland is contiguous with other wetlands along watercourse
Recreation	<input checked="" type="checkbox"/>	2, 3, 4, 5,	3	hunting permitted on private land
Educational/Scientific Value	<input checked="" type="checkbox"/>			
Uniqueness/Heritage	<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>			
ES Endangered Species Habitat	<input checked="" type="checkbox"/>			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? _____ Is wetland part of a wildlife corridor? _____ or a "habitat island"? _____

Adjacent land use Forest and Pipeline R.O.W. Distance to nearest roadway or other development _____

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present _____

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T17-21001

Latitude 41.019.50 Longitude 46.8022.8

Prepared by: B. Virens Date 7/1/14

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4, 12	<input checked="" type="checkbox"/>	
Floodflow Alteration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 5, 9, 18		
Fish and Shellfish Habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>			not associated with a watercourse
Sediment/Toxicant Retention	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4		not associated with a watercourse
Nutrient Removal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7, 8, 9, 10, 11		
Production Export	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7, 12		
Sediment/Shoreline Stabilization	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2		
Wildlife Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3, 4, 5, 7, 8, 13	<input checked="" type="checkbox"/>	
Recreation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5, 7		
Educational/Scientific Value	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 5, 13, 14		
Uniqueness/Heritage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	19		
Visual Quality/Aesthetics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7, 8, 12		
ES Endangered Species Habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Other	<input type="checkbox"/>	<input type="checkbox"/>			

Notes:

* Refer to backup list of numbered considerations.

APPENDIX C

Towanda Creek Permittee-Responsible Mitigation Plan