ATTACHMENT Q -1

WYOMING COUNTY MITIGATION MASTER PLAN

(UNDER SEPARATE COVER)

Permittee-Responsible Mitigation Master Plan for the Atlantic Sunrise Project

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

Prepared By:
First Pennsylvania Resource, LLC.
a wholly-owned subsidiary of Resource Environmental Solutions, LLC.
33 Terminal Way, Suite 431A
Pittsburgh, PA 15219

Revision 2
April 2017

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 Introduction

First Pennsylvania Resource, LLC. (FPR), a wholly-owned subsidiary of Resource Environmental Solutions ("RES"), prepared this Permittee-Responsible Mitigation (PRM) 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 associated with Project activities in Wyoming County, Pennsylvania. This plan includes two site-specific PRM Plans as Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek PRM Plan, which provide additional detail for each proposed PRM site where mitigation will offset the proposed wetland impacts in Wyoming County. Appendix A, Figure 1: Project Location Map provides an overview of the proposed Project and associated PRM sites.

Wetland mitigation for impacs in Wyoming County was previously allocated across the Towanda Creek and Briar Creek PRM Sites. Due to the addition of a newly identified mitigation site, coupled with the overall reduction in wetland impacts requiring mitigation, the Headwaters of Larrys Creek Mitigation Site is now being used in place of the Briar Creek Mitigation Site to offset impacts occurring in Wyoming County.

2.0 Objectives

The objectives of the PRM Project 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) and non-EV Palustrine Scrub Shrub (PSS) and Palustrine Forested (PFO) wetlands associated with the Project. As described in this PRM Master Plan for Wyoming County, and in the individual PRM Plans prepared for each individual PRM Site (Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys 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 Wyoming County also uses ratio based replacement requirements to ensure that the functional replacement being provided adaquately replaces the physical acreage of the functional areas being impacted in Wyoming County. Additionaly, while the two PRM Sites will mitigate for impacts that occur across ***three*** counties as a result of the Project, this PRM Master Plan addresses impacts that occur only in Wyoming County.

Overarching Approach and Mitigation Sites

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 site. 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 Wyoming County will occur across two PRM sites as shown in Table 1: PRM Sites for the Atlantic Sunrise Project (Wyoming County).

Table 1: Proposed PRM Sites for the Atlantic Sunrise Project (Wyoming County)

Mitigation Site	Watershed	County	Site-Specific PRM Report Appendix
Towanda Creek	4	Bradford	C
Headwaters of Larrys Creek	10	Lycoming	D

The Towanda Creek PRM site includes riparian wetlands within the floodplain of a trout stocked migratory fishery. The Headwaters of Larrys Creek PRM Site includes riparian wetlands within the floodplain of a UNT to Larrys Creek, a naturally reproducing trout stream. 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 two PRM sites 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 sites 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 United States, followed by In-Lieu Fee credits, 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 were needed to offset Project impacts in other Watersheds besides Watershed 4. 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

In-Lieu Fee crediting is not an option for this project because no active In-Lieu Fee 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 narrow 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 could 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 isloated projects have been shown to be less ecologically beneficial, have a lower likelihood for long-term success, are more succepitble 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 determined that the on-site mitigation opportunities were 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 would 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 would ensure the greatest chance of success for this project and most effectively address watershed needs. The proposed PRM sites embody 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 sites will be permanently protected by declarations of restrictive covenant in advance of the proposed activities outlined in this mitigation plan, ensuring the long-term protection of the PRM sites. The site protection instruments will be recorded in the county courthouses 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 instruments to be filed upon permit approval is included in each individual PRM Plan (Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek PRM Plan). The site protection instruments restrict 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 Sites 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 Sites in perpetuity, they will have the option to switch the declaration of restrictive covenant to a conservation easement. Entrusting the PRM to a third-party conservation easement holder may commence only when FPR, the Permittee, and the agencies have mutually concluded that the PRM 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 sites. 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 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 Informaion 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 each individual PRM site are provided in Section 5.0: Baseline Information of Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek PRM Plan. The following table provides a summary of existing resources at each of the PRM sites. Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek PRM Plan provide the site-specific PRM Reports, which include further detail regarding existing site resources based upon the wetland delineations and other environmental surveys conducted at each site.

Table 2: Summary of Existing PRM Site Resources

Resource Type		PRM Site Pre-Mitigation Resources		
		Towanda Creek	***Headwaters of Larrys Creek***	**Totals**
Total Acres		36.93	***9.98***	***46.91***
Uplands		22.31	***4.27***	***26.58***
Wetlands[1] (Acres)	PEM	2.21	***5.50***	***7.71***
	PEM/PSS	-	-	-
	PEM/PSS/PFO	-	-	-
	PSS	4.36	-	***4.36***
	PFO	8.05	-	***8.05***
	PUB	-	-	-
	TOTAL	**14.62**	***5.50***	***20.12***
Streams (Linear Feet)	Perennial	-	***2,354.37***	***2,354.37***
	Intermittent	66.77	-	66.77
	Ephemeral	-	-	-
	TOTAL	**66.77**	**5,412.56**	**5,479.33**

Notes:

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

The following table provides a summary of clearances and approvals received for each PRM Site. Further detail regarding the status and history of these clearances, including copies of individual approvals, is provided within the PRM Reports in Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys 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
	Rare, Threatened, and Endangered Species	***PNDI Clearance Renewed 3/21/17***
	E&S Control (Chapter 102)	Clearance Received 7/15/15

Headwaters of Larrys Creek	USACE Section 404/401 WQC	Under Review
	PHMC	Clearance Received 5/11/15
	Rare, Threatened, and Endangered Species	PNDI Clearance Renewed 3/21/17
	E&S Control (Chapter 102)	Approved 1/30/13 (Permit No. PAI044112007). Minor modification approved 5/2/16.

6.0 Determination of Mitigation Needs

Project Impacts

The Project will result in 2.12 acres of impacts to EV and non-EV PSS and PFO wetlands in Wyoming County. Of the 2.12 wetland impact acres, 0.17 are non-EV PSS, 0.02 are EV PSS, 1.06 are non-EV PFO, and 0.87 acre are EV PFO impacts. Impact totals in Wyoming County were aggregated and rounded to two significant digits to determine mitigation needs.

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 Wyoming 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 Wyoming County are proposed to be mitigated for at the PRM Sites. The PFO construction impacts will however 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 Sites 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 Sites: 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. 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 Sites will provide a total of ***8.53*** acres of mitigation (4.67 acres from Towanda Creek and ***3.86*** acres from the ***Headwaters of Larrys Creek*** PRM Sites, respectively), which will be used to offset Project impacts across ***three*** counties. Of the ***8.53*** mitigation acres provided by the PRM Sites, ***4.59*** acres are required for impacts occurring in Wyoming County. Table 4: Summary of Impacts In Wyoming County and Required Mitigation provides a summary of mitigation needs

and physical impacts. Total available mitigation 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.

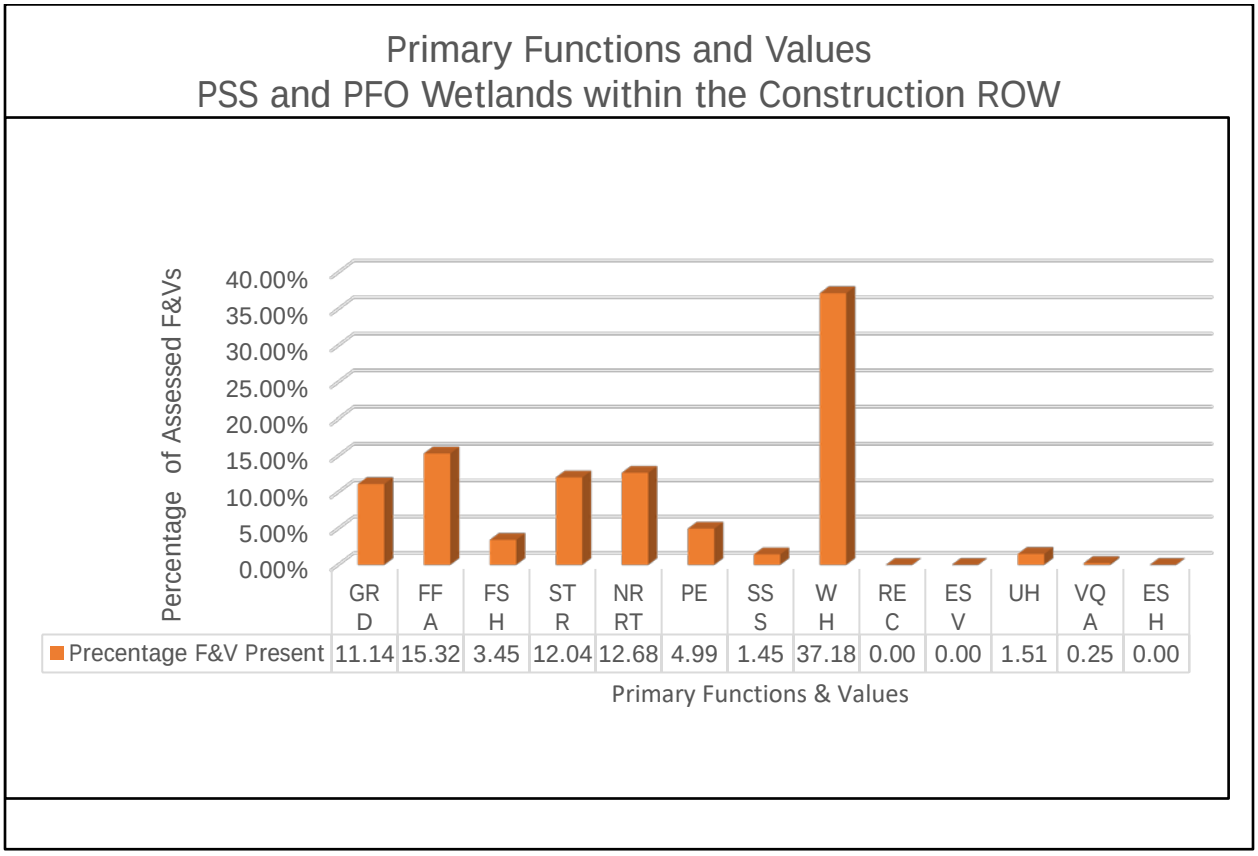
Table 4: Summary of Impacts in Wyoming County and Required Mitigation

Wetland Type	Wetland Impacts (Acres)	Proposed Mitigation Ratio (X:1)	Total Mitigation Needed	Total Mitigation Available (Acres)
EV PFO	*0.87*	2.5	*2.18*	
Non-EV PFO	*1.06*	2.0	*2.12*	
EV PSS	*0.02*	1.75	*0.04*	*8.53*
Non-EV PSS	*0.17*	1.5	*0.26*	
(Total)	*2.12*	-	*4.59*	

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 sites. 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 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 Wyoming 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
- **VQA** - Visual Quality and Aesthetics
- **ESH** - Endangered Species Habitat
- **SSS** - Sediment/Shoreline Stabilization
- **WH** - Wildlife Habitat
- **REC** - Recreation
- **ESV** - Educational/Scientific Value
- **UH** - Uniqueness/Heritage

Based on an assessment of any potential impacts to the functions and values of wetlands in association with construction and operation of the Project, it was deemed no mitigation would be required. Impacts to PEM wetlands will be temporary, and all areas will be reurned 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 Sites to offset these impacts. Construction (temporary) impacts to PSS wetlands are 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 sites will experience as a result of the proposed mitigation. The baseline field forms are included within the individual PRM Plans (Appendix C: Towanda Creek PRM Plan and Appendix D: Headwaters of Larrys Creek Creek PRM Plan, respectively). These improvements to the wetland functions and values after restoration combined with the additional upland acreage restored as part of the PRM Sites will more than offset the overall functions and values lost as a result of the Project. Table 5: Summary of Functional Uplift summarizes the proposed functional uplift for each 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
	Sediment/Toxicant Retention	No	Yes
	Nutrient Removal	No	Yes
	Groundwater Recharge/Discharge	No	Yes
	Wildlife Habitat	Yes	Yes
Towanda Creek – Saddle Swamp	Nutrient Removal	No	Yes
	Sediment/Toxicant Retention	Yes	Yes
	Wildlife Habitat	No	Yes
	Groundwater Recharge/Discharge	Yes	Yes

Table 5: Summary of Functional Uplift (Continued)			
Site Location	**Functions and Values**	**Pre-Project Principal Function**	**Post-Project Principal Function**
Headwaters of Larrys Creek	Flood Flow Alteration	No	Yes
	Sediment/Toxicant Retention	No	Yes
	Nutrient Removal	Yes	Yes
	Sediment/Shoreline Stabilization	No	Yes
	Wildlife Habitat	No	Yes

Proposed Mitigation Acreage

The mitigation ratios used to allocate mitigation acreage for each resotration activity at the PRM sites 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 adaquate 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 re-establishment and enhancement, and upland restoration in the amounts indicated in Table 6: Wetland Mitigation Summary by PRM Site, which includes the mitigation approach, wetland resources, applicable mitigation ratios, and mitigation acreages provided by each PRM site. Appendix A, Figures 3a-3b presents resource development maps for the proposed restoration activities at each proposed PRM site as summarized below.

Table 6: Wetland Mitigation Summary by PRM Site					
PRM Site	**Mitigation Approach**	**Wetland Type**	**Site Acreage**	**Mitigation Ratio**	**Mitigation Acreage**
Towanda Creek Bradford County	Re-establishment	PFO	1.37	1:1	1.37
	Enhancement	PEM/PSS	6.60	2:1	3.30
	Preservation	PFO	8.05*	-	-
	TOTAL		**16.02**	-	**4.67**
Headwaters of Larrys Creek Lycoming County	***Re-establishment***	***PFO***	***0.77***	***1:1***	***0.77***
	Rehabilitation	***PEM***	***3.03***	***1.5:1***	***2.02***
	Enhancement	***PEM***	***2.36***	***2:1***	***1.18***
	Permanent Impact from Restoration	***PEM***	***(0.11)***	***-***	***(0.11)***
	Upland Restoration	***Upland***	***3.60***	***-***	***-***
	TOTAL		***6.16[1,2]***		***3.86***

Notes:
1 – The Mitigation Work Plan also includes 3.60 acres of upland restoration in addition to 1,613.95 linear feet of stream restoration and 437.56 linear feet of stream enhancement.
2 – Please note the 0.11-acre of permanent wetland impact associated with the restoration has not been subtracted from the mitigation site acreage, as the site mitigation acreage is the amount of wetlands

that will be on-site post-construction. The permanent wetland impacts are, however, removed from the mitigation total to account for their impact.

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 Sites 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

Individual Mitigation Work Plans are included within the Mitigation Work Plan section of each site-specific PRM Plan (Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek PRM Plan). These work plans discuss how the specific physical characteristics of each site (e.g. topography, hydrology, soils, past land use) factor into the mitigation design, and the proposed actions that will be undertaken to attain ecolological uplift.

8.0 Maintenance Plan

The PRM Sites will be monitored and maintained by FPR, as described in the Monitoring Requirements section of each 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 Plans.

Yearly maintenance will be documented in the annual monitoring reports 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 each PRM Site to demonstrate compliance with the Performance Standards detailed in Section 9.0: Performance Standards within each site-specific PRM Plan (Appendix C: Towanda Creek PRM Plan and Appendix D: Headwaters of Larrys Creek PRM Plan).

10.0 Monitoring Requirements

In accordance with the provisions detailed in Section 10.0: Monitoring Requirements, within each site-specific PRM Plan (Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys 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 each PRM Plan. The Permittee will monitor the PRM Sites 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 Sites will not be used to offset permanent fill impacts, and the majority of the restoration is enhancement of existing wetlands. FPR will submit monitoring reports to the PADEP and USACE by December 31^{s}t of the year monitoring occurs. The monitoring reports will include

data sufficient for comparison to the Performance Standards described in Section 9.0: Performance Standards of each site-specific PRM Plan (Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek PRM Plan). FPR will also include a discussion of all activities that took place at the PRM Sites. At a minimum, monitoring reports will include the monitoring program components detailed in Section 10.0: Monitoring Requirements, within each site-specific PRM Plan (Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek PRM Plan).

11.0 Long-Term Management Plan

The following long-term management plan will apply to all of the PRM Sites. Site-specific details are provided within individualized long-term management plans included in each separate PRM Plan (Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek 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 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 each site-specific PRM Report 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 sites into perpituity. At that time the new easement holder may if they wish transfer the Deeds of Restrictive Covenant into Conservation Easements. 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. Individual adaptive management plans based on project-specific performance standards are provided within each PRM Report.

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 individual PRM Plans in Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek PRM Plan. The financial assurance mechanism will be a surety bond for each PRM Site that will cover construction, maintenance and monitoring costs associated with each 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 of PRM projects involving wetland re-establishment and/or rehabilitation 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 the PRM Sites to cover maintenance and monitoring costs. For PRM sites with only enhancement activities, the bond will be reduced by 50 percent following the completion of planting activites, since a proportionatly larger percentage of the projects costs is long term maintenance and monitoring. Each 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 Permitee will deposit funds into an escrow account for each PRM Site to cover long-term stewardship. 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 each PRM escrow amount includes all expenses for long-term management and allocates funds for invasive species management contingency funds, and is provided in each specific PRM Plan (Appendix C: Towanda Creek PRM Plan, and Appendix D: Headwaters of Larrys Creek PRM Plan).

14.0 References

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. Technical Report Y-87-1. 207 p.

Federal Register (2008) Compensatory Mitigation for Losses of Aquatic Resources; Final Rule. 33 CFR Parts 325 and 332. (Volume 73, Number 70). Rules and Regulations. Accessed 8/20/13.http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008_04_10_wetland s_ wetlands_mitigation_final_rule_4_10_08.pdf

United States Department of Agriculture Natural Resources Conservation Service. The PLANTS Database. National Plant Data Center. Accessed 8/20/14. http://plants.usda.gov.

U.S. Army Corps of Engineers. 2011. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, C. V. Noble, and J.F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

United States Army Corps of Engineers, New England District. 1993. Highway Methodology Workbook Supplement: Wetland Functions and Values – A Descriptive Approach. http://www.nae.usace.army.mil/Portals/74/docs/regulatory/Forms/HighwaySuppl ement.pdf

APPENDIX A

Figures

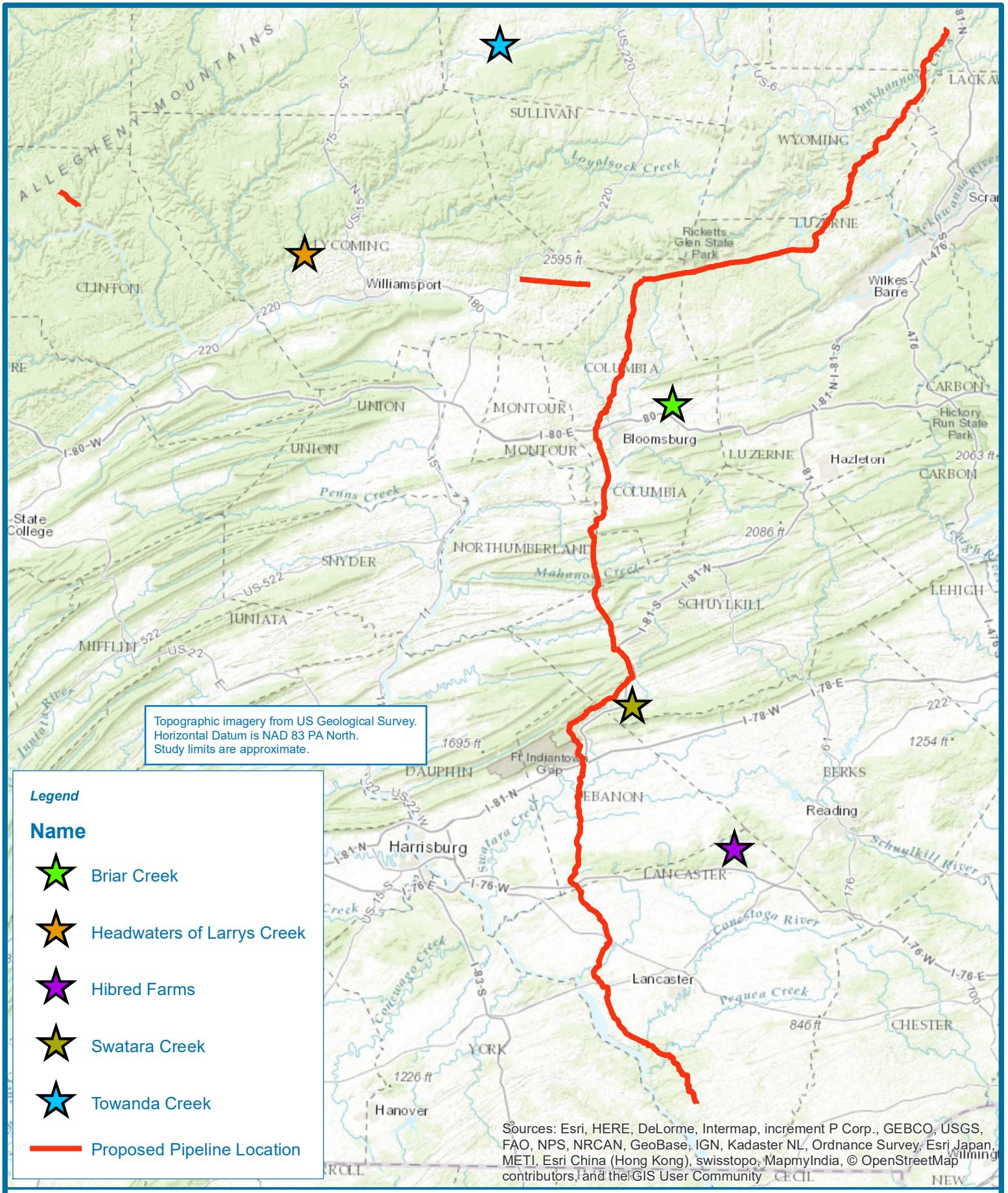


FIGURE 1

ATLANTIC SUNRISE PROJECT
PROJECT LOCATION MAP

PENNSYLVANIA

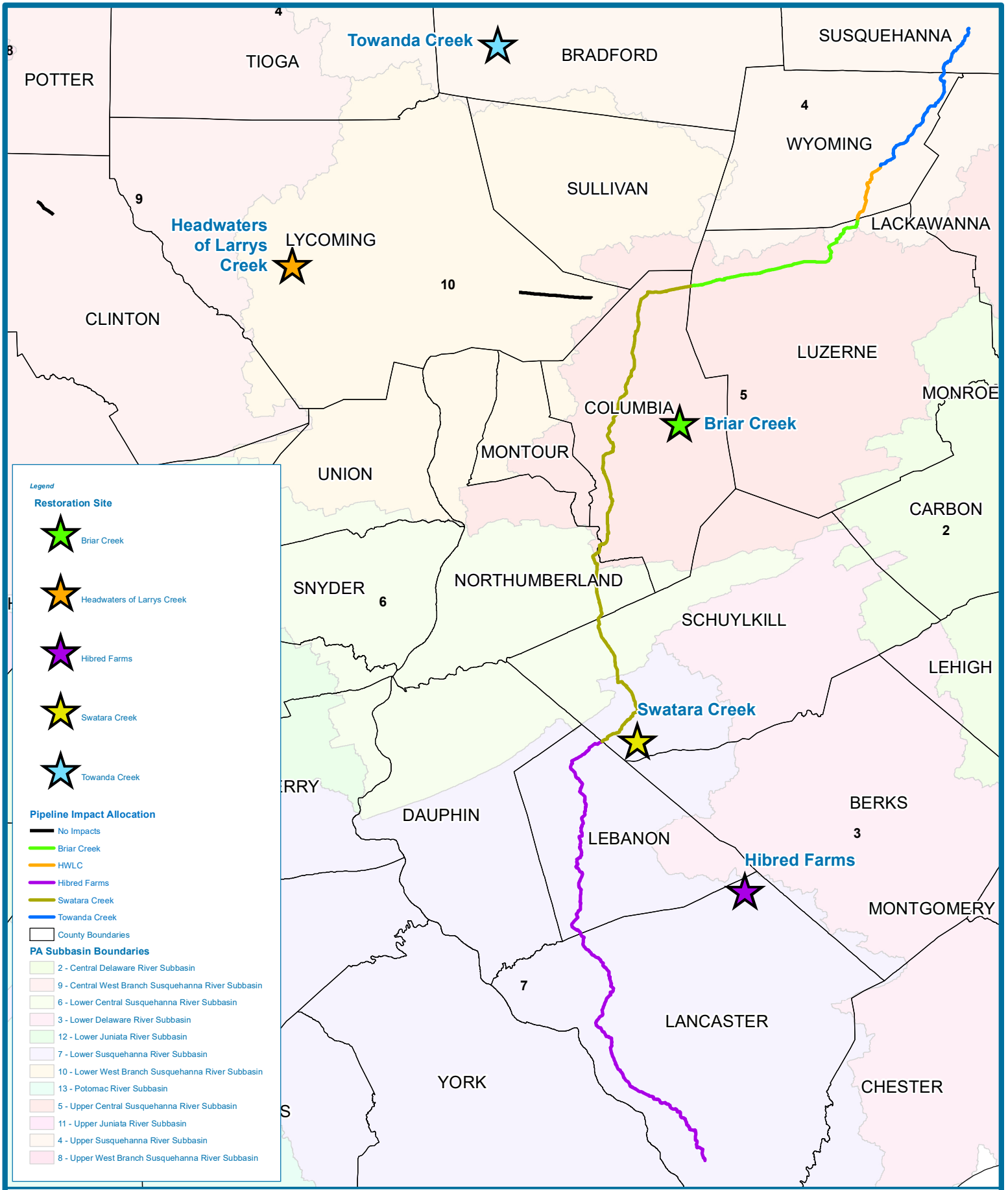


FIGURE 2

ATLANTIC SUNRISE PROJECT
MITIGATION SITE/IMPACT LOCATION
REFERENCE MAP

PENNSYLVANIA

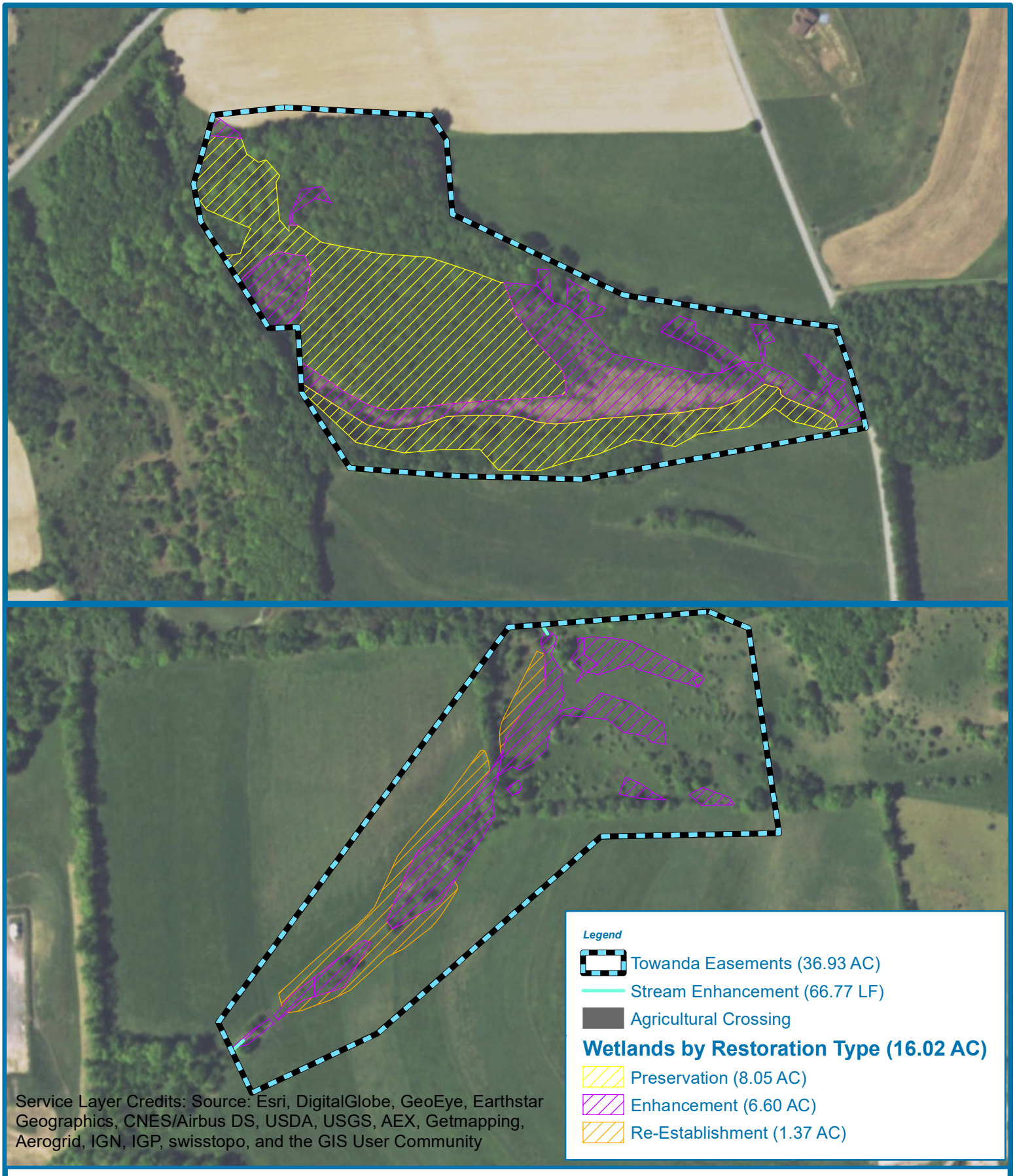


FIGURE 3A

ATLANTIC SUNRISE PROJECT
TOWANDA CREEK MITIGATION SITE
RESOURCE DEVELOPMENT MAP

BRADFORD COUNTY, PENNSYLVANIA

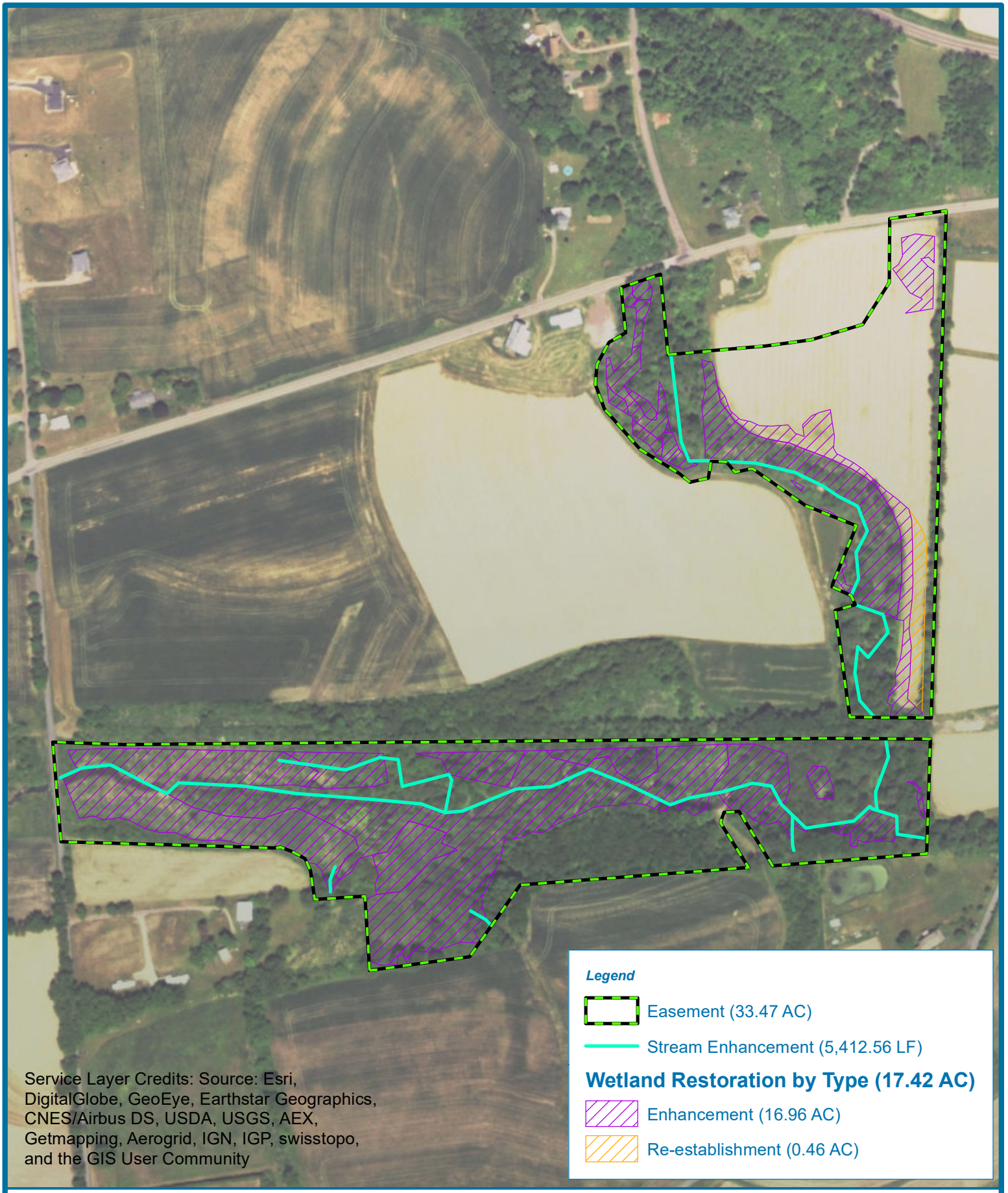


FIGURE 3B

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
RESOURCE DEVELOPMENT MAP

COLUMBIA 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 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? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T30-210A

Latitude_____ Longitude_____

Prepared by: KP Date 10/23/2014

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field X

Corps manual wetland delineation completed? Y X N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y		6,7,13,14	7	
Floodflow Alteration	Y		5,9,10,13,		
Fish and Shellfish Habitat	Y		7,8,9,11,14,15,	X	16,17
Sediment/Toxicant Retention	Y		4,5,10,12,		
Nutrient Removal	Y		3,7,12,		
Production Export		X	—		
Sediment/Shoreline Stabilization	X	X	—		
Wildlife Habitat	X		3,4,5,		
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?_____ 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. N-T30-2105

Latitude_____ Longitude_____

Prepared by: KP Date 10/23/2014

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field X

Corps manual wetland delineation completed? Y X N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
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°43'.26 Longitude 96°21'51.71

Prepared by: E.V.M.S Date 6/23/04

Wetland Impact:
Type _____ Area _____

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	✓		6,7,9,13	7 13	Wetland discharges to intermittent stream via constructed outlet
Floodflow Alteration	✓			5	wetland contains hydric soils capable of retaining water
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		4,9,10,13	9	Drainage ditches have not been constructed
Nutrient Removal	✓		7,9	9	Emergent vegetation is dominant; cattle pasture
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓		3,7	3	wetland is not fragmented by development
Recreation		✓			
Educational/Scientific Value	✓		13	13	No known safety hazards are present.
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics	✓		7,10,12	7	No trash present in wetland
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. W-T12-21003

Latitude 4356763.24 Longitude 4612152.05

Prepared by: E. Virts Date 6/23/14

Wetland Impact:
Type ______ Area ______

Evaluation based on:
Office ______ Field ✓

Corps manual wetland delineation completed? Y ✓ N ______

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)

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

Adjacent land use Mature 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 431262.88 Longitude 4612176.27

Prepared by: E.J.its Date 6/25/14

Wetland Impact:
Type______ Area______

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	✓		6,8,13	13	Spring fed wetland that quickly sinks in Rock fractures
Floodflow Alteration	✓		5,9	9	Depression recieves & retains runoff from uplands.
Fish and Shellfish Habitat		✓	~~9~~ EV	~~9~~	~~There are no drainage ditches present~~ EV
Sediment/Toxicant Retention	✓		9	9	There are no drainage ditches present
Nutrient Removal			5	5	wetland is saturated due to presence of spring
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓		1,3,4,5,19,20	20	Diverse Amphibian population likely present
Recreation		✓			
Educational/Scientific Value	✓		2,5,13,	5	Valuable habitat / waterhole for ~~wildlife~~ EV wildlife
Uniqueness/Heritage	✓		16	16	wetland appears unpolluted
Visual Quality/Aesthetics	✓		5,8,10,12	8	Valuable water hole for wildlife
ES Endangered Species Habitat		✓			
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 easement 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-T12-21601
Latitude 437474.92 Longitude 4612478.74
Prepared by: E. Virts Date 6/23/14
Wetland Impact:
Type ______ Area ______

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	✓		2,6,7,9,13,	6	Wetland is underlain by shallow bedrock.
Floodflow Alteration	✓		3,5,9,13,18	18	Vegetation (Herbaceous) is very dense in this wetland
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		4,7,9,10,13,16	9	Hillside wetland that does not contain drainage ditches
Nutrient Removal	✓		5,7,8,9,10,12,14	9	Vegetation (Emergent) is dense; therefore potential for attenuation
Production Export	✓		7,	7	Dense Emergent vegetation is present
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat			4,13,	4	Area surrounding on one side is open hay field
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics	✓		7,10,12	12 7	Easily viewable wetland with no trash present
ES Endangered Species Habitat		✓			
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-T12-2100 1A

Latitude 4374 46.64 Longitude 461 2500.15

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	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		2,6,7,[illegible]9,13	6	Wetland is underlain by shallow bedrock
Floodflow Alteration	✓		3,5,9,13,[illegible]	3	Hill slope above wetland contains little flood storage
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		4,7,9,10,13,	9	No drainage ditches constructed through wetland
Nutrient Removal	✓		4,	4	Ag fields exist above wetland on hillside
Production Export	✓		1,4	4	Deer tracks noted in wetland
Sediment/Shoreline Stabilization	✓		2,3	2	wetland located on Hillslope
Wildlife Habitat	✓		5,7,8,17,19,21	17	Deer tracks observed in wetland
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics	✓		1	1	PFO and PEM wetlands visible.
ES Endangered Species Habitat		✓			
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-TR-21007

Latitude 45°35'56.47" Longitude 46°51'44.60"

Prepared by: D. Hansen Date 6/88

Wetland Impact:
Type_____ Area_____

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	✓		2, 6, 7,	7	wetland follows stream downhill
Floodflow Alteration	✓		[redacted]3, 5, 8, 9, 10, 13, 14,	10	wetland follows stream course downhill
Fish and Shellfish Habitat	✓		14, 17	17	stream course has defined channel.
Sediment/Toxicant Retention	✓		1, 2, 4, 9, 10, 14,	10.	wetland follows stream downhill
Nutrient Removal	✓		3, 4, 7, 12,	3	farm land and mowed fields above wetland
Production Export	✓		4,	4	animal tracks present in wetland
Sediment/Shoreline Stabilization	✓		2, 3, 4, 9,	9	4 streams contains defined channel
Wildlife Habitat	✓		[redacted]5, 7, 8, 17, 11, 20, 21	17	various animal tracks and sign present
Recreation	✓		3, 4,	3	hunting permitted on private property
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics	✓		11	11	No unpleasant odors present
ES Endangered Species Habitat		✓			
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 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-TR-210074

Latitude 41°22'.01 Longitude 41°50'55.10

Prepared by: [redacted] Date 6/28

Wetland Impact:
Type_____ Area_____

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	✓		2, 6, 7	7	wetland follows stream course
Floodflow Alteration	✓		5, 8, 9, 10, 13, 14,	5	wetland contains hydric soils because its a wetland
Fish and Shellfish Habitat	✓		1, 4, 14, 17	1	watershed above wetland is forested.
Sediment/Toxicant Retention	✓		4, 9, 10,	10	wetland follows stream course
Nutrient Removal	✓		3, 12,	3	potential to trap sediment exists
Production Export	✓		4, 12.	4	Animal signs present in wetland
Sediment/Shoreline Stabilization	✓		2,	2	wetland on slope following stream
Wildlife Habitat	✓		4, 5, 7, 8, 17, 19, 20, 21,	19	wetland area contained numerous insects
Recreation	✓	✓	3	3	Hunting permitted on private land
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
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-2008

Latitude 440027.77 Longitude 4613716.10

Prepared by: D Marra Date 6/28

Wetland Impact:
Type______ Area______

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	✓		2,6,7	7	wetland drains to stream down slight slope
Floodflow Alteration	✓		5,6,8,9,10,	5	the wetland contains hydric soils
Fish and Shellfish Habitat	✓		1,~~8~~	1	Forest exists above wetland on hillslope.
Sediment/Toxicant Retention	✓		4,9,10,14	10	Wetland drains to stream.
Nutrient Removal	✓		12,~~15~~	12 ~~5~~	~~xx~~ water flow is diffuse in wetland.
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓		1,3,4,5,7,19,20,21	3	wetland not fragmented by development
Recreation	✓	~~[illegible]~~	3	3	hunting permitted on private property
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
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 44°22'1.56" Longitude 96°16'57.02"

Prepared by: D. Herman Date 6/28

Wetland Impact:
Type_____ Area_____

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	✓		2, 7	7	wetland flows into stream
Floodflow Alteration	✓		5, 6, 8, 9, 10,		In a large storm wetland may contain more water
Fish and Shellfish Habitat	✓		1, 2, 7, 8, 9, 10, 11, 14, 16, 17	1	Area above watercourse forested
Sediment/Toxicant Retention	✓		1, 2, 3, 4, 10, 14,	10	wetland associated with stream course
Nutrient Removal	✓		3, 4, 7, 12,	3	overall potential for sediment trapping in wetland
Production Export	✓		1, 4,	1	wildlife food sources exist in wetland.
Sediment/Shoreline Stabilization	✓		2, 3, 4, 9,	2	wetland in sloped area along stream
Wildlife Habitat	✓		1, 3, 5, 6, 7, 8, 17, 19, 20, 21	6	wetland is contiguous with other wetlands along watercourse
Recreation	✓		2, 3, 4, 5,	3	hunting permitted on private land
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

* Refer to backup list of numbered considerations.

Notes:

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-Z1001

Latitude 441019.5 Longitude 461822.8

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

Notes:

* Refer to backup list of numbered considerations.

APPENDIX C

Towanda Creek Permittee-Responsible Mitigation Plan

APPENDIX D

Briar Creek Permittee-Responsible Mitigation Plan