ATTACHMENT 10

ENVIRONMENTAL ASSESSMENT FORM

Appendix D: Permittee Responsible Mitigation Plan

Revised June 2025

Permittee-Responsible Mitigation Plan for the Tioga Pathway Project

Camp Brook PRM Site

Elkland Borough, Tioga County, Pennsylvania
National Fuel Gas Supply Corporation

February 2025
REVISED June 2025

Prepared By:
First Pennsylvania Resource, LLC.
a wholly-owned subsidiary of
Resource Environmental Solutions, LLC.
33 Terminal Way, Suite 445A
Pittsburgh, PA 15219

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1.0 Introduction

First Pennsylvania Resource, LLC. (FPR), a wholly-owned subsidiary of Resource Environmental Solutions (RES), is proposing this Permittee-Responsible Mitigation (PRM) Plan on behalf of National Fuel Gas Supply Corporation (NFGSC or Permittee) to compensate for unavoidable impacts to waters of the United States (U.S.) associated with the Tioga Pathway Project (Project). FPR has prepared this PRM Plan in accordance with the *Compensatory Mitigation for Losses of Aquatic Resources Final Rule* issued on April 10, 2008 as detailed in 33 CFR §332.4(c) of the Federal Register (Volume 73, Number 70). This document addresses the required mitigation that will be provided at FPR's Camp Brook Restoration Site PRM (CBRS or PRM Site). The proposed mitigation will offset temporary and permanent conversion impacts to non-EV scrub shrub (PSS) and palustrine forested (PFO) wetlands, and permanent fill impacts to non-EV Palustrine Emergent Wetland (PEM) occurring in Tioga and Potter Counties, Pennsylvania (PA) through vegetative enhancement of existing wetlands.

The PRM Site, located in Elkland Borough, Tioga County, PA, is approximately 1.5 miles northeast of Hazel Hurst and 8.5 miles southwest of Smethport, PA. A site location map that shows the location of the PRM is provided as Figure 1: PRM Location Map (Appendix A: Figures). Figure 2: HUC-12 Watershed Map also depicts the approximate distance of the proposed PRM Site in relation to the Project.

The physical address and approximate center coordinates of the PRM Site are provided in Table 1 below.

Table 1: PRM Site Location Information	
Physical Address:	Intersection of Camp Brook Road and Mutton Hill Road
Coordinates:	41°59'29.49"N 77°19'40.72"W 41.991551, -77.327972

Driving directions to CBRS from Williamsport, PA are as follows:

Head south on Market St toward W 3rd St (0.2 mi)

Slight right to merge onto I-180 W/US-15 N/US- 220 S toward Lock Haven/Mansfield (0.3 mi)

Merge onto I-180 W/US-15 N/US-220 S (1.6 mi)

Keep right at the fork to continue US-15 N, follow signs for Mansfield (60.6 mi)

Take exit 196 for PA-49 toward Elkland/Lawrenceville (0.6 mi)

Turn left onto PA-49 W/State Rte 49 W (11.6 mi)

Turn right onto T566/Tuscarora Rd (Continue to follow Tuscarora Rd) (0.3 mi)

Continue onto Camp Brook Rd (0.9 mi)

Turn right onto Mutton Hill Rd/T572 (171 ft) (access to the site will be on the right)

FPR and the Permittee request to be contacted prior to visiting the PRM Site, as landowner coordination is required.

FPR will act as the mitigation services agent (Agent) on behalf of the Permittee. On behalf of the Permittee, FPR 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 PA Department of Environmental Protection (DEP) Chapter 105 Rules and Regulations regarding wetland replacement criteria guidelines and 33 CFR § 332.3.

2.0 Objectives

Compensatory mitigation is required as a result of unavoidable impacts to PEM, PSS, and PFO wetland conversion and fill impacts associated with the Project. Resource impacts requiring mitigation are outlined in Table 2: Objectives Summary Table. The impact ratios presented in Table 2 are based on previously permitted projects of similar nature.

Table 2: Objectives Summary Table

PRM Site Pre- and Post-Resources				Mitigation Needs Summary					
Resource		Existing Acres*	Proposed Acres	Resource	Conversion Impact Area (Acres)	Fill Impacts	Mitigation Ratio	PRM Mitigation Need(Acres)	Mitigation Bank Credits Applied
Wetland (Acres)	PEM	4.78	-	EV PSS	-	-	NA	-	-
				Non-EV PSS	1.907	-	1 :1	1.907-	-
	PSS	-	-	Non-EV PFO	1.145	-	2 :1	2.290	-
	PFO	0.78	5.56	Non-EV PEM	-	0.002	2 :1*	0.004	-
Totals		**5.56**	**5.56**		**3.05**	**0.002**		**4.20**	

* Standard mitigation typically requires a 1:1 ratio for permanent loss of PEM wetlands. RES is proposing to over mitigate via a higher ratio in order to develop additional PFO wetlands in lieu of reestablishing such a small amount of PEM.

Regulated aquatic resource impacts associated with the proposed Project will occur within the Upper Susquehanna Watershed (8-Digit Hydrologic Unit Code (HUC) #02050104) of the Tioga-Cowanesque Rivers Watershed (Subbasin 4). Compensatory mitigation required for the Project within this watershed is due to permanent conversion of PSS and PFO wetlands to PEM wetlands within the Project footprint. In addition, 0.002 acre of PEM wetland loss will occur due to fill. Consistent with the Compensatory Mitigation Final Rule ("Final Rule"), which establishes mitigation credits as the preferred method of compensatory mitigation for impacts to aquatic resources of the U.S. (332.3(b)(2)), the Permittee first sought to purchase approved mitigation credits from an existing mitigation bank, however bank credits are not anticipated to be available in the amounts or time frame needed for the entire Project. As the required approved mitigation credits will not be available within the Tioga-Cowanesque Watershed, and because no In Lieu Fee programs are active within the Watershed, Permittee Responsible Mitigation (PRM) is proposed to offset the wetland conversion impacts associated with the Project.

The PRM site will be located at an appropriate off-site restoration location within Tioga County and within the Tioga-Cowanesque Rivers Subbasin (Appendix A: Figures. Figure 1). RES currently has land control of the proposed PRM site, which is characterized by anthropomorphically-degraded (primarily as a result of grazing/agriculture) emergent wetlands.

At the proposed PRM site, the wetland enhancement process will involve diligent invasive species management and native seeding and planting efforts. If wetland enhancement areas will require initial weed controls, that work will be conducted either early or late in the growing season, while native species are dormant, with mowing and/or chemical herbicide to control non-native and/or invasive species. After this initial treatment, spot spraying and follow-up control will be completed on an as-needed basis. Invasive shrub species, if present, will be cut, and the cut stumps treated with a dicot specific chemical herbicide applied directly to the cut surface. Follow-up control will be applied in a similar manner, again with a dicot- specific chemical herbicide. After the initial weed control efforts, the site will be prepared

for planting. A variety of large and small native trees and shrubs will be installed in the wetland enhancement areas and these areas will be seeded with a native seed mix. Trees and shrubs will be planted at an approximate density of 300 stems/acre and per their hydrologic needs and adaptability, with trees and shrubs that are able to tolerate wetter conditions installed in and around the lower gradient areas and more facultative species installed within the slightly higher wetland areas.

3.0 Site Selection

3.1 Mitigation Banking

Consistent with the Compensatory Mitigation Final Rule ("Final Rule"), which establishes mitigation bank credits as the preferred method of compensatory mitigation for impacts to aquatic resources of the U.S. (332.3(b)(2)), the Permittee first sought to purchase approved mitigation credits from a mitigation bank within the Tioga-Cowanesque Rivers Subbasin (Subbasin 4) to compensate for the anticipated conversion and fill wetland impacts resulting from the Project. Credits within the required subbasin are limited at the existing USRMB I and II Mitigation Banks within Subbasin 4, RES does not anticipate that enough bank credits will be available within the Project's permitting timeframe.

3.2 In-Lieu Fee

In-Lieu fee crediting was not an option for the Project because no active In-Lieu fee programs were or are available.

3.3 On-Site Mitigation

To minimize impacts to aquatic features and habitat areas, the Permittee implemented construction and engineering avoidance and minimization measures within the limit of disturbance (LOD) and permanent easements to the greatest extent practicable. While some onsite mitigation is being proposed, due to space constraints complete onsite mitigation was deemed impractical.

In addition, completing on-site mitigation would also create multiple, small, spatially separate PRM projects. These smaller isolated projects have been shown to be less ecologically beneficial, have a lower likelihood for long-term success and 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 agencies 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.

3.4 Local Watershed Restoration

The Project is predominantly linear, replacing 3.84 miles and installing 19.48 miles of steel pipeline. The linear portion of the project occurs within the same HUC 08 watershed (Subbasin 4) as the selected mitigation site, with the remaining auxiliary impacts located in neighboring HUC 08 watersheds (Subbasins 14 and 16). It would not be feasible or ecologically beneficial to distribute the mitigation locally across small piecemeal sites in all the impacted watersheds.

3.5 Selected Mitigation Site

The selected PRM site is strategically located in the floodplains of a watershed that will benefit from the wetland enhancement efforts while ensuring optimal replacement of functions and values lost as a result of the Project. The existing conditions of the PRM Site wetland area make this an attractive site from a mitigation perspective. The PRM Site has been degraded through anthropogenic alterations including

historic agricultural activities, and pasture use. Surrounding land uses consist of residential homes, with large tracts of agricultural land and supporting infrastructure (livestock buildings such as farms and sheds). The streams within the PRM Site are unnamed tributaries (UNTs) to Tributary 31028 To Camp Book (PA DEP Historic Streams GIS Data, 2004) and are designated as Warm Water Migratory Fisheries (WWF-MF) (PA Code: Title 25: Chapter 93) and listed as impaired for aquatic life from agriculture and siltation. Camp Brook (HUC 02050104, Subbasin 4) has been classified by the PA Natural Heritage Program (PNHP) Aquatic Community Classification (ACA) as a Tier 2 Enhancement watershed, making this watershed a prime candidate for restoration.

Currently, the PRM Site is characteristic of a degraded PEM. The past land use practices have ditched streams, drained wetlands, and introduced invasive/non-native species such as musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), European buckthorn (*Rhamnus cathartica*), bush honeysuckle (*Lonicera maackii*), autumn olive (*Elaeagnus umbellata*), narrow leaved cattail (*Typha angustifolia*), reed canary grass (*Phalaris arundinacea*), multiflora rose (*Rosa multiflora*), and Japanese barberry (*Berberis thubergii*). The PRM Site will build upon many of the critical components of the Final Rule including the likelihood for success and sustainability, potential to maximize ecological uplift, the significance of the restored resources within the watershed, and the proximity of the impact and mitigation sites from a watershed perspective. Providing functional benefits such as improvements to wildlife habitat, flood flow conveyance and alteration, nutrient removal/retention, invasive species removal, and long-term land protection will support healthy flora and fauna and aquatic resources within the watershed. The likelihood of success and long-term ecological uplift were the most important factors that the Permittee considered.

The Permittee concluded that due to the ecological demands of the Project, entrusting the logistical and environmental aspects of compensatory mitigation through an offsite Permittee Responsible Mitigation developed by FPR would ensure the greatest likelihood of success and most effectively address watershed needs through off-site mitigation.

3.6 Congruence with Watershed Needs

The Natural Areas Inventory (NAI) of Tioga County Pennsylvania (June 2006) identifies that the Cowanesque River – Camp Brook watersheds have large sections of agriculture along the stream corridor(s) and recommends managing runoff from agricultural and urban sources through the implementation of storm water management, restoration of riparian buffer zones, and exclusion of livestock. The NAI further describes that much of the biodiversity within Osceola Township can be maintained through the avoidance of draining or damming wetlands, reduction in forest fragmentation, installation of forested buffers along water ways, and protection of existing forested buffers, which will provide direct benefits to the township and larger Susquehanna River basin.

The on-site existing conditions of the PRM Site make it a very attractive mitigation site for restoration opportunities like those described above. Tributaries within the proposed PRM Site are first order in nature, are primarily characteristic of headwaters and exhibit degradation due to agricultural activities. The Camp Brook watershed is rural and heavily influenced by agricultural practices which has resulted in ongoing water quality degradation. Land cover within the PRM Site is primarily agricultural (pasture/hay and cultivated crops) (Appendix A, Figure 5 Series: National Land Cover Series).

The headwater springs and seeps that feed existing wetlands and the main tributary emerge from the mountain hills on the western side of the PRM Site and drain through cattle grazing pasture with poor management practices, contributing to continued water quality degradation.

Using a single site for the scale of mitigation requirements for the PRM presents a unique opportunity to maximize functional lift at a larger scale using a holistic watershed or systematic restoration approach. The PRM Site will build upon many of the critical components of the Final Rule including the likelihood for success and sustainability, potential to maximize ecological uplift, and the significance of the restored resources within the watershed. Providing functional benefits such as improvements to wildlife habitat, flood flow conveyance and alteration, nutrient removal/retention, invasive/non-native species removal, and long-term land protection will support healthy flora/fauna and aquatic resources within the watershed. The likelihood of success and long-term ecological uplift were the most important factors that the Permittee and Agent considered in developing the proposed mitigation approach.

4.0 Site Protection Instrument(s)

The PRM Site will be protected by a Site Protection Instrument (SPI) that will be executed in advance of the proposed activities outlined in this mitigation plan. The SPI will ensure the long-term protection of the site in the form of a deed of restrictive covenant that shall remain in effect in perpetuity. The SPI will be recorded with the county courthouse after USACE/PADEP permit approval and with subsequent approval from the Permittee to move forward with mitigation. A sample of an SPI that would be filed upon permit approval is included as Appendix B: Example Site Protection Instrument. The SPI 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 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.

Entrusting the PRM to a third-party SPI holder may commence only when FPR, the Permittee, and the agencies have mutually concluded that the PRM Site has achieved all its objectives and sufficiently satisfied performance standards, as described in Section 8.0: Performance Standards.

5.0 Baseline Data

Baseline data was developed through site evaluations, the aquatic resource delineation for the larger CBRS (Appendix C) and agency coordination to determine the potential to impact rare and/or threatened and endangered species. Baseline information presented in further detail in the following sections includes:

- Land use characterization
- Geotechnical/soil investigations and surveys
- Soil characterization
- Wetland delineation and waterbody identifications
- Hydrologic investigations
- Topographic and boundary surveys
- Vegetative community characterizations
- Habitat assessments
- Rare, threatened and/or endangered species review
- Watershed research
- Extensive photo and field note documentation

The following discussions present the findings of the baseline data review. The data were assessed and used to guide the proposed restoration approaches, as described in Section 6.0 Determination of Mitigation Needs.

5.1 Land Use

Historically, this region was heavily used for logging and agriculture (Appendix A, Figure 6 Series: Historic Map Series). The land within and surrounding the PRM Site has sustained extensive cultivation, grazing, selective logging, and/or clear cutting for over half a century. The land within the site boundaries is predominately utilized for grazing pasture and cultivated crops (Appendix A, Figure 5 Series: NLCD Series). The main tributary and historic wetlands were straightened, bermed, and/or ditched to keep fields dry. Narrow riparian corridors exist along these existing channelized streams and ditches, but these corridors exist in a heavily degraded state and are riddled with invasive species (Appendix A, Figure 3: Existing Conditions Map; Appendix E: Representative Site Photos). The ecological resources found within the PRM Site have been and continue to be degraded through anthropogenic alterations including historic and on-going agricultural activities, in addition to the modification of native vegetative community structure and diversity.

5.2 Geology and Soils

The PRM Site is in the Glaciated High Plateau of the Appalachian Plateaus geographic province within the Lock Haven Formation geologic unit of the Devonian age, containing lithologic constituents of mudstone, siltstone, sandstone, and conglomerate. Based on the United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey, the PRM Site is underlain by Chenango gravelly loam, Chippewa silt loam, Orrville silt loam, Volusia channery silt loams, Water, and Wayland silty clay loam (NRCS 2017). Most of the soils can be characterized as hydric – partially hydric farmland soils compromised of loamy till from sedimentary rock, loamy alluvium from sandstone and shale, or glacial outwash from sedimentary rock (NRCS 2017). Refer to Figure 7: Soils Map (Appendix A) for additional information and Table 3 below.

Table 3: Soil Series[1]

Soil Series Symbol	Soil Series Description	Soil Series Setting (Landform)	Farmland Classification	Soil Limitations				Hydrologic Soil Group	% Site
				Depth to Restrictive Features		Natural Drainage Class	Hydric Rating Percentage (%)[2]		
				Depth to Any Soil Restrictive Layer (inches)	Depth to Water Table (inches)				
LoD	Lordstown channery loam, 20 to 30 percent slopes	Mountains, hills	Not prime farmland	20 to 40	More than 80 inches	Well drained	0	C	0
Ow	Orrville silt loam	Floodplains	Farmland of statewide importance	40 to 70	12 to 30	Somewhat poorly drained	15	B/D	39.6
Wa	Wayland silty clay loam	Floodplains	Farmland of statewide importance	40 to 60	0	Very poorly drained	100	C/D	58.4

5.3 Environmental Resource Identification

FPR conducted a wetland and watercourse investigation of the entire CBRS, which contains the proposed PRM Site, in June 2021 and October 2021 to identify the extents of the existing wetland and watercourse resources within the CBRS. Wetland delineations were completed following the 1987 Army Corps Wetland Delineation Manual (USACE, 1987) and the Northcentral and Northeast Regional Supplement Version 2 (USACE, 2012). Resources were identified and geographically located using handheld global positioning satellite systems (GPS) technology. Results from the environmental survey are described briefly. Detailed descriptions, data forms, photographs and additional mapping are included in the Wetland Delineation and Watercourse Report (Appendix C). Table 4: Identified Resources presents features delineated within the PRM Site boundaries.

Table 4: Identified Resources

Resource	Class	Acres/Footage
Wetland	PEM	4.78
	PFO	0.78
	Total	**5.56**

Figure 3A: Existing Conditions Map (Appendix A) shows the delineated resources within PRM Site of the CBRS. Additionally, Figure 8: Topographic Map highlights the topographic contours and elevations at the PRM Site used to aid in the delineation. The CBRS, which has a contributing drainage of approximately 0.49 square miles, drains to a direct tributary to Camp Brook. A drainage area and FEMA floodway map is provided in Appendix A: Figures, as Figure 9: FEMA Map.

5.4 Wetlands

The PRM Site contains PEM and PFO wetlands totaling 5.56 acres in size. Table 4: Identified Resources provides a breakdown of the acreage of the wetlands within the PRM Site. Figure 3B: Delineated Resources Map (Appendix A: Figures), shows the locations of the wetlands within the proposed PRM Site, and additional information is provided in the wetland delineation report provided as Appendix C. Please note the scope of the wetland delineation report extends outside the PRM Site's limits.

Primary and secondary hydrology indicators consistently documented across the PRM Site include surface water (A1), high water table (A2), saturation (A3), algal mat or crust (B4), water-stained leaves (B9), drainage patterns (B10), moss trim lines (B16), hydrogen sulfide odor (C1), oxidized rhizospheres on living roots (C3), geomorphic position (D2), microtopographic relief (D4), and FAC-neutral test (D5).

Dominant vegetation consistently found at the wetlands within the proposed PRM Site include: reed canarygrass, broad-leaved cat-tail (*Typha angustifolia).* Detailed vegetation data can be found in the attached wetland delineation report.

Dominant indicators of hydric soils found include hydrogen sulfide (A4), depleted matrix (F3) and redox dark surface (F6).

Wetlands within the PRM Site have been degraded from historic and on-going agricultural and farming activities. Wetlands were intentionally drained through ditching and the channelization of streams. Trees were cleared to maximize tillable land and pasture for grazing which in turn resulted in the drying of historically shaded damp soils. Berms were installed along streams and ditches to prevent the migration of water into tillable fields. Multiple watering holes and ponds were installed within wetlands to provide cattle access to water. Grazing and tilling practices throughout the PRM Site have compacted soils and introduced a magnitude of invasive species including musk thistle (*Carduus nutans*), Canada thistle

(*Cirsium arvense*), European buckthorn (*Rhamnus cathartica*), bush honeysuckle (*Lonicera maackii*), autumn olive (*Elaeagnus umbellate*), narrow leaved cattail (*Typha angustifolia*), reed canary grass *(Phalaris arundinacea*), multiflora rose (*Rosa multiflora*), and Japanese barberry (*Berberis thubergii*).

5.5 Rare, Threatened and/or Endangered Species

A Pennsylvania Natural Diversity Index (PNDI) Environmental Review was completed for CBRS on February 20, 2025. The PNDI reviews indicated that no known impacts to threatened and endangered and/or special concern species and resources are anticipated within CBRS. Therefore, no coordination is required with the PNDI jurisdictional agencies. The Final PNDI receipt is provided in Appendix E: PNDI Receipt.

6.0 Determination of Mitigation Needs

6.1 Functional Impacts and Proposed Functional Uplift

A majority of the impacts being mitigated are a result of conversion from PFO to PEM systems, the loss of functions and values is limited to habitat and structural features. Hydrology and other ecosystem functions such as nutrient cycling, sediment retention, floodwater retention and storage of the impacted resources will remain. In addition, the overall impacts are the result of the accumulation of smaller impacts, therefore habitat is minimal.

The post-restoration wetland system at the PRM Site will exhibit a diverse plant community structure and will offer a greater and wider range of usable products for wildlife. This will improve the value and functionality of the habitat for various types and populations of animals typically associated with wetlands. Native vegetation will encourage a greater opportunity for a diverse vegetative community to develop. Furthermore, appropriate native vegetation will improve the ecological integrity of the enhanced wetland, as the wetland will build resilience and become self-sustaining and able to accommodate stress and change. The PRM Site therefore plays an important role in the larger ecological system and encompassing watershed.

Current functionality is expected to improve considerably because of restoration efforts. The expected functional ecological uplift the wetland will exhibit as a result of restoration efforts, in addition to the acreage calculations as described in Section 7.0 Mitigation Work Plan, will both meet the required mitigation ratio and offset the functions and values that will be lost at the impact site.

6.2 Proposed Mitigation

In order to offset conversion impacts of PSS and PFO wetland to PEM and the loss of 0.002 acre of PEM wetland as a result of the Project, FPR will implement enhancement across 5.56 acres. Within the 5.56 acres an existing 0.78 acres of existing PFO will remain protected and 4.78 acres of degraded PEM wetland will be reforested through enhancement activities. Wetland enhancement activities will focus on the removal of non-native and invasive species, which will be replaced with planted native wetland shrubs and trees, and supplemental plantings as shown in Appendix F (Mitigation Plan). Over time, the trees and shrubs planted in formerly PEM wetland areas will undergo natural vegetative succession, developing into a dynamic PSS mosaic condition before ultimately maturing into a predominantly forested (PFO) condition across the site.

The primary invasive species that will be targeted are reed canary grass (Phalaris arundinacea) and multiflora rose (Rosa multiflora). Clearing the understory of invasive herbaceous plants will open up the understory for the application of the native seed mix; which in the enhancement areas will be a mixed

facultative-obligate seed mix to include species which will more adequately respond to the micro-topographic variations and associated hydrology noted onsite (Appendix F: Mitigation Plan).

7.0 Mitigation Work Plan

7.1 Wetland Enhancement Approach

Restoration activities will include vegetative enhancement and protection of the wetland resources within the bounds of the PRM Site. Appendix F (Mitigation Plan) shows the proposed restoration activities and proposed planting/seeding lists for the PRM Site. Ecological lift will be achieved by protecting the area from anthropogenic activities, restoring historic habitat conditions, planting and seeding of native plant species to restore the native plant community, and controlling invasive species.

The restoration work will focus on the establishment of a forested wetland complex throughout the enhancement area. The proposed PFO wetland system is anticipated to exhibit a PFO dominated wetland mosaic at maturity and include pockets of PEM and PSS enclosed or surrounded by a forested canopy, adding to habitat heterogeneity and complexity. Based upon the noted hydrology on-site, trees and shrubs will be planted per their hydrologic needs and adaptability, with trees and shrubs that are able to tolerate wetter conditions installed in and around inundated and/or fully saturated areas. Woody plantings will be installed at an approximate rate of 350 stems per acre. The proposed planting schedule is identified in Table 5 and Appendix F.

Table 5: Proposed Planting Schedule for Tioga Pathway PRM Site*

SCIENTIFIC NAME	COMMON NAME	Type/Size	INDICATOR STATUS	NUMBER PER ACRE	QUANTITY
Acer saccharinum	Silver Maple	3-5 gallon, minimum 5'	FACW	20	90
Acer rubrum	Red Maple	3-5 gallon, minimum 5'	FAC	20	90
Alnus serrulata	Brookside Alder	1 gallon, minim 3'	OBL	30	135
Amelanchier canadensis	Canadian Service-Berry	1 gallon, minim 3'	FAC	30	135
Betula nigra	River Birch	3-5 gallon, minimum 5'	FACW	30	135
Carpinus caroliniana	American Hornbeam	1 gallon, minim 3'	FAC	20	90
Cephalanthus occidentalis	Common Buttonbush	1 gallon, minim 3'	OBL	20	90
Cornus amomum	Silky Dogwood	1 gallon, minim 3'	FACW	30	135
Lindera benzoin	Northern Spicebush	3-5 gallon, minimum 5'	FAC	20	90
Physocarpus opulifolius	Atlantic Ninebark	1 gallon, minim 3'	FACW	20	90
Platanus occidentalis	American Sycamore	3-5 gallon, minimum 5'	FACW	20	90
Quercus bicolor	Swamp White Oak	3-5 gallon, minimum 5'	FACW	20	90
Salix nigra	Black Willow	1 gallon, minim 3'	OBL	30	135
Quercus palustris	Pin Oak	3-5 gallon, minimum 5'	FACW	20	90
Viburnum dentatum	Southern Arrow-Wood	1 gallon, minim 3'	FAC	20	90
			TOTAL	**350**	**1575**

*The proposed planting species, type and quantities are subject to change pending availability at the time of implementation.

A floodplain seed mix (Ernst Mix #154) will be applied to all wetlands, focusing on areas in which diversity is low, and in all areas in which invasive species control is implemented to ensure native vegetation replaces the invasives. Table 6 lists the Ernst 154 seed mix.

Table 6: Proposed Restoration Seed Mix (Ernst-154, Floodplain Mix)

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	MIX DENSITY	SEEDING RATE (20 LBS/ AC)
Elymus virginicus	Virginia Wild Rye	FACW	20.00%	104.40
Dichanthelium clandestinum	Deer-Tongue Rosette Grass	FAC	14.50%	75.69
Andropogon gerardii	Big Bluestem	FAC	14.00%	73.08
Sorghastrum nutans	Yellow Indian Grass	FACU	14.00%	73.08
Carex vulpinoidea	Common Fox Sedge	OBL	10.00%	52.20
Carex scoparia	Pointed Broom Sedge	FACW	6.30%	32.89
Carex lurida	Shallow Sedge	OBL	6.30%	32.89
Verbena hastata	Simpler's-Joy	FACW	3.00%	15.66
Juncus effusus	Lamp Rush	FACW	2.00%	10.44
Asclepias incarnata	Swamp Milkweed	OBL	2.00%	10.44
Zizia aurea	Golden Alexanders	FAC	2.00%	10.44
Verbena urticifolia	White Vervain	FAC	1.00%	5.22
Solidago rugosa	Wrinkle-Leaf Goldenrod	FAC	0.60%	3.13
Symphyotrichum lanceolatum	White Panicled American-Aster	FACW	0.50%	2.61
Helenium autumnale	Fall Sneezeweed	FACW	0.50%	2.61
Symphyotrichum novae-angliae	New England American-Aster	FACW	0.50%	2.61
Symphyotrichum puniceum	Purple-Stem American-Aster	OBL	0.50%	2.61
Eupatorium perfoliatum	Common Boneset	FACW	0.40%	2.09
Monarda fistulosa	Oswego-Tea	UPL	0.40%	2.09
Euthamia graminifolia	Flat-Top Goldentop	FAC	0.40%	2.09
Scirpus cyperinus	Cottongrass Bulrush	FACW	0.30%	1.57
Lycopus americanus	Cut-Leaf Water-Horehound	OBL	0.30%	1.57
Mimulus ringens	Allegheny Monkey-Flower	OBL	0.30%	1.57
Lobelia siphilitica	Great Blue Lobelia	FACW	0.20%	1.04
		Total	**100%**	**522.00**

7.2 Wetland Enhancement Sequence

The wetland enhancement process will involve diligent invasive species management and replanting efforts. Initial restoration work, specifically during Year 1, will involve the application of an aquatic approved chemical herbicide to the invasive species within the PRM Site. Conservation area signage will be installed to demarcate the PRM Site boundaries. The PRM Site will be treated either early or late in the growing season while native species are dormant to avoid adverse impacts to native vegetation present within the PRM Site. Following initial weed control efforts, and depending on the time of year and season, the initial seeding and planting will be conducted. If the time of year is late summer or fall, planting will

be postponed until the appropriate planting window. During the appropriate planting window, native seeding will be installed following a weed control event. Weed control activities will require follow-up monitoring to ensure effectiveness of the control method(s).

After the initial weed control efforts, the site will be prepared for planting, which may include some selective mowing to allow for the installation of native plant seed within the PEM wetlands. A variety of native trees and shrubs will be planted at the PRM Site, as summarized in Appendix F: Mitigation Plan and in Table 5. Please note that the specific list may change slightly based on time of year that planting occurs and stock availability.

The initial planting will be conducted in a manner that will allow for continued mechanical weed control of the newly seeded enhancement area during the first three years of establishment. This is to prevent weedy species from becoming established within the PRM Site while the native seeds germinate and grow, and to ensure enough light gets through to the establishing seeds, trees, and shrubs. Selective trimming may be used as needed to ensure enough light is getting through to developing tree seedlings.

As described above, a facultative floodplain seed mix (Ernst Mix #154) will be applied to all wetlands, focusing on areas in which diversity is low due to the presence of invasive species to ensure native vegetation replaces the invasive at an approximate rate of 20 lbs/acre). Woody planting material will consist of a mix of wetland tree and shrub species (1 gallon and 3-5 gallon containerized material) at an approximate rate of 300 stems/acre in the existing PEM wetlands.

All planted woody vegetation is subject to a 85 percent survivorship performance standard for the monitoring period beginning Year 2, with Year 1 results providing a baseline, as detailed in Section 8.0 Performance Standards. Tree tubes will be used as needed in order to minimize mortality due to herbivory; however, it is possible that some of the smaller sized tree material will be lost to herbivory and other natural causes. This will be documented during the yearly monitoring periods. After the first year, the mortality from smaller trees and shrubs that have been installed will be used to determine replanting needs for the PRM Site's second year of establishment. The replanting will occur in a random pattern within the original gridded matrix to eliminate the appearance of planted "rows" and return the area to its natural condition. If during the 5 Year monitoring period of the PRM Site, the planted woody plant survivorship falls below 85 percent, supplemental plantings may be required to bring the PRM Site back into compliance with that success criterion. Replanting will continue until PRM site has successful achieved the agreed upon performance standards.

7.3 Maintenance Plan

The PRM site will be monitored and maintained by FPR. 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 maintain wetland habitats in accordance with the provisions in this PRM Plan.

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 PRM Site for invasive species and adapt the yearly maintenance plan as needed based upon these observations.

In general, maintenance will be heaviest during the first 3 years of establishment, and will entail mechanical weed control events, along with two or 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.

In locations where wetland areas are too wet to allow mechanical access, manual chemical and mechanical weed control will be necessary. These areas can be threatened by more persistent perennial invasive species, specifically reed canary grass. Target weed control applied through spot application, coupled with mechanical weed control to stop any re-seeding will be the primary weed control techniques used in the wetter wetland areas.

8.0 Performance Standards

In order to document and confirm acceptable mitigation performance of the proposed PRM site, the following performance thresholds will be achieved and maintained. Each of the following metrics will be evaluated by establishing a 0.10 (35' radius) acre vegetation assessment plot at a rate of 2 plots per acre (12 plots total). Plot data will be used to establish quantifiable assessment of the success of the site. Professional judgement and visual assessments will be used to determine if the plot data is representative of the overall site.

•Invasive Species- Invasive herbaceous plant coverage will not exceed 20 percent during Year 1 monitoring and 10 percent each year thereafter. Determined by a visual assessment of aerial coverage.

•Native Species- Hydrophytic herbaceous plant coverage will be at least 60 percent by the end of the first full monitoring year, 80% by the end of the second full monitoring year, and at least 85 percent each monitoring year thereafter. Determined by a visual assessment of aerial coverage.

•Woody Survivorship- Planted woody survivorship will be maintained at 85% with at least 30% of the species being comprised of tree species.

9.0 Monitoring Requirements

On behalf of the Permittee, FPR will monitor the PRM Site to demonstrate compliance with the Performance Standards detailed in Section 8: Performance Standards. At a minimum, monitoring reports will include the following:

1. Visual description of the entire site.
2. Photographs of each monitoring plot.
3. Summary of quantitative vegetation data collected for each monitoring plot.
4. Discussion/conclusion reporting on the results of the quantitative vegetation analysis.
5. Summary of any completed or proposed corrective actions that have been taken or will be needed.

Monitoring reports will be submitted twice for the first three years after construction on a Spring/Fall schedule, commencing one growing season after planting is completed. After the first three years reports will be completed annually. Spring reports will be submitted to PADEP and USACE by August 31 and Fall reports will be submitted by December 31 of the monitoring years. If it is determined that performance standards have been adequately met early close out of the site may be requested.

In addition, FPR will complete an as-built planting plan to show the general locations and quantities of the vegetative material that was planted. On behalf of the Permittee, FPR will submit the as-built planting

plan as part of the first monitoring report to the regulating agencies following completion of the planting and first monitoring event for the PRM Site.

10.0 Long-Term Management Plan

To ensure the long-term sustainability of the project, FPR will perform maintenance and long-term management. It is anticipated that these activities will be minimal, as the project is designed to be self-sustaining with limited management activities. Long-term stewardship activities will include inspections, controlling invasive species, and boundary maintenance. Given the strong financial standing of the Permittee, no financial assurances are deemed necessary at this time.

PRM Site boundaries shall be marked with a metal post which reads “Conservation Area” to prevent casual trespass while allowing necessary access. During each site visit, notes will be made as to the condition of signs, crossings, and property boundaries. Recommendations to repair or replace signage, crossings, or property boundary markers will be made, if applicable.

FPR will be the initial designated Long-term Steward charged with long-term management and maintenance responsibilities. Once the site has met the Performance Standards detailed in Section 8.0 Performance Standards, FPR will continue to carry out the long-term management responsibilities at least every other year for ten years. Long-term management and maintenance responsibilities will then cease, and the site will remain protected into perpetuity by the terms of the site protection instrument. FPR may submit a request to the agencies to cease long-term management and maintenance responsibilities prior to the end of the ten-year period.

11.0 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 Permittee, PADEP, and USACE. The notice will include an explanation for the deficiency, potential remedial actions that could be undertaken, an assessment of risks, and an assessment of any adjustments that must be made to the maintenance and monitoring regime.

Ecological restoration is in its essence the practice of adaptive management. Due to the multitude of factors that affect a restoration project in a given year, the practitioner needs to be constantly assessing the site, and reacting to changing conditions as the site develops and matures. Usually, yearly variations are relatively minor and within the parameters of a given project’s performance standards. These normal variations are noted through regular site visits, yearly monitoring reports, and yearly maintenance activities. Occasionally, rare instances arise which bring a project far outside of the defined range of its performance standards and more intensive remedial action is required. This adaptive management plan forecasts a few potential situations that could cause the proposed PRM Site to be well outside the range of its defined performance standards and how those instances would be addressed.

Wetland Vegetation

As the PRM Site is currently designed as a wetland enhancement site, all wetland areas have been delineated in accordance with the 1987 USACE Wetlands Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont (Version 2.0) (USACE, 2012). Restoration activities at the PRM Site are not anticipated to result in changes that will negatively affect the hydrology; therefore, risk of hydrology changing is not expected. As such, risk of the seeding or planting failing due to hydrology is not anticipated, unless there is an unexpected and extreme drought. In that instance, any failure would be noted in the

monitoring report, and replanting or reseeding would be conducted based on the results of the monitoring report.

Also of risk to wetland areas is a large-scale aggressive break out of invasive species. This risk is usually highest if grading is conducted in a restoration, as the exposed soil and lack of vegetative competition allows for easy succession by fast growing and aggressive invasive species such as reed canary grass. Since this PRM Project is using an enhancement approach, there is little to no risk of this happening. Invasive species will be controlled on a yearly basis.

Invasive Species and Native Dominance

If at any point there was an intensive colonization of upland or wetland invasive species, which brought the total percent of invasive species well above the allowed performance standards, remedial action will be needed. The management technique used will be dependent on the type of invasive species colonizing the site (i.e. annual, or perennial, primary reproduction through vegetative spread or through seed). If the species are annual they can be managed via maintenance mowing and mechanical weed control methods to stop them from re-seeding into the site. After the seed bank is depleted, they drop out of the vegetative matrix. If they are perennial in nature, chemical herbicides need to be used; mechanical weed control is still used to stop further spreading through seed if they are a species that has high germination rates.

Once the invasive species control has begun, additional seeding or planting will need to be conducted to re-introduce a native plant community into the area of concern. Depending on the type of invasive species (i.e. broad leaf or monocot), replanting and reseeding strategies can be used to allow for continued chemical control of the invasive species in the area while still allowing the native species to germinate and develop.

The likelihood of this scenario is low; once established, native plant communities are actually quite resilient to invasion by invasive species as long as they are not disturbed or impacted. Invasive species issues on a restoration site tend to be most problematic during the first 2 years, because there is bare soil immediately available for germination and colonization immediately following construction, and there may be invasive species in the existing seed bank to germinate and establish. As previously stated, the primary restoration technique being used on this site is enhancement and therefore, the risk of this happening is extremely low.

In the event that the site is not meeting its performance standards for native herbaceous cover, additional seeding will be conducted. Again, the most important factor for establishing a healthy stand of wetland herbaceous species is proper maintenance during the first 2 to 3 years of establishment, specifically mowing in enhancement area. This ensures enough light is reaching the developing seedlings, while also eliminating competition from annual weedy species that may be trying to colonize the site. In the wetland areas, mowing cannot be conducted, but mechanical weed control with weed whips can be used.

Browse and Herbivory

As stated in section 7.2 (Wetland Enhancement Sequence) some level of herbivory is anticipated. Initial tree protection will occur through the use of tree tubes. Deer browse and rodent herbivory will be assessed throughout the maintenance and monitoring period. If it is determined that animal damage is preventing the performance standards from being achieved additional measures for tree protection such as installing more robust tree cages will be implemented. Replanting as necessary to achieve the performance standards not being met as a result of herbivory will also be completed to ensure performance standards are achieved prior to site close out.

12.0 References

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Lichvar, R. W. and Kartesz, J. T. 2014. North American Digital Flora: National Wetland Plant List, Version 3.2. United States Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, and BONAP, Chapel Hill, North Carolina.

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APPENDIX A
FIGURES

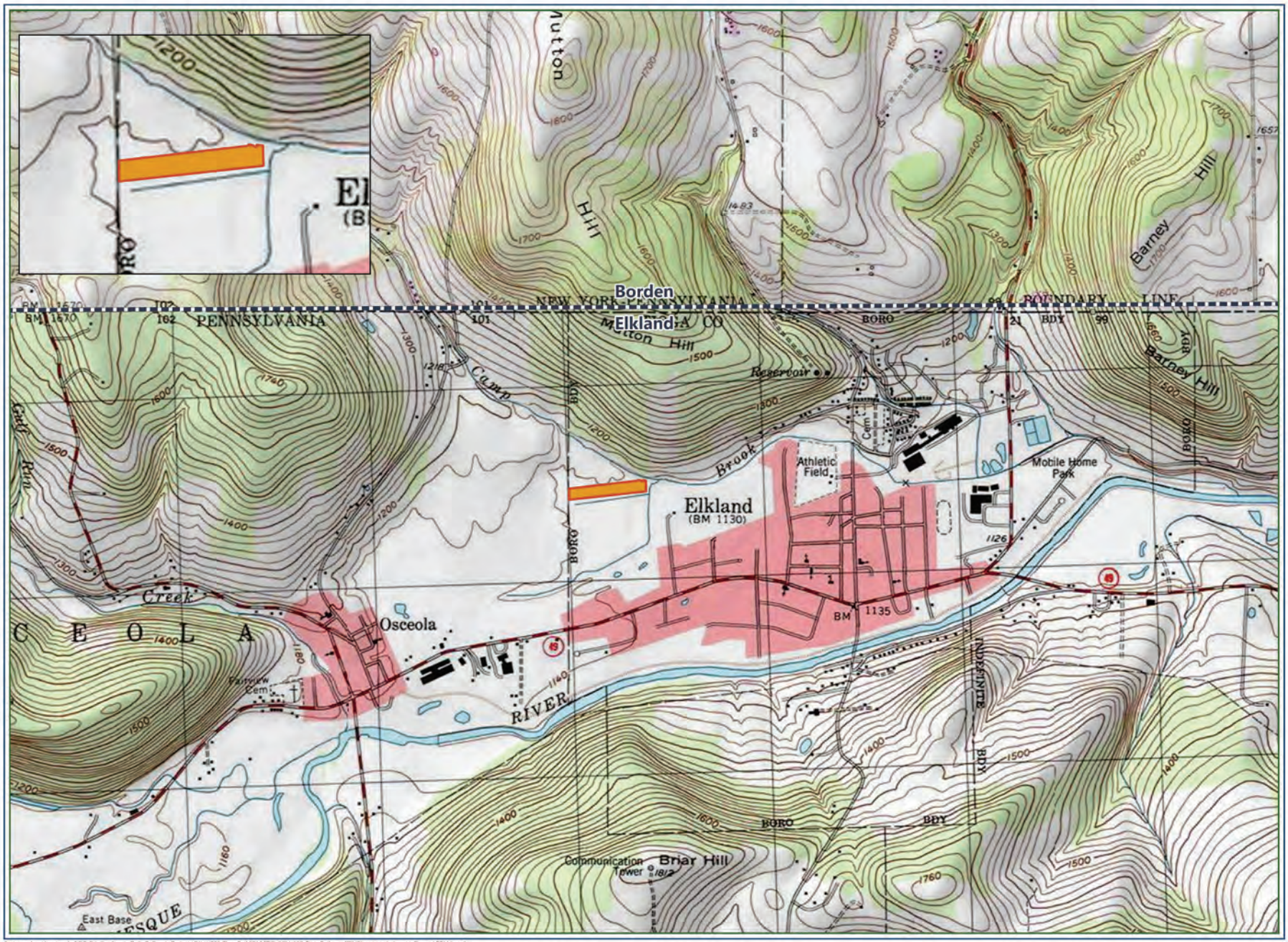

Figure 1
PRM Location

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

PRM Project Location

7.5 Minute Quadrangle Index

N

1 in = 1,500 ft when plotted at 11x17"

0 375 750 1,500

US Feet

Reference: Project limits are approximate and do not reflect a survey. The PRM Project is located in the 1:24K Elkland (41077-H3) 7.5' USGS quadrangle.
Data Source: ESRI USA Topo Maps (ESRI 2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 2/20/2025
Project Number: 111788

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www.res.us

Figure 2
HUC-12 Watershed

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

PRM Project Location
Tioga Pathway Project Route
HUC12 Watersheds
Impacted HUC12

N 1 in = 11,000 ft *when printed at 11x17"*

0 5,500 11,000
Feet

Reference: Project limits are approximate and do not reflect a survey.
Data Source: USGS (2023); ESRI (2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 2/21/2025
Project Number: 111788

www.res.us

Cartographer: hrauh | POC: Eric Snyder | Path: R:\Projects\PA\111788-NFG-Tioga Pathway\Regulatory Documents\PRM Draft 2025Feb\Archive\Tioga Pathway.aprx | Layout: Figure 2 HUC-12 Watershed

Figure 3A
Existing Conditions

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

- Proposed Conservation Area (±5.65 AC)
- Parcel Boundaries

NHD Streams
- Stream

NWI Wetlands
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Riverine

N

1 in = 150 ft *when printed at 11x17"*

0 25 50 100 150
Feet

Reference: Project limits are approximate and do not reflect a survey.
Data Source: PEMA Imagery (2024); USGS (2023); USFWS (2022)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 12/13/2024
Project Number: 111788

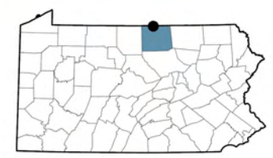

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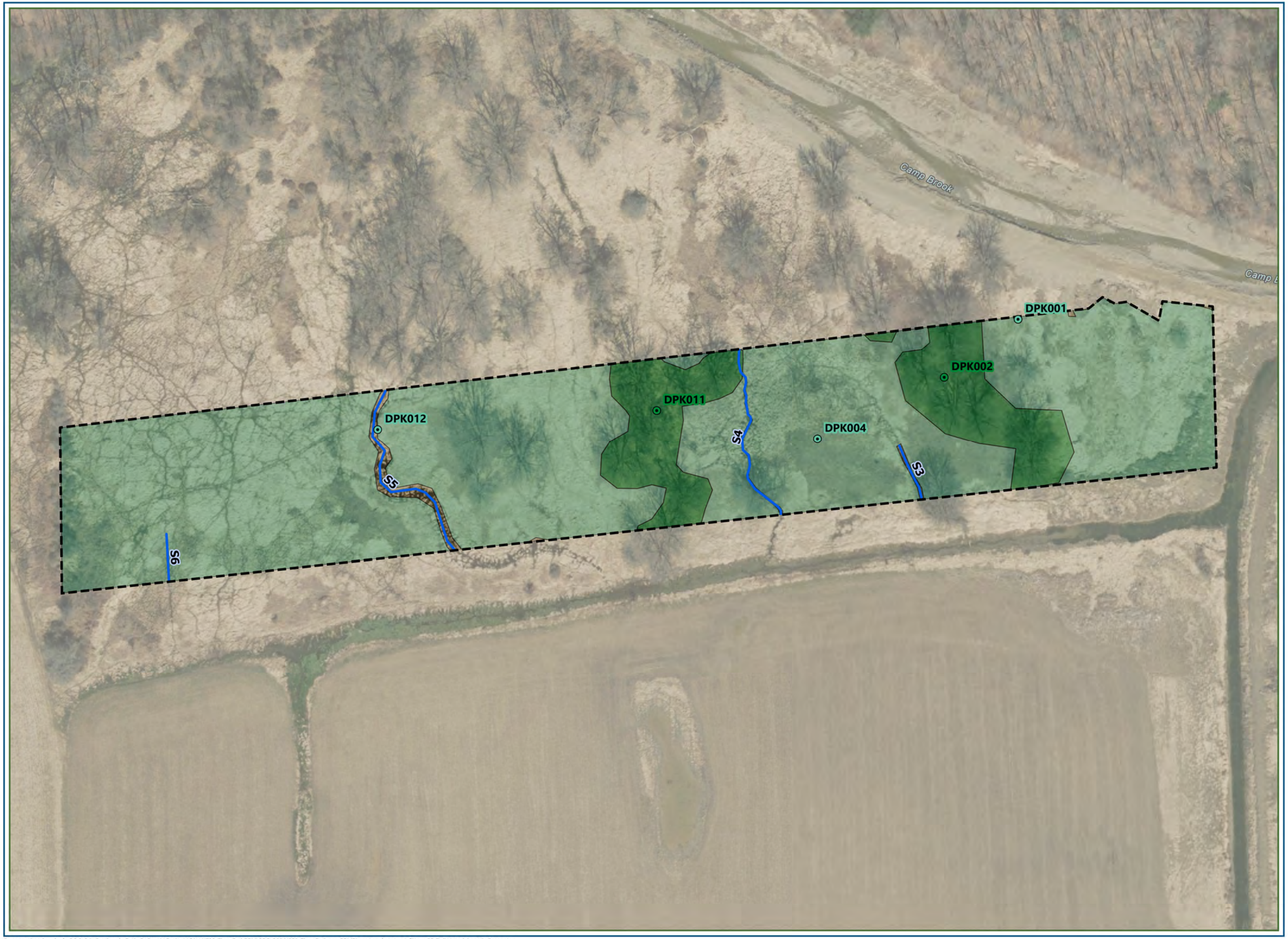
Figure 3B
Delineated Resources

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N



Proposed Conservation Area (±5.65 AC)

Data Points

Wetland

- PEM | Palustrine Emergent
- PFO | Palustrine Forested

Delineated Streams (±609.96 LF)

Stream Type

- Perennial (±609.96 LF)

Delineated Wetlands (±5.56 AC)

Class

- PEM | Palustrine Emergent (±4.78 AC)
- PFO | Palustrine Forested (±0.78 AC)

N

1 in = 100 ft *when printed at 11x17"*

0 25 50 100

Feet

Reference: Project limits are approximate and do not reflect a survey. Only Delineated Resources within the Conservation Area is shown and used in summary calculations.
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Spatial Reference: NAD83 StatePlane PA N (ft)
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Project Number: 111788

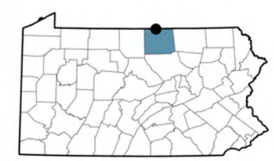

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Figure 4
Ecological Inventory

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

- PRM Project Location
- Public Water Supply

Chapter 93 Designated Use Streams

- CWF(COLD WATER FISHES)
- HQ-CWF(HIGH QUALITY-COLD WATER FISHES)
- TSF(TROUT STOCKING)
- HQ-CWF(HIGH QUALITY-COLD WATER FISHES), WWF(WARM WATER FISHES)
- WWF(WARM WATER FISHES)

Conserved Lands

- Local Conserved Lands
- Federal Conserved Lands
- Farm Easements

Natural Heritage Inventory

- Core Habitat

N 1 in = 1.5 mi *when printed at 11x17"*

0 0.25 0.5 0.75 1
Miles

Reference: Project limits are approximate and do not reflect a survey.
Data Source: PEMA (2018); ESRI (2024); PADCNR (2020); PADEP (2022); WeConservePA (2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 12/13/2024
Project Number: 111788

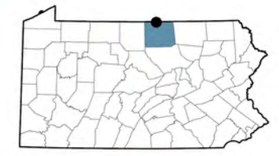

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Figure 5A
2001 Land Cover

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

2001 National Land Cover Database

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herb. Wetlands

N 1 in = 0.25 mi *when printed at 11x17"*

0 0.125 0.25
Miles

Reference: Project limits are approximate and do not reflect a survey.
Data Source: USGS (2001)
Spatial Reference: NAD83 StatePlane PA N (ft)
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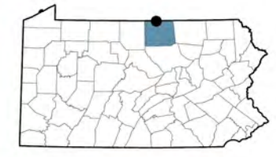

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Cartographer: asnyder | POC: Eric Snyder | Path: R:\Resgis\Projects\PA\111788_TiogaPathPRM\PRO\20241209_TiogaPathway_PRMPlan.aprx | Layout: Figure 5A 2001 Land Cover

Figure 5B
2011 Land Cover

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

2011 National Land Cover Database

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

N 1 in = 0.25 mi *when printed at 11x17"*

0 0.125 0.25
Miles

Reference: Project limits are approximate and do not reflect a survey.
Data Source: USGS (2011)
Spatial Reference: NAD83 StatePlane PA N (ft)
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Project Number: 111788

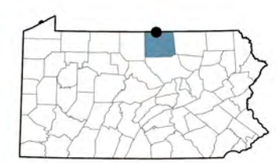

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Figure 5C
2021 Land Cover

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

2021 National Land Cover Database

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

N 1 in = 0.25 mi *when printed at 11x17"*

0 0.125 0.25
Miles

Reference: Project limits are approximate and do not reflect a survey.
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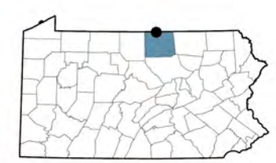

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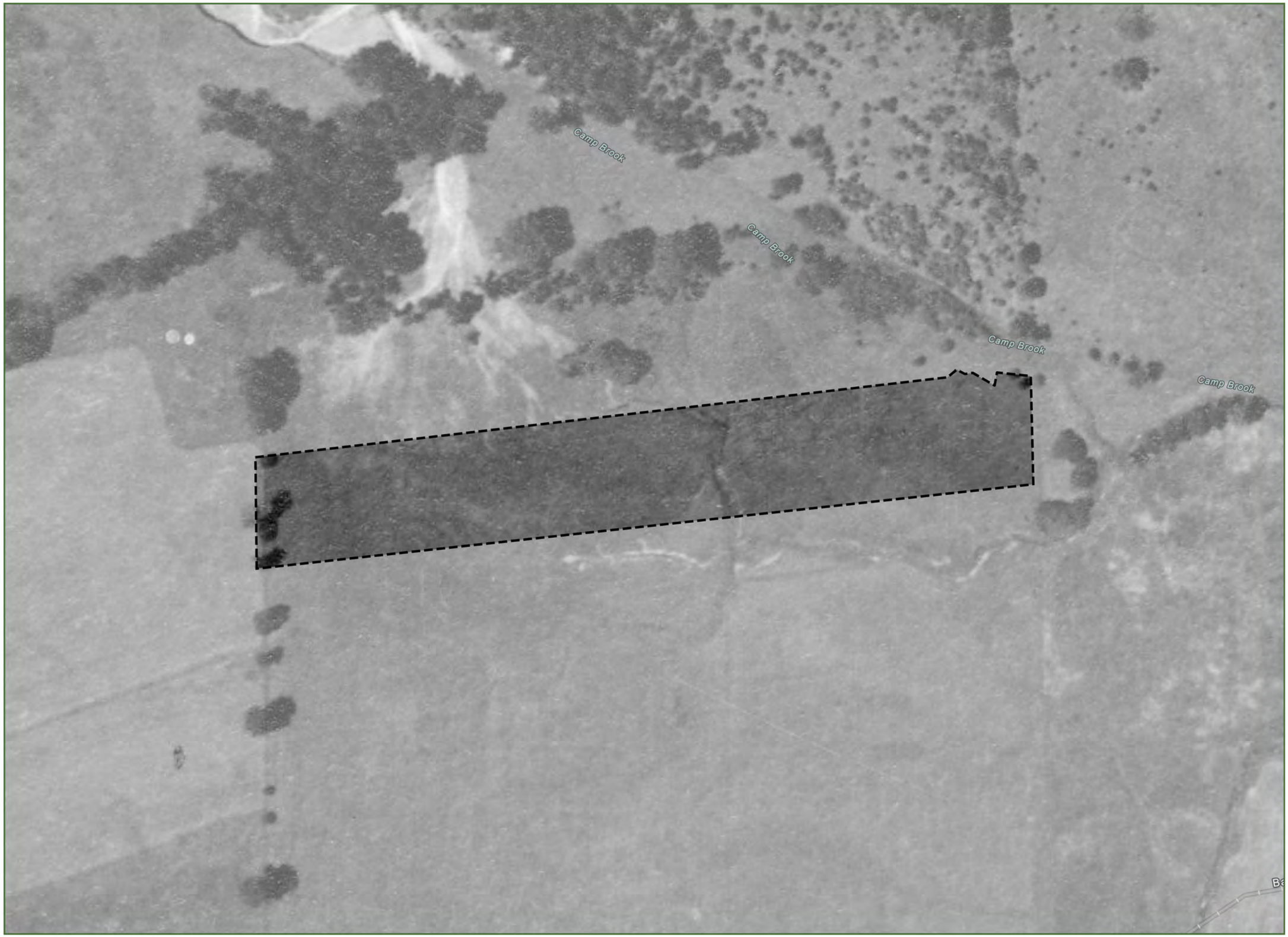

Figure 6A
1938 Historic Aerial Imagery

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

N

1 in = 150 ft *when printed at 11x17"*

0 25 50 100 150

Feet

Reference: Project limits are approximate and do not reflect a survey. The background aerial image was acquired on 08/05/1938. Present day roads and location labels are shown for reference.
Data Source: ESRI Hybrid Reference (2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
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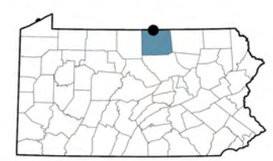
Project Number: 111788



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www.res.us

Figure 6B
1952 Historic Aerial Imagery

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

N

1 in = 150 ft *when printed at 11x17"*

0 25 50 100 150
Feet

Reference: Project limits are approximate and do not reflect a survey. The background aerial image was acquired on 08/25/1952. Present day roads and location labels are shown for reference.
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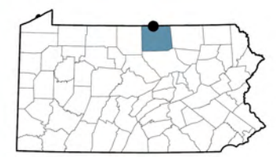
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 12/13/2024
Project Number: 111788



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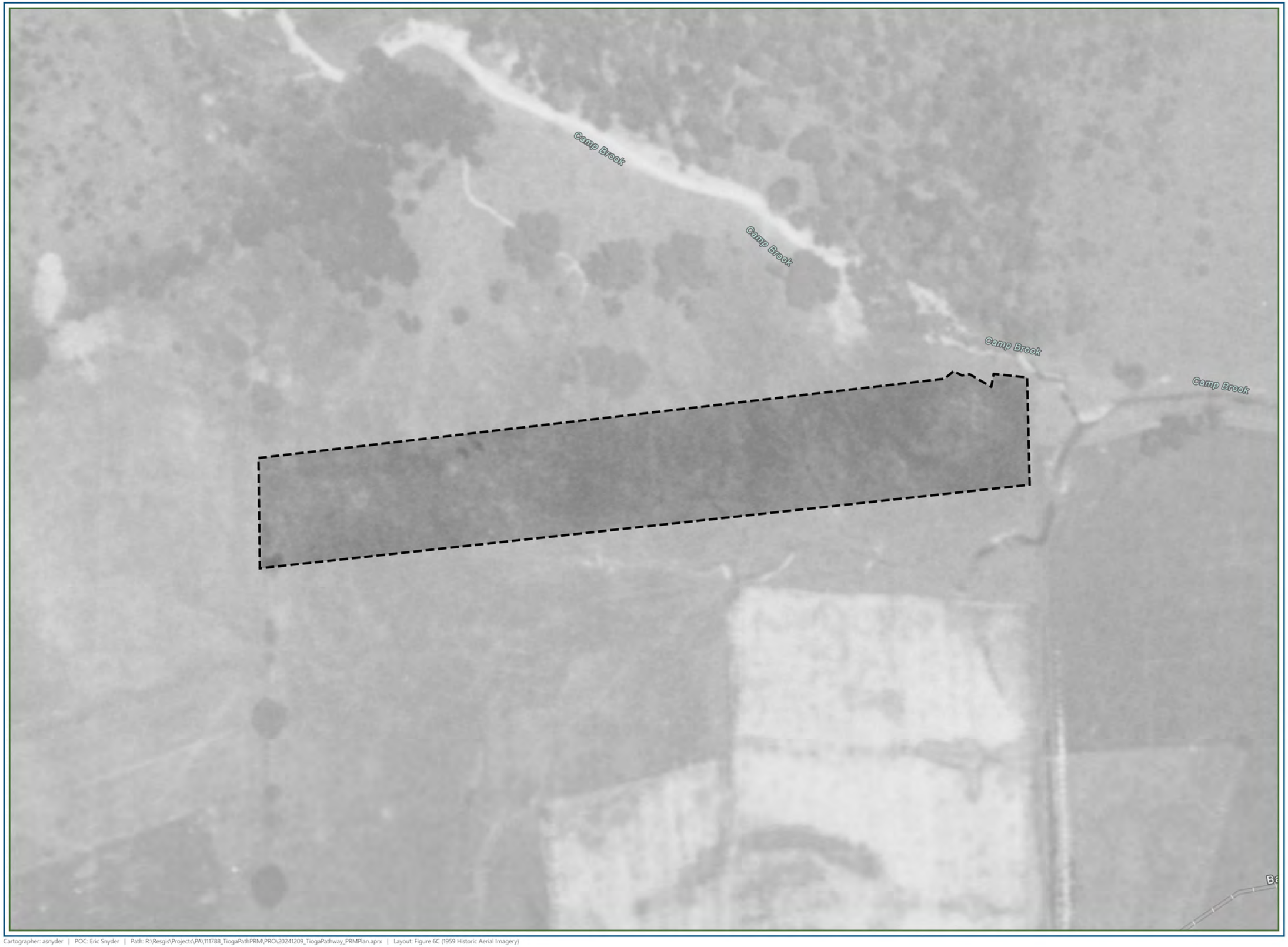

Figure 6C
1959 Historic Aerial Imagery

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

N

1 in = 150 ft *when printed at 11x17"*

0 25 50 100 150
Feet

Reference: Project limits are approximate and do not reflect a survey. The background aerial image was acquired on 06/08/1959. Present day roads and location labels are shown for reference.
Data Source: ESRI Hybrid Reference (2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 12/13/2024
Project Number: 111788

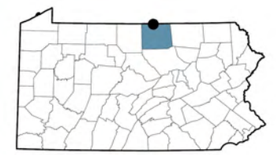

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Figure 6D
1969 Historic Aerial Imagery

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

N

1 in = 150 ft *when printed at 11x17"*

0 25 50 100 150
Feet

Reference: Project limits are approximate and do not reflect a survey. The background aerial image was acquired on 10/09/1969. Present day roads and location labels are shown for reference.
Data Source: ESRI Hybrid Reference (2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 12/13/2024
Project Number: 111788

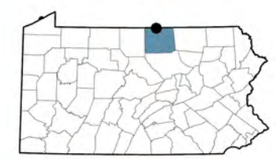

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Figure 6E
2018 Extant Aerial Imagery

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

N

1 in = 150 ft *when printed at 11x17"*

0 25 50 100 150
Feet

Reference: Project limits are approximate and do not reflect a survey. The background aerial image was acquired in 2018. Present day roads and location labels are shown for reference.
Data Source: PEMA Imagery (2018); ESRI Hybrid Reference (2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 12/13/2024
Project Number: 111788

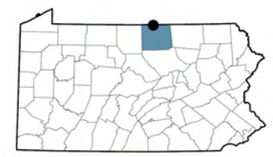

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Figure 7
Soil Survey

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

N 1 in = 150 ft *when printed at 11x17"*

0 25 50 100 150
Feet

Reference: Project limits are approximate and do not reflect a survey. Hydric ratings are based on the SSURGO "Hydric Classification-Presence" field.
Data Source: PEMA Imagery (2018); ESRI Hybrid Reference (2024); USDA SSURGO (2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 12/13/2024
Project Number: 111788

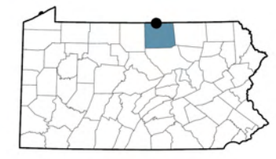

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Figure 8
Topography

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)
Contours (10ft)
Contours (2ft)

N

1 in = 150 ft *when printed at 11x17"*

0 25 50 100 150
Feet

Reference: Project limits are approximate and do not reflect a survey.
Data Source: PEMA Imagery (2018); ESRI Hybrid Reference (2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 12/13/2024
Project Number: 111788

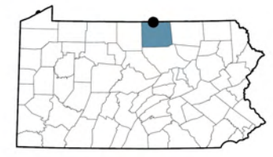

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Figure 9
FEMA Flood Hazards

Tioga Pathway PRM
Elkland Borough, Tioga County

77.3275°W 41.9913°N

Proposed Conservation Area (±5.65 AC)

NFHL Flood Hazard Zones

1% Annual Chance Flood Hazard

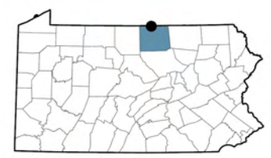
N

1 in = 150 ft *when printed at 11x17"*

0 25 50 100 150

Feet

Reference: Project limits are approximate and do not reflect a survey.
Data Source: PEMA Imagery (2018); ESRI Hybrid Reference (2024); FEMA (2024)
Spatial Reference: NAD83 StatePlane PA N (ft)
Date Exported: 12/13/2024
Project Number: 111788



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APPENDIX B
SITE PROTECTION INSTRUMENT

DECLARATION OF RESTRICTIVE COVENANT FOR CONSERVATION

This DECLARATION OF RESTRICTIVE COVENANTS FOR CONSERVATION ("Declaration") is made and entered into as of [date] by and between FIRST PENNSYLVANIA RESOURCE, L.L.C., a Pennsylvania limited liability company, with a business address at 33 Terminal Way, Pittsburgh, PA 15219 ("Grantee") and_____, an [individual/ corporation/other organization] with a mailing address at [_____] ("Grantor").

RECITALS

WHEREAS, Grantor owns certain real estate located in _____ County(ies), Pennsylvania, consisting of _____ acres, more or less, as described more specifically in **Exhibit A** hereto (the "Property"); and

WHEREAS, Grantee is a Pennsylvania company in the business of stream and wetland mitigation in the Commonwealth of Pennsylvania; and

WHEREAS, the Grantor has agreed to make a _____ acre portion of the Property, delineated in **Exhibit B**, where certain [stream and/or] wetland resources exist or may be created and/or enhanced (the "Conservation Area"), subject to this Declaration; and

WHEREAS, the Grantor agrees to the creation of the Conservation Area described herein and intends that the Conservation Area shall be preserved and maintained in perpetuity in an enhanced or natural condition, which will include functioning [streams and/or] wetlands; and

WHEREAS, the Conservation Area, or a portion thereof, is intended to be used in the future as mitigation for impacts to waters of the United States and/or waters of the Commonwealth of Pennsylvania authorized under U.S. Army Corps of Engineers ("Corps" to include any successor agency) or Pennsylvania Department of Environmental Protection ("PADEP" to include any successor agency) permit(s). Before, or at the time a Corps or PADEP permit or verification or a Mitigation Banking Instrument approves using this Conservation Area as mitigation: (1) the Mitigation Plan approved/required by such permit or Banking Instrument must contain a legal description of the portion of the Conservation Area to be used as mitigation or a Mitigation Bank; and (2) Grantee must record an addendum to this Declaration containing a legal description of the portion of the Conservation Area associated with each permit or Mitigation Bank, which references the applicable Corps and/or PADEP permit/verification number(s) or Mitigation Bank Site Name and any associated Corps/PADEP authorization/approval number(s). A form of the addendum to be used is attached to this Declaration as **Exhibit C**; and

WHEREAS, in recognition of the continuing benefit to the Property, and for the protection of waters of the United States and scenic, resource, environmental, and general property values, the Grantor and Grantee have agreed to place certain restrictive covenants on the Property, in order that the Conservation Area shall remain substantially in its natural condition forever; and

EXAMPLE

WHEREAS, the Grantor and Grantee agree and acknowledge that this Declaration, including the rights authorized to Grantee herein, shall be assignable and transferrable to Grantee's subsequent heirs, successors, and assigns, [if Holder known: including the _____]; and

[If Holder known: WHEREAS, the _____, a 501(c)(3) tax-exempt entity registered with the Bureau of Charitable Organizations of the Pennsylvania Department of State, is a holder of this Declaration] and

WHEREAS, this Declaration is constructed and covenanted to meet the requirements for conservation easements under the Pennsylvania Conservation and Preservation Easements Act, Act 29 of 2001, and as amended thereafter; and

NOW, THEREFORE, for good and valuable consideration and in consideration of the mutually held interests in enhancement and preservation of the environment, as well as the terms, conditions, and restrictions contained herein, and pursuant to the laws of the Commonwealth of Pennsylvania, Grantor does agree to the following terms and conditions:

A. **PURPOSE**

The purpose of this Declaration is:

(1) To preserve, protect, and enhance the native flora, fauna, soils, water table, aquifer, drainage patterns, wetland resources and other related environmental functions and values of the Conservation Area;

(2) To maintain the natural view shed of the Conservation Area in its native, enhanced, scenic and open condition;

(3) To assure that the Conservation Area, including its air space, streams and other aquatic resources on or beneath the Conservation Area, and including, but not limited to, subsurface aquifers, springs, and the water table, will be maintained in perpetuity in its natural condition, as that may be enhanced, as provided herein; and

(4) To prevent any use of the Conservation Area that threatens to or will impair, interfere with, or otherwise negatively affect its natural resource functions and values.

Grantor and Grantee [If known: and Holder] intend and agree that this Declaration will confine the use of the Conservation Area to such activities as are consistent with the purposes set forth herein.

B. **ACCESS**

EXAMPLE

In order to achieve the purposes of this Declaration, the following rights are created in accordance with Pennsylvania law:

(1) The Grantee shall have the right and Grantor acknowledges the right of [the holder(s) of this Declaration,] the Corps, the PADEP, and other government agencies with legal authority to enter upon the Property for purposes related to this Declaration, to inspect the Conservation Area at reasonable times to monitor compliance with this Declaration. Except in cases of a threat of a physical or public safety emergency, such entry shall, when practicable, be upon reasonable prior notice to Grantor or its successors and assigns, and such entry shall not unreasonably interfere with the Grantor's or its successors' and assigns' use and quiet enjoyment of the Property.

(2) The Grantor, Grantee, [holder(s) of this Conservation Declaration,] the Corps, the PADEP and other government agencies with legal authority to enter upon the Property for purposes related to this Declaration, each shall have the right to enter upon the Property to access the Conservation Area at reasonable times and upon prior notice to the Grantor; and upon notice and written approval by the Corps may take appropriate environmental or conservation management measures within the Conservation Area consistent with the terms and purposes of this Declaration, including, but not limited to:

(a) planting of native vegetation (i.e. trees, shrubs, grasses, and forbs); and

(b) restoring, altering or maintaining the topography, hydrology, drainage, structural integrity, streambed(s), streambank(s), water quantity, water quality, any relevant feature of a stream, wetland, water body, or vegetative buffer within the Conservation Area.

(3) The Grantor and Grantee, [holder(s) of this Declaration], the Corps, PADEP, and other government agencies with legal authority to enter upon the Property for purposes related to this Declaration, shall each have the right to enforce the terms of this Declaration by appropriate legal proceedings in accordance with applicable law so as to prevent any activity on or use of the Property that is inconsistent with the purposes of this Declaration and to require the restoration of such areas or features of the Conservation Area that may be impaired or damaged by an inconsistent activity or use.

C. DURATION

This Declaration shall remain in effect in perpetuity, shall run with the land regardless of ownership or use, and is binding upon and shall inure to the benefit of the Grantor and Grantee's [if known – and holder's] heirs, executors, administrators, successors, representatives, devisees, and assigns, as the case may be, as long as said party shall have any interest in any portion(s) of the Conservation Area.

D. RESTRICTIONS

EXAMPLE

Any activity in or use of the Conservation Area that is inconsistent with the purposes of this Declaration by the Grantor; subsequent property owner(s); and the personal representatives, heirs, successors, and assigns of either the Grantor or subsequent property owner(s), is prohibited. Without limiting the generality of the foregoing, and except when an approved purpose under B.(2) above, or as necessary to accomplish mitigation approved under the any permit(s) reliant upon this Declaration, the following activities and uses are expressly prohibited in, on, over, or under the Conservation Area, subject to the express terms and conditions below:

(1) **Structures**. The construction of man-made structures including, but not limited to, the construction, removal, placement, preservation, maintenance or alteration of any buildings, roads, utility lines, billboards, or other advertising. This restriction does not include deer stands, bat boxes, bird nesting boxes, bird feeders, duck blinds, and the placement of signs for safety purposes or boundary demarcation.

(2) **Demolition**. The demolition of fencing structures constructed by the Grantee for the purpose of demarcation of the Conservation Area or for public safety.

(3) **Soils**. The removal, excavation, disturbance, or dredging of soil, sand, peat, gravel, or aggregate material of any kind; or any change in the topography of the land, including any discharges of dredged or fill material, ditching, extraction, drilling, driving of piles, mining or excavation of any kind.

(4) **Drainage**. The drainage or disturbance of any aquifer, the surface water level or the water table.

(5) **Waste or Debris**. The storage, dumping, depositing, abandoning, discharging, or releasing of any gaseous, liquid, solid, or hazardous waste substance, materials or debris of whatever nature on, in, over, or underground or into surface or ground water.

(6) **Non-Native Species**. The planting or introduction of non-native or invasive species.

(7) **Herbicides, Insecticides, and Pesticides**. The use of herbicides, insecticides, or pesticides, or other chemicals, except for as may be necessary to control invasive species that threaten the natural character of the Conservation Area. State-approved municipal application programs necessary to protect public health and welfare are not included in this prohibition.

(8) **Removal of Vegetation**. The mowing, cutting, pruning, removal; disturbance, destruction, or collection of any trees, shrubs, or other vegetation, except for pruning, cutting or removal for:

a) safety; or
b) control in accordance with accepted scientific forestry management practices for diseased or dead vegetation; or
c) control of non-native species and noxious weeds; or
d) scientific nature study.

EXAMPLE

(9) **Agricultural Activities**. Unless currently used for agricultural or similarly related purposes, the conversion of, or expansion into, any portion of the Conservation Area for use of agricultural, horticultural, aquacultural, silvicultural, livestock production or grazing activities. This prohibition also includes conversion from one type of these activities to another (e.g. from agricultural to silvicultural).

(10) **Subdivision of Conservation Area**. Subdivision of real property within the Conservation Area into multiple parcels.

(11) **Other**. Other acts, uses, excavation, or discharges, which adversely affect fish or wildlife habitat or the preservation of lands, waterways, or other aquatic resources mentioned herein and located within the Conservation Area.

E. INSPECTION, ENFORCEMENT AND ACCESS RIGHTS

As set forth in Section B, above, the Grantee, holder(s) of this Declaration, the Corps, PADEP and other government agencies with legal authority to enter upon the Property for purposes related to this Declaration have the right to enter the Property to observe the Conservation Area and to take actions necessary to verify compliance with and to enforce this Declaration. When practicable, such entry shall be upon prior reasonable notice to the property owner. No violation of this Declaration shall result in a forfeiture or reversion of title. In any enforcement action, an enforcing agency shall be entitled to a complete restoration for any violation, as well as other authorized judicial remedies such as civil penalties. Nothing herein shall be interpreted to limit the right of the Corps to modify, suspend, or revoke any permit issued or authorized by Corps.

F. RECORDING AND EXECUTION BY PARTIES

Within thirty (30) calendar days of execution of this Agreement, the Grantee shall record this Declaration in the County office where land records are retained and shall provide proof of recordation to Grantor, the Corps, and PADEP within ten (10) business days of execution. Further, if anticipated activities in the Conservation Area are agreed upon for future phases of the site, as set forth in Section H (Reserved Rights) herein, the Grantee must submit plans to the Corps and PADEP for review and approval prior to any work in the Conservation Area.

G. NOTICE OF TRANSFER OF PROPERTY INTERESTS

No transfer of the rights set forth in this Declaration, or action to void or modify this Declaration, including transfer of title to or establishment of any other legal claims over the Conservation Area or the underlying Property it occupies, shall occur without sixty (60) calendar days' prior written notice to the Corps and the PADEP.

H. RESERVED RIGHTS

EXAMPLE

(1) This Declaration will not prevent the Grantor, or any subsequent owner of the Property and/or portions of the Property, from making use of the area(s) outside of the Conservation Area or from uses that are consistent with the purposes of this Declaration, including, but not limited to the following:

(a) **Existing Agreements**. Uses that Grantor is required to allow under valid, existing, recorded agreements are permitted, to the extent they do not interfere with, threaten, or degrade the Conservation Area and only to the extent they are consistent with the purposes of this Declaration. The Grantor[, holder(s) hereof,] and any holders of easements or other property rights for the operation and maintenance of pre-existing or project-related structures or infrastructure, such as roads, utilities, drainage ditches, or stormwater facilities that are present on, over, or under the Conservation Area, reserve the right, within the terms and conditions of their permits, agreements, and the law, to continue with such operation and maintenance. All pre-existing or approved project-related structures or infrastructure, if any, shall be shown on the accompanying plat map or approved plan and attached to this Declaration as **Exhibit D**.

(b) **Subsequent Agreements Allowing Subsurface Activity**. Subject to review by Grantee [if holder known – and holder of this Declaration], and only to the extent they are consistent with the purposes of this Declaration, agreements for the extraction of natural gas (regardless of source) or oil, and injection or release of water and other substances to facilitate such extraction, but excluding injection wells subject to state or federal underground injection control programs. The activities subject to such agreement may only occur at subterranean depths at which there can be no impairment of or detectable impact to water quality or quantity, native flora, fauna, soils, water table, aquifer, drainage patterns, and other related environmental functions and values of the Property, or on other resources described in this Declaration. No surface activities or uses, incident to such extraction are permitted in the Conservation Area. Grantor and Grantee shall provide the Corps and PADEP notice of Grantor's intent to enter into an agreement allowing subsurface activities at least sixty (60) days prior to executing the agreement.

(2) If the success of a compensatory mitigation project required or authorized by the Corps and PADEP requires any related or unanticipated infrastructure modifications, utility relocation, drainage ditches, or stormwater controls within the identified Conservation Area, or if a situation requires measures to remove threat to life or property within the identified Conservation Area, said activities must be approved in writing by the Corps and PADEP subject to terms and conditions set forth in the written approval. Approval is subject to the Corps's and PADEP's discretion. If approved, said activities must be identified on an amended **Exhibit D** and must be recorded and specifically noted as an "amendment" and copies of the recorded **Amended Exhibit D** must be provided to the Corps and PADEP within sixty (60) days of Corps approval. Approval of said activity by the Corps is in addition to any Clean Water Act, Section 404 permit, or other authorization, which may be required in order to legally implement said activity. The Grantor and Grantee accept the obligation to place any other and/or subsequent responsible party on reasonable prior notice of their need to request such Corps approval.

(3) **Enhancements, Maintenance and Repair**. This Declaration is not intended to prohibit future necessary or desired maintenance, repair, or enhancements to the

EXAMPLE

Property, where such actions are approved by the Corps and PADEP as appropriate, either through an approved mitigation plan (Section K below) or by a separate permit.

[I. The Grantor has mortgaged the Property subject to this Declaration. The lender has executed Subordination of Mortgage instruments related to the parcels subject of this Declaration for the sole purpose of subordinating their respective liens, dignity and priority interests to this Declaration. The executed Subordination of Mortgage instruments are attached hereto as **Exhibit E**: Mortgage Subordination Documents, and incorporated fully herein.]

J. **SEVERABILITY**

If any portion of this Declaration, or the application thereof to any person or circumstance, is found to be invalid, the remainder of the provisions of this instrument, or application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

K. **MITIGATION**

If the work required by a mitigation plan approved by the Corps and PADEP, including maintenance or remedial work, occurs within the Conservation Area, then the Grantee is allowed to construct and undertake the mitigation work in accordance with an authorized mitigation plan.

L. **ASSIGNMENT**

The Grantee [If Holder exists: and/or Holder each] is authorized to assign or transfer its rights and obligations under this Declaration to an organization that is a qualified organization under Section 170(h) of the Internal Revenue Code at the time of transfer.

M. **COAL RIGHTS NOTICE**

The following notice is given to and accepted by Grantor for the purpose and with the intention of compliance with the requirements of the Pennsylvania Conservation and Preservation Easements Act. Nothing herein shall imply the presence or absence of workable coal seams or the severance of coal interests from the Property.

NOTICE:

THIS DECLARATION may impair the development of coal interests including workable coal seams or coal interests which have been severed from the Property.

EXAMPLE

EXAMPLE

IN WITNESS WHEREOF, intending to be legally bound, the Parties have executed this Declaration the day and year first above written.

GRANTOR:

_____
David L. Specht

WITNESS:

_____

GRANTEE:

First Pennsylvania Resource, L.L.C.
a Pennsylvania limited liability company

By: Resource Environmental Solutions, LLC, its sole manager

By: _____
Name: _____
Title: _____

WITNESS:

_____

HOLDER:

_____

By: _____

WITNESS:

_____

EXAMPLE

COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF _____ :

On _____, before me, a Notary Public for the Commonwealth aforesaid, personally appeared _____, known to me or satisfactorily proven to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

IN WITNESS WHEREOF, I have set my hand and official seal.

_____
Notary Public
My commission expires:
_____

[SEAL]

COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF _____ :

On _____, before me, a Notary Public for the Commonwealth aforesaid, personally appeared _____, who acknowledged himself/herself to be the _____of the _____known to me or satisfactorily proven to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

IN WITNESS WHEREOF, I have set my hand and official seal.

_____
Notary Public
My commission expires:
_____

[SEAL]

EXAMPLE

COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF _____ :

On _____, before me, a Notary Public for the Commonwealth aforesaid, personally appeared _____, who acknowledged himself/herself to be the _____ of Resource Environmental Solutions, LLC, as manager of First Pennsylvania Resource, L.L.C., a Pennsylvania limited liability company, and that s/he, in the capacity set forth above, on behalf of the Grantee, being authorized to do so, executed, in my presence, the foregoing Declaration for the purposes herein contained.

IN WITNESS WHEREOF, I have set my hand and official seal.

_____
Notary Public
My commission expires:
_____

[SEAL]

EXAMPLE

APPENDIX C
WETLAND REPORT

Wetland Delineation and Waterbody Identification Report

Camp Brook Restoration Site – 2022 Expansion

Elkland Boro, Tioga County, Pennsylvania

April 2022

Prepared by:
FPR, LLC a wholly owned subsidiary of
Resource Environmental Solutions, LLC
317 East Carson, Suite 242
Pittsburgh, Pennsylvania 15219

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1.0 INTRODUCTION

First Pennsylvania Resource, LLC (FPR), a fully owned subsidiary of Resource Environmental Solutions, LLC (RES) conducted environmental field surveys on the Camp Brook Restoration Site – 2022 Expansion (Project or Site) Delineation Area on April 18th-22nd, located in Elkland Boro, Tioga County, Pennsylvania (PA) and 3 Parcels (~1,500 Feet) east of the Camp Brook Restoration Site located in Osceola Township. The purpose of the environmental field survey was to delineate and identify all wetlands and streams within the Delineation Area.

The following sections of this report describe the methods used to identify and delineate wetlands and streams present, the results of the field survey, and the associated documentation for streams and wetlands identified within the Delineation area.

2.0 METHODS

The United States Army Corps of Engineers (USACE) *Corps of Engineers Wetlands Delineation Manual* (Delineation Manual, Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region V. 2.0* (Regional Supplement, USACE, 2012) were used to identify wetlands that may be under the jurisdiction of the USACE or Pennsylvania Department of Environmental Protection (PADEP). Wetlands were delineated by evaluating three wetland indicators: hydrophytic vegetation, hydric soils, and wetland hydrology. Wetlands were classified using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). Plant species in all strata and stream habitats were used to evaluate the location and extent of wetlands, streams and water features that exist within the Delineation area. Classification of the vegetative indicator status is based on the *National Wetland Plant List:* 2016 Wetland Ratings, (Lichvar, Banks, Kirchner and Melvin 2016).

As regulated by Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899, streams were classified as perennial, intermittent, or ephemeral based upon presence of flow, estimated duration of flow, stream bed characteristics, and presence of aquatic biota. The USACE Jurisdictional Determination Form Instructional Guidebook (USACE, 2007) was used to determine stream classification and flow status.

The growing season in the Delineation Area is generally between April and October (USDA-NRCS-NWCC, 2002). Field observations were supplemented with a review of United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping, United States Department of Agriculture, Natural Resource Conservation Service (USDA-NRCS) soils mapping, and local landscape topography/morphology to provide a conservative determination of wetlands present within the study area. Professional judgment was used to determine whether hydrophytic vegetation and hydric soils existed within the identified wetlands. It is understood that USACE and state agencies have the final say in acceptance of this delineation.

As per the PA Department of Environmental Protection's (PADEP's) Wetland Delineation Policy (PA Code Title 25 Chapter 105, Statement of Policy 105.451), the PADEP has adopted the same methodology for identifying and delineating wetlands as used by the USACE. Since the Delineation area has the potential to include wetlands, all items required under Chapter 105.13(d)(1)(x) have been addressed in this report.

Each wetland and waterbody feature identified within the Delineation Area was given a unique map designation. The locations of wetland boundaries and stream channels were recorded using Trimble GEO 7XH/TDC150 model global positioning system (GPS) mapping grade units with the capability of sub-meter accuracy (Figure 2: Resource Location Map).

3.0 RESULTS

The Site is located within the Cowanesque River Watershed of the larger Upper Susquehanna River Subbasin within Elkland Boro, Tioga County, Pennsylvania. (Figure 1: Project Location Map). The Project contains a large headwater floodplain wetland complex, multiple depressional wetlands, a section of the

mainstem of Camp Brook, and several smaller tributaries that are fed by surface water runoff and groundwater. The surrounding area consists of active agriculture fields, small rural residential lots, and forested slopes to the north.

A review of available United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI, 2011) digital data indicated there are several NWI wetland habitats within the Delineation area. An examination of United States Geological Society (USGS) mapping for the Project indicated there are three blue-line streams (Camp Brook and two tributaries) located within the Delineation area (Figure 4. FEMA, NWI, and Chapter 93 Designation Map).

A review of the *Soil Survey of Tioga County, PA* (USDA, 2021) indicated that multiple soil types and hydric/partially hydric soils are present within the study area (Figure 3: Soils Map and Appendix E: Soils Found Within the Delineation area). The topography within the Project consists of a flat field at approximately 1,136 feet above mean sea level and a mountain side slope with the highest elevation located in the northern section of the Project at approximately 1,596 feet above mean sea level.

The Project is located within the Camp Brook drainage (USGS 8-Digit Hydrologic Unit Code (HUC) #02050104) of the Middle Cowanesque River watershed (12-Digit HUC # 020501040808), a sub-watershed of the larger Upper Susquehanna River Subbasin (USGS 6-Digit Hydrologic Unit Code (HUC) # 020501, Subbasin 04). A review of Federal Emergency Management Agency (FEMA) Flood Map Service Center website indicates that portions of streams within the Delineation Area are located within a designated Zone A (Figure 4. FEMA, NWI, and Chapter 93 Designation Map), which is subject to inundation by a 1-percent-annual-chance flood event.

The waterbodies that flow across the Project are not submerged lands of the Commonwealth, within a PA coastal zone, designated/nominated for designation as a national or state wild or scenic river, or located in any reservoirs or federal/state parks/forests/recreational areas.

The wetlands identified in the Delineation Area are not classified as exceptional value, per PA Code Title 25, Chapter 105.17 (1), sub-paragraphs (ii, (iv), and (v).

The field-verified wetlands and streams are described and listed in the following sections of this report. Color photographs of these features are included as Appendix F: Photographs. Wetland/upland data forms are included in Appendix C: Wetland and Upland Data Forms. Stream data forms are included in Appendix D: Stream Data Forms.

3.1 Wetlands

Several Palustrine Emergent (PEM) and Palustrine Forested (PFO) wetlands were found within the Delineation Area (Figure 2: Resource Location Map). Delineated wetlands are primarily fed by existing streams, groundwater upwelling zones, and surface water. Detailed information regarding the wetlands is outlined in Table 1: Wetlands Identified within the Delineation Area, and within wetland data forms in Appendix C: Wetland and Upland Data Forms. Photographs are provided in Appendix F: Photographs.

The dominant vegetation within the PEM/PFO wetland boundaries is invasive hydrophytic vegetation introduced from past agricultural land use. Identified PFO wetlands consist predominantly of stands of black willows *(Salix nigra*) and green ash (*Fraxinus pennsylvanica)*. Wetlands within the Project have been degraded, drained, and/or altered due to historic and on-going agricultural land use practices causing past/present disturbances to soil, vegetation, and hydrology. Many wetland areas delineated within this agriculture area are missing hydrophytic vegetation due to corn production, however with the presence of hydrology, hydric soils, and the current vegetation disturbances, wetland delineators determined these areas to be wetland. Wetlands within the Project have been degraded, drained, and/or altered due to historic and on-going agricultural land use practices.

Uplands within the Delineation Area are characterized as either corn fields or early to mid-successional forested land to the north. Detailed information regarding uplands can be found within upland data forms in Appendix C: Wetland and Upland Data Forms.

3.2 Waterbodies

Several waterbodies (Camp Brook and several unnamed headwater tributaries) were identified within the Delineation Area. Delineated waterbodies are perennial in nature. The origin of perennial streams is driven by headwater seeps, surface water, existing wetlands, and groundwater upwelling zones. Streams within the Delineation Area are predominately silt/gravel, apart from Camp Brook which is gravel/cobble dominated. Geomorphic instability and agricultural practices have contributed to siltation throughout stream reaches. Additionally, streams within the Site have been ditched or bermed to maximize agricultural land. Detailed information regarding the streams is outlined in Table 2: Waterbodies Identified within the Delineation Area, and within stream data forms in Appendix D: Stream Data Forms. Photographs are provided in Appendix F: Photographs.

The waterbodies within the Site have a designated protected aquatic life use of Warm Water Migratory Fisheries (WWF-MF) per PA Code, Title 25, Chapter 93 (Commonwealth of PA, 2015). The Pennsylvania Department of Environmental Protection (PADEP) does not list Camp Brook and its tributaries as having an Existing Use Classification (PADEP, 2017). Additionally, Camp Brook and its tributaries are not listed by the Pennsylvania Fish and Boat Commission (PFBC) as Approved Trout Waters (PFBC 2017) or Naturally Reproducing Wild Trout Streams. No PFBC Wild Trout Waters are located within or receive waters from the delineation area (PFBC 2017).

4.0 CONCLUSIONS

RES conducted multiple environmental field surveys of the Delineation area in April 2022 to identify wetlands and waterbodies within the Delineation Area. The Project contains a large headwater floodplain wetland complex, multiple depressional wetlands, a section of the mainstem of Camp Brook, and several smaller tributaries that are fed by surface water runoff, groundwater, and/or multiple springs/seeps that emerge from mountain side slopes to the west. The surrounding area consists of agriculture fields, small rural residential lots, and forested slopes to the north.

Several streams totaling 4,719.62 feet and 9 wetlands totaling 22.81 acres were identified and delineated within the Project study area.

All statements in this document pertaining to the jurisdictional status of streams and wetlands with regard to USACE and state regulations represent the opinion of FPR and are based on current USACE guidance. The jurisdictional status of these features may be confirmed by a USACE Jurisdictional Determination and/or by state agencies.

Respectfully submitted

Shawyn Yeamans | Project Manager | FPR, LLC
317 East Carson, Suite 242A | Pittsburgh, PA 15219
Direct: **724.421.7621**

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APPENDIX A: Tables

Table 1: Wetlands Identified Within the Delineation Area
Table 2: Streams Identified Within the Delineation Area

Table 1: Wetlands Identified within the Delineation Area							
Feature Designation[1]	**Cowardin Classification[2]**	**HGM Classification, Subclassification**	**NWI Wetland[3]**	**Open ended?**	**Acreage in Study Area[4]**	**Approximate Center Coordinates[5]**	
						Latitude	**Longitude**
W-1	PEM	Depression, Headwater Floodplain Complex	PEM1Ad and PEM1A	Yes	18.36	41.990659	-77.327826
	PFO	Depression, Headwater Floodplain Complex	None	No	2.15	41.991964	-77.327558
W-2	PEM	Depression	PFO1A	No	1.05	41.990719	-77.32747
W-3	PEM	Depression	None	No	0.14	41.99033	-77.325693
W-4	PEM	Depression	None	No	0.08	41.989952	-77.326809
W-5	PEM	Depression	None	No	0.12	41.988915	-77.32665
W-6	PEM	Depression	None	No	0.25	41.987499	-77.32757
W-7	PEM	Depression	None	No	0.09	41.987677	-77.326834
W-8	PEM	Depression	PEM1A	No	0.10	41.987582	-77.326396
W-9	PEM	Depression	None	No	0.47	41.987329	-77.325553
				Total Wetland Acreage	22.81		

Notes:

1 RES map designation.

2 Palustrine system wetlands were classified as emergent (PEM), scrub shrub (PSS), forested (PFO), and/or open water (POW)

3 National Wetlands Inventory wetland as mapped by the United States Fish and Wildlife Service 2011.

4 Extent of the wetland within the Delineation Area. Wetland may extend beyond these limits if noted as open ended.

5 North American Datum 1983.

Table 2: Waterbodies Identified within the Delineation Area											
Feature Designation[1]	Waterbody	Stream Type	Designated Water Uses and Water Quality Criteria[2]	Statewide Existing Use Classification[3]	Wild Trout Waters[4]	Approved Trout Waters[5]	Active Channel Width (Feet)	Delineated Stream Length (Feet)	Within a FEMA Floodplain[6]	Approximate Center Coordinates	
										Longitude	Latitude
Stream 1 (S1)	UNT to Camp Brook	Perennial	WWF-MF	None	No	No	15	1,504.65	No	41.988137	-77.327529
Stream 2 (S2)	UNT to Camp Brook	Perennial	WWF-MF	None	No	No	15	1,229.92	Yes	41.991171	-77.327385
Stream 3 (S3)	UNT to Camp Brook	Perennial	WWF-MF	None	No	No	4	144.77	No	41.991398	-77.326376
Stream 4 (S4)	UNT to Camp Brook	Perennial	WWF-MF	None	No	No	2	300.62	No	41.991559	-77.327116
Stream 5 (S5)	UNT to Camp Brook	Perennial	WWF-MF	None	No	No	8	459.05	No	41.991318	-77.328361
Stream 6 (S6)	UNT to Camp Brook	Perennial	WWF-MF	None	No	No	1	152.51	No	41.991109	-77.329494
Camp Brook	Camp Brook	Perennial	WWF-MF	None	No	No	36	928.10	Yes	41.992647	-77.326687
							Total Stream Length	**4,719.62**			

Notes:

1 FPR map designation.

2 As classified by PA Code Title 25 Chapter 93.9. WWF – Migratory Fisheries (Warm Water Migratory Fisheries) – . Waterbodies that do not have designated water uses are assessed per their receiving waterbody.

3 As classified by the PA Department of Environmental Protection (September 22, 2020). Available at: http://files.dep.state.pa.us/Water/Drinking%20Water%20and%20Facility%20Regulation/WaterQualityPortalFiles/Existing%20Use/EU%20table%20list.pdf. Accessed April 2022.

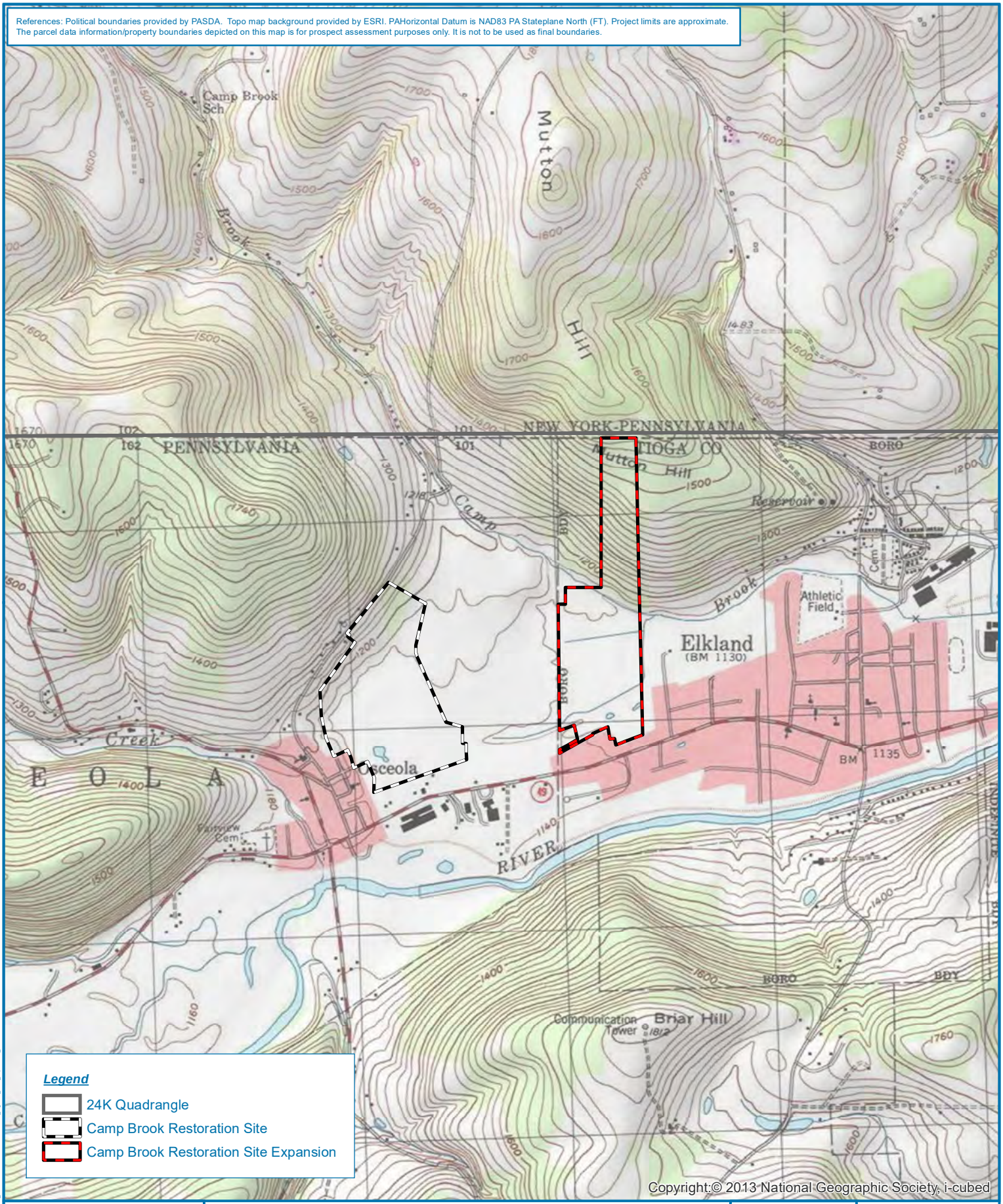
4 As classified under PA Code Title 58, Chapter 57.11 by the PA Fish and Boat Commission (PFBC) as a Class A Wild Trout Water, dated November 25, 2019 Available at: http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Documents/classa.pdf; or as a Stream Section that Supports Natural Reproduction of Trout, dated February 2017, Available at: http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Documents/trout_repro.pdf. Accessed April 2022.

5 Regional listings of 2021 Approved Trout Waters, including those being considered and/or officially proposed for listing as provided by the PFBC, Available at: https://pfbc.pa.gov/fishpub/summaryad/troutregs_sw.htm. Accessed April 2022.

6 Waterbodies residing within the limits of a designated Federal Emergency Management Agency (FEMA) 100-year floodplain.

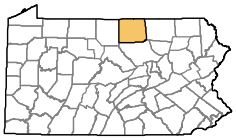
APPENDIX B:
FIGURES

References: Political boundaries provided by PASDA. Topo map background provided by ESRI. PAHorizontal Datum is NAD83 PA Stateplane North (FT). Project limits are approximate. The parcel data information/property boundaries depicted on this map is for prospect assessment purposes only. It is not to be used as final boundaries.



Copyright:© 2013 National Geographic Society, i-cubed

PROJECT LOCATION



TIOGA COUNTY, PA

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PROEJCT LOCATION MAP

CAMP BROOK RESTORATION SITE EXPANSION

Feet

0 1,000 2,000

1 inch = 2,000 feet

FIGURE 1

Date: 4/27/2022
Drawn by: NDR
Checked by: SY

res

Document Path: R:\Respl\engrg\Projects\103278_Subbasin_04\MXD\Delineation\Knox\SubD4_Figure1_PAM_Expansion_20220427.mxd

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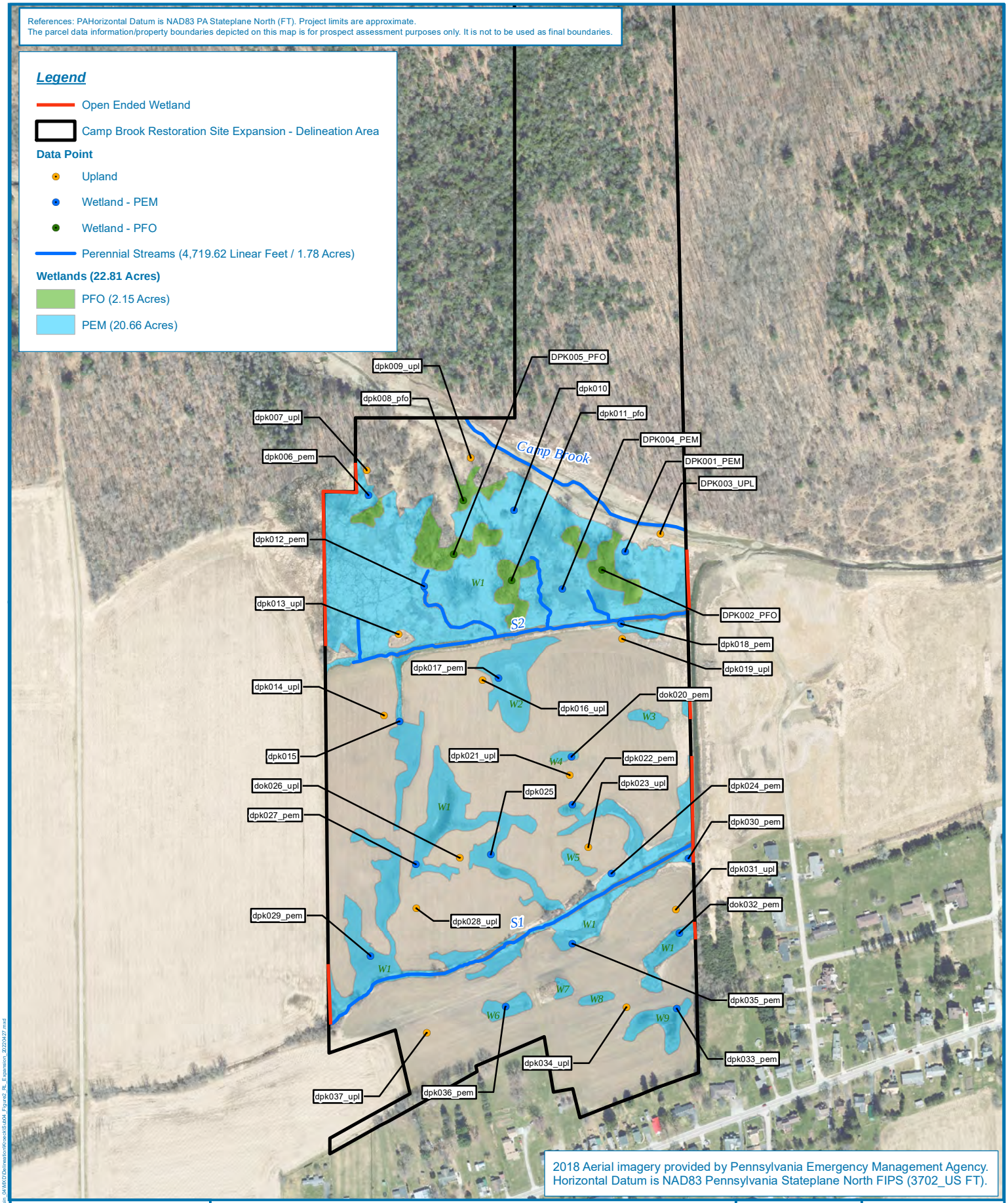
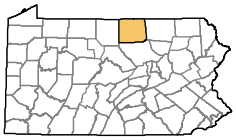
The parcel data information/property boundaries depicted on this map is for prospect assessment purposes only. It is not to be used as final boundaries.



2018 Aerial imagery provided by Pennsylvania Emergency Management Agency.
Horizontal Datum is NAD83 Pennsylvania Stateplane North FIPS (3702_US FT).

PROJECT LOCATION



TIOGA COUNTY, PA

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RESOURCE LOCATION MAP

CAMP BROOK RESTORATION SITE EXPANSION

0 225 450
1 inch = 450 feet

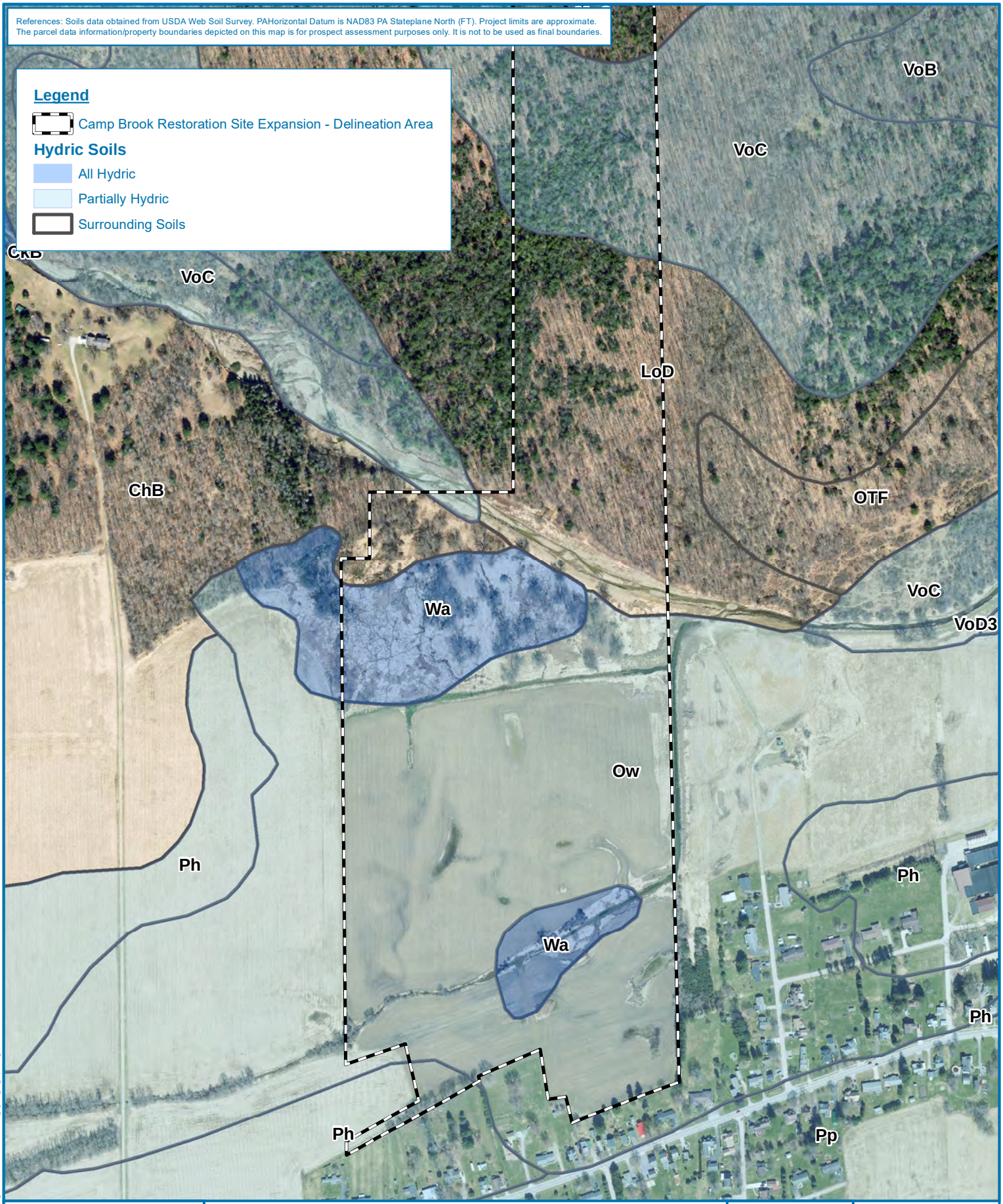
FIGURE 2

Date: 5/6/2022
Drawn by: PDG
Checked by: SY

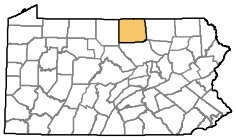
res

Document Path: R:\Respkl\engin\Projects\103278_Subbasin_04\MXD\Delineation\Knoe\ArtSU\s004_Figure2_RL_Expansion_20220427.mxd

References: Soils data obtained from USDA Web Soil Survey. PAHorizontal Datum is NAD83 PA Stateplane North (FT). Project limits are approximate.
The parcel data information/property boundaries depicted on this map is for prospect assessment purposes only. It is not to be used as final boundaries.



PROJECT LOCATION



TIOGA COUNTY, PA

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SOILS MAP

CAMP BROOK RESTORATION SITE EXPANSION

0 250 500
1 inch = 500 feet

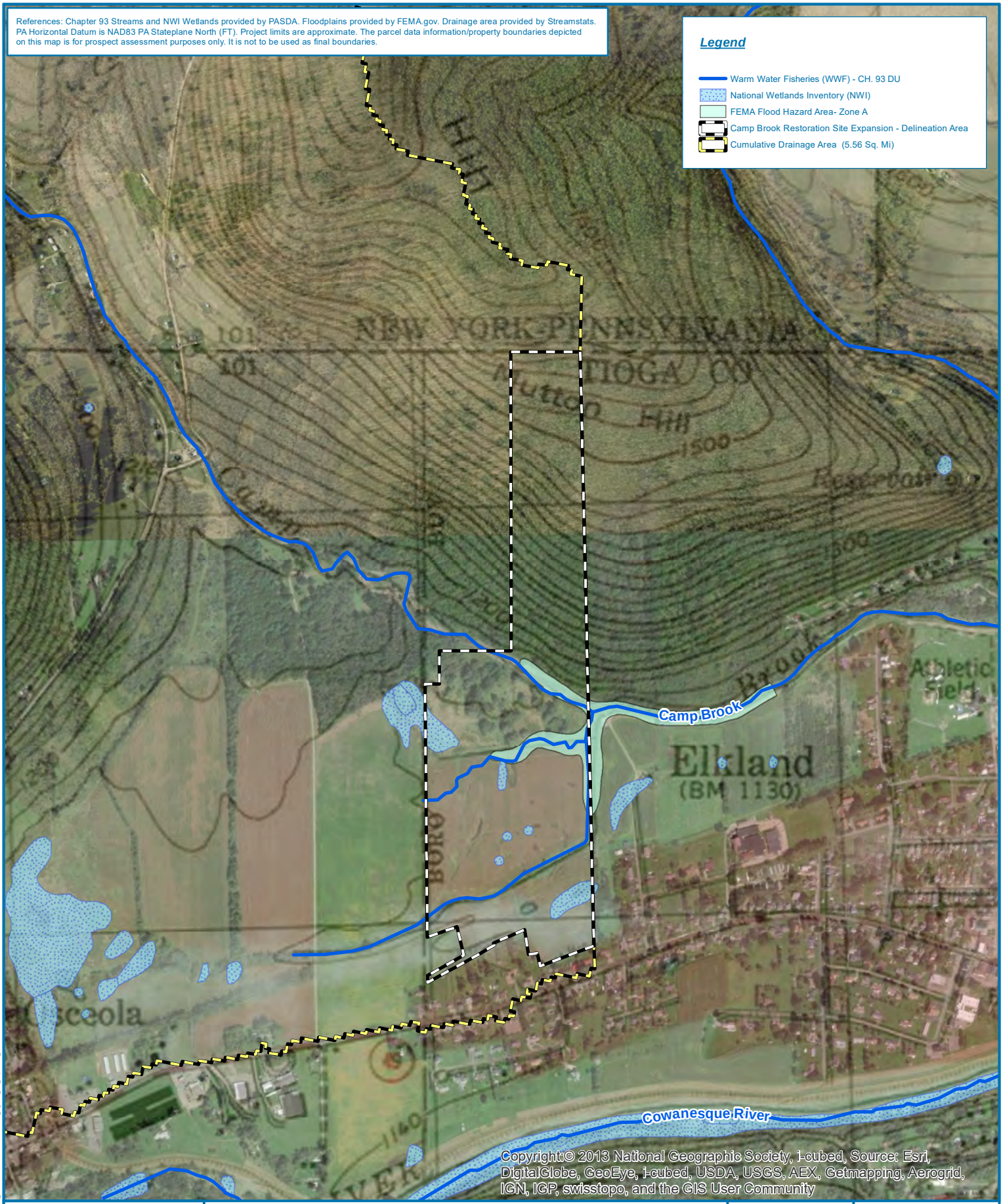
FIGURE 3

Date: 4/27/2022
Drawn by: NDR
Checked by: SY

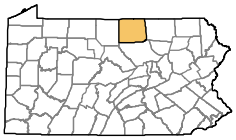
res

Document Path: R:\Respkrengin\Projects\103278_Subbasin_04\MXD\Delineation\Knoe\ckSub04_Figure3_SM_Expansion_20220427.mxd

References: Chapter 93 Streams and NWI Wetlands provided by PASDA. Floodplains provided by FEMA.gov. Drainage area provided by Streamstats. PA Horizontal Datum is NAD83 PA Stateplane North (FT). Project limits are approximate. The parcel data information/property boundaries depicted on this map is for prospect assessment purposes only. It is not to be used as final boundaries.



PROJECT LOCATION



TIOGA COUNTY, PA

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FEMA, NWI, AND CHAPTER 93 MAP

CAMP BROOK RESTORATION SITE EXPANSION

0 500 1,000

1 inch = 1,000 feet

FIGURE 4

Date: 4/27/2022
Drawn by: NDR
Checked by: SY

res

Document Path: R:\Respkr\engr\pa\Projects\103278_Subbasin_04\MXD\Delineation\Knoe\ckSub04_Figure4_DM_Expansion_20220427.mxd

APPENDIX C:
Wetland and Upland Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/19/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK_001_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.991976	Long.:	-77.325989	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil No, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in a large PEM wetland located adjacent to Camp Brook stream and a large man-altered stream. Large man-made burm is dividing between PEM wetland and the Camp Brook stream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
X	High Water Table (A2)		Marl Deposits (B15)		Drainage Patterns (B10)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Moss Trim Lines (B16)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
	Sparsely Vegetated Concave Surface (B8)			X	FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	4"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	3"

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Significant Precipitation in past 72 hours.

VEGETATION - Use scientific names of plants. Sampling Point: DPK_001_PEM

Tree Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1				UPL
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Phalaris arundinacea*	100	Yes	FACW
2	*Lythrum salicaria*	1	No	OBL
3	*Artemisia vulgaris*	1	No	UPL
4				
5				
6				
7				
8				
9				
10				
		102	= Total Cover	
	50 % of total cover:	51.0	20 % of total cover:	20.4

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:
OBL species	1 x 1 =	1
FACW species	100 x 2 =	200
FAC species	0 x 3 =	0
FACU species	0 x 4 =	0
UPL species	1 x 5 =	5
Column totals	102 (A)	206 (B)

Prevalence Index = B/A = 2.02

Hydrophytic Vegetation Indicators:

- X 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

SOIL **Sampling Point:** DPK_001_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 4/3	98	7.5YR 4/4	2	C	M	Silt Loam	
4-10	10YR 4/2	90	5YR 4/6	10	C	M	Silt Loam	
10-12	10YR 4/2	50	5YR 4/6	50	C	M	Silt Loam	
12-16	10YR 4/2	85	5YR 4/6	15	C	M	Silt Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/19/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK002_PFO		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.991803	Long.:	-77.326293	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	No	, soil	No	, or hydrology	No	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located adjacent to Camp Brook Stream in a forested area dominated by black willow with a very open understory.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
X	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)

Field Observations:

Surface water present?	Yes	X	No		Depth (inches):	7"	
Water table present?	Yes	X	No		Depth (inches):	8"	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):		**Wetland Hydrology Present?** **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Significant precipitation within the past 72 hours

VEGETATION - Use scientific names of plants. Sampling Point: DPK002_PFO

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Salix nigra*	70	Yes	OBL
2			
3			
4			
5			
	70	= Total Cover	
50 % of total cover:	35.0	20 % of total cover:	14.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Rosa multiflora*	5	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	5	= Total Cover	
50 % of total cover:	2.5	20 % of total cover:	1.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Impatiens sp.*	25	Yes	FACW
2 *Symphyotrichum sp.*	25	Yes	FACW
3 *Elymus virginicus*	20	Yes	FACW
4 *Phalaris arundinacea*	10	No	FACW
5 *Rumex crispus*	1	No	FAC
6			
7			
8			
9			
10			
	81	= Total Cover	
50 % of total cover:	40.5	20 % of total cover:	16.2

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 80.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70
FACW species	80	x 2 =	160
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column totals	156 (A)		258 (B)

Prevalence Index = B/A = 1.65

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

Plants that were only identified to a genus level did not have specific characteristics to identify to the species level. These species were given a FACW indicator based on the common species found within this area to calculate to dominance and prevalance test.

SOIL **Sampling Point:** DPK002_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 3/2	98	7.5YR 4/4	2	C	M	Silt Loam	
4-11	10YR 4/2	80	5YR 4/6	20	C	M	Silt Loam	
11-16	10YR 4/2	90	5YR 4/6	10	C	M	Silt Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/19/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK003_UPL
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township		
Landform (hillslope, terrace, etc.):	Rise	Local relief (concave, convex, none):	Convex	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.992144	Long.:	-77.32553	Datum:	NAD 83
Soil Map Unit Name:	LoD - Lordstown channery loam, 20 to 30 percent slopes			NWI Classification:	R5UBH

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil Yes, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No		
Hydric soil present?	No	**Is the sampled area within a wetland?**	**No**
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located within a known NWI however this location is on a man-made burm dividing Camp Brook and a large PEM/PFO wetland system.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Other (Explain in Remarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):
Water table present?	Yes		No	X	Depth (inches):
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK003_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Poa pratensis*	30	Yes	FACU
2 *Phalaris arundinacea*	25	Yes	FACW
3 *Artemisia vulgaris*	20	Yes	UPL
4 *Vicia sativa*	15	No	FACU
5 *Lamium purpureum*	5	No	UPL
6 *Daucus carota*	5	No	UPL
7			
8			
9			
10			
	100	= Total Cover	
50 % of total cover:	50.0	20 % of total cover:	20.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	45	x 4 =	180
UPL species	30	x 5 =	150
Column totals	100 (A)		380 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators:

- 1-Rapid test for hydrophytic vegetation
- 2-Dominance test is >50%
- 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

Lamium purpureum does not appear on the NCNE NWPL and is assumed as an UPL indicator status for the prevalance and dominace test.

SOIL **Sampling Point:** DPK003_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 4/3	100					Silt Loam	Gravel and rocks present

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 4"

Hydric soil present? **No**

Remarks:

Data point is located on a man made berm primarily made of cobble/gravel.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/20/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK004_PEM
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township		
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.99161	Long.:	-77.326819	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrvile silt loam			NWI Classification:	

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil No, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in a PEM depressional area surrounded by PFO with standing water. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

X	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
X	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
	Sparsely Vegetated Concave Surface (B8)			X	FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes	X	No		Depth (inches):	1/2"
Water table present?	Yes	X	No		Depth (inches):	7"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	Surface

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Significant precipitation past 72 hours

VEGETATION - Use scientific names of plants. Sampling Point: DPK004_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Typha angustifolia*	85	Yes	OBL
2 *Phalaris arundinacea*	25	Yes	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	110	= Total Cover	
50 % of total cover:	55.0	20 % of total cover:	22.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	110 (A)		135 (B)

Prevalence Index = B/A = 1.23

Hydrophytic Vegetation Indicators:

- X 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

SOIL **Sampling Point:** DPK004_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 4/1	100					Silt Loam	
8-16	10YR 4/1	70	7.5YR 4/4	30	C	M	Silt Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/20/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK005_PFO		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	none	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.99196	Long.:	-77.328247	Datum:	NAD 83
Soil Map Unit Name:	Wa - Wayland silty clay loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil No, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in a PFO with large mature black willows with very minimal understory. Data point is associated with Wetland001K

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

X	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
X	High Water Table (A2)		Marl Deposits (B15)		Drainage Patterns (B10)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Moss Trim Lines (B16)
	Water Marks (B1)	X	Oxidized Rhizospheres on Living Roots (C3)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Other (Explain in Remarks)		Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)				Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)				Microtopographic Relief (D4)
	Water-Stained Leaves (B9)			X	FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes	X	No		Depth (inches):	1/2"
Water table present?	Yes	X	No		Depth (inches):	12"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	9"

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK005_PFO

Tree Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Salix nigra*	90	Yes	OBL
2				
3				
4				
5				
		90	= Total Cover	
	50 % of total cover:	45.0	20 % of total cover:	18.0

Sapling/Shrub Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1				UPL
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Phalaris arundinacea*	80	Yes	FACW
2	*Rosa multiflora*	15	No	FACU
3	*Epilobium coloratum*	5	No	OBL
4	**Symphyotrichum sp.*	5	No	FACW
5				
6				
7				
8				
9				
10				
		105	= Total Cover	
	50 % of total cover:	52.5	20 % of total cover:	21.0

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	95	x 1 =	95
FACW species	85	x 2 =	170
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column totals	195 (A)		325 (B)

Prevalence Index = B/A = 1.67

Hydrophytic Vegetation Indicators:

- X 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Only identified to a genus level, did not have adequate characteristics to identify to the species level. These species were given a FACW indicator based on the common species found within this area to calculate to dominance and prevalance test.

SOIL **Sampling Point:** DPK005_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 4/2	95	7.5YR 4/3	5	C	PL	Silt Loam	
8-16	10YR 4/1	80	7.5YR 4/3	20	C	M	Silt Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/20/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK006_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.992544	Long.:	-77.329357	Datum:	NAD 83
Soil Map Unit Name:	ChB - Chenango gravelly loam, 2 to 12 percent slopes			NWI Classification:	None		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil No, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located within a flat PEM wetland surrounded by upland with second succesional growth forest and a PFO wetland. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
X	High Water Table (A2)		Marl Deposits (B15)		Drainage Patterns (B10)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Moss Trim Lines (B16)
	Water Marks (B1)	X	Oxidized Rhizospheres on Living Roots (C3)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Other (Explain in Remarks)		Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)				Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)				Microtopographic Relief (D4)
	Water-Stained Leaves (B9)			X	FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK006_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Rhamnus cathartica*	5	Yes	UPL
2 *Rosa multiflora*	5	Yes	FACU
3 *Cornus amomum*	5	Yes	FACW
4			
5			
6			
7			
8			
9			
10			
	15	= Total Cover	
50 % of total cover:	7.5	20 % of total cover:	3.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Scirpus cyperinus*	25	Yes	OBL
2 *Juncus tenuis*	25	Yes	FAC
3 *Phalaris arundinacea*	20	No	FACW
4 *Agrimonia parviflora*	20	No	FAC
5 *Rumex crispus*	15	No	FAC
6 *Juncus effusus*	10	No	OBL
7 **Impatiens sp.*	2	No	FACW
8			
9			
10			
	117	= Total Cover	
50 % of total cover:	58.5	20 % of total cover:	23.4

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 60.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	27	x 2 =	54
FAC species	60	x 3 =	180
FACU species	5	x 4 =	20
UPL species	5	x 5 =	25
Column totals	132 (A)		314 (B)

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Only identified to a genus level did not have adequate characteristics to identify to the species level. These species were given a FACW indicator based on the common species found within this area to calculate to dominance and prevalance test.

SOIL **Sampling Point:** DPK006_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 3/2	100					Silt loam	With roots
4-9	10YR 3/2	95	7.5YR 4/3	5	C	PL	Silt loam	With rock

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [X] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 9"

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/20/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK007_UPL
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township		
Landform (hillslope, terrace, etc.):	Rise	Local relief (concave, convex, none):	None	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.992782	Long.:	-77.329385
Datum:	NAD 83				
Soil Map Unit Name:	ChB - Chenango gravelly loam, 2 to 12 percent slopes		NWI Classification:	N/A	

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil No, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an upland forest with a high percentage of invasives, moderately thick understory and rocky soil. Upland data point is associated with Wetland 001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	
High Water Table (A2)	Marl Deposits (B15)	
Saturation (A3)	Hydrogen Sulfide Odor (C1)	
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	
Iron Deposits (B5)	Other (Explain in Remarks)	
Inundation Visible on Aerial Imagery (B7)		
Sparsely Vegetated Concave Surface (B8)		
Water-Stained Leaves (B9)		

Secondary Indicators (minimum of two required)

Surface Soil Cracks (B6)
Drainage Patterns (B10)
Moss Trim Lines (B16)
Dry-Season Water Table (C2)
Crayfish Burrows (C8)
Saturation Visible on Aerial Imagery (C9)
Stunted or Stressed Plants (D1)
Geomorphic Position (D2)
Shallow Aquitard (D3)
Microtopographic Relief (D4)
FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent at the time of observation.

VEGETATION - Use scientific names of plants. Sampling Point: DPK007_UPL

Tree Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Fraxinus pennsylvanica*	40	Yes	FACW
2	**Cratageous sp.*	30	Yes	FACU
3	*Rhamnus cathartica*	15	No	FAC
4				
5				
		85	= Total Cover	
	50 % of total cover:	42.5	20 % of total cover:	17.0

Sapling/Shrub Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Berberis thunbergii*	15	Yes	UPL
2	*Lonicera morrowii*	35	Yes	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		50	= Total Cover	
	50 % of total cover:	25.0	20 % of total cover:	10.0

Herb Stratum (Plot Size: 5x5)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Glechoma hederacea*	30	Yes	FACU
2	**Viola sp.*	20	Yes	FACU
3	*Alliaria petiolata*	15	No	FACU
4	*Agrimonia parviflora*	15	No	FAC
5	*Rosa multiflora*	5	No	FACU
6				
7				
8				
9				
10				
		85	= Total Cover	
	50 % of total cover:	42.5	20 % of total cover:	17.0

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Vitis aestivalis*	10	Yes	FACU
2				
3				
4				
5				
		10	= Total Cover	
	50 % of total cover:	5.0	20 % of total cover:	2.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 14.29% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	30	x 3 =	90
FACU species	145	x 4 =	580
UPL species	15	x 5 =	75
Column totals	230 (A)		825 (B)

Prevalence Index = B/A = 3.59

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Only identified to a genus level, did not have adequate characteristics to identify to the species level. These species were given a FACU indicator based on the common species found within this area to calculate to dominance and prevalance test.

SOIL **Sampling Point:** DPK007_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-5	10YR 4/3	100					Silt Loam	
5-13	10YR 4/3	100					Silt Loam	Gravel present

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 13"

Hydric soil present? **No**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK008_PFO		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.992484	Long.:	-77.328116	Datum:	NAD 83
Soil Map Unit Name:	Wa - Wayland silty clay loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil No, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located with a PFO with very large, mature black willows, and a large mature cottonwood. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
X	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
	Sparsely Vegetated Concave Surface (B8)			X	FAC-Neutral Test (D5)
X	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial Imagery (C9)
	Stunted or Stressed Plants (D1)
	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
X	FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	11"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	9"

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK008_PFO

Tree Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Populus deltoides*	40	Yes	FAC
2	*Salix nigra*	20	Yes	OBL
3	*Robinia pseudoacacia*	15	Yes	FACU
4				
5				
		75	= Total Cover	
	50 % of total cover:	37.5	20 % of total cover:	15.0

Sapling/Shrub Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Rosa mulitflora*	15	Yes	UPL
2				
3				
4				
5				
6				
7				
8				
9				
10				
		15	= Total Cover	
	50 % of total cover:	7.5	20 % of total cover:	3.0

Herb Stratum (Plot Size: 5x5)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Phalaris arundinacea*	20	Yes	FACW
2	**Solidago sp.*	20	Yes	FACU
3	*Galium asprellum*	15	Yes	OBL
4	*Rosa multiflora*	10	No	FACU
5	**Impatiens sp.*	5	No	FACW
6				
7				
8				
9				
10				
		70	= Total Cover	
	50 % of total cover:	35.0	20 % of total cover:	14.0

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 57.14% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	35	x 1 =	35
FACW species	25	x 2 =	50
FAC species	40	x 3 =	120
FACU species	45	x 4 =	180
UPL species	15	x 5 =	75
Column totals	160 (A)		460 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

lequate characteristics to identify to a species level. Indicator statuses were assumed based on the common species found within this area to

SOIL **Sampling Point:** DPK008_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-3	10YR 3/1	100					Silt Loam	
3-10	10YR 4/2	100					Silt Loam	With roots and rocks
10-16	10YR 4/2	95	7.5YR 6/8	5	C	M	Silty Clay Loam	With rock

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK009_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.9929	Long.:	-77.328013	Datum:	NAD 83
Soil Map Unit Name:	ChB - Chenango gravelly loam, 2 to 12 percent slopes			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil No, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Upland data point is located moderately open area with second successional growth of black locusts. Upland data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Other (Explain in Remarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent at the time of observation

VEGETATION - Use scientific names of plants. Sampling Point: DPK009_UPL

Tree Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Robinia pseudoacacia*	40	Yes	FACU
2				
3				
4				
5				
		40	= Total Cover	
	50 % of total cover:	20.0	20 % of total cover:	8.0

Sapling/Shrub Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1				UPL
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Artemisia vulgaris*	30	Yes	UPL
2	*Galium mollugo*	30	Yes	FACU
3	*Phalaris arundinacea*	20	No	FACW
4	*Glechoma hederacea*	20	No	FACU
5	*Urtica dioica*	15	No	FAC
6	*Alliaria petiolata*	15	No	FACU
7				
8				
9				
10				
		130	= Total Cover	
	50 % of total cover:	65.0	20 % of total cover:	26.0

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	15	x 3 =	45
FACU species	105	x 4 =	420
UPL species	30	x 5 =	150
Column totals	170 (A)		655 (B)

Prevalence Index = B/A = 3.85

Hydrophytic Vegetation Indicators:

- 1-Rapid test for hydrophytic vegetation
- 2-Dominance test is >50%
- 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

SOIL **Sampling Point:** DPK009_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-5	10YR 4/2	100					Silt loam	Roots present
5-14	10YR 4/2	100					Silt loam	Rock and roots present; 50% rock

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 14"

Hydric soil present? **No**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK010_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.992383	Long.:	-77.327453	Datum:	NAD 83
Soil Map Unit Name:	Wa - Wayland silty clay loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	No	, soil	No	, or hydrology	No	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located within a large open PEM dominated by P. arundinacea. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
X	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):		
Water table present?	Yes	X	No		Depth (inches):	2"	
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	Surface	**Wetland Hydrology Present? Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK010_PEM

Tree Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Rhamnus cathartica*	5	Yes	UPL
2				
3				
4				
5				
6				
7				
8				
9				
10				
		5	= Total Cover	
	50 % of total cover:	2.5	20 % of total cover:	1.0

Herb Stratum (Plot Size: 5x5)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Phalaris arundinacea*	100	Yes	FACW
2	*Dipsacus fullonum*	10	No	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		110	= Total Cover	
	50 % of total cover:	55.0	20 % of total cover:	22.0

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	100	x 2 = 200
FAC species	0	x 3 = 0
FACU species	10	x 4 = 40
UPL species	5	x 5 = 25
Column totals	115 (A)	265 (B)

Prevalence Index = B/A = 2.30

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

SOIL **Sampling Point:** DPK010_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-5	10YR 4/2	100					Silt loam	
5-11	10YR 4/2	90	7.5YR 4/4	10	C	M	Silt loam	Rock present

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 11"

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK011_PFO
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township		
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.991701	Long.:	-77.327483
Datum:	NAD 83				
Soil Map Unit Name:	Wa - Wayland silty clay loam			NWI Classification:	N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil No, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located within a PFO with very large mature black willows that are fairly spaced out with an open understory. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
X	High Water Table (A2)		Marl Deposits (B15)		Drainage Patterns (B10)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Moss Trim Lines (B16)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Other (Explain in Remarks)		Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)				Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)				Microtopographic Relief (D4)
X	Water-Stained Leaves (B9)			X	FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	3"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	Surface

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK011_PFO

Tree Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Salix nigra*	75	Yes	OBL
2				
3				
4				
5				
6				
7				
8				
9				
10				
		75	= Total Cover	
	50 % of total cover:	37.5	20 % of total cover:	15.0

Herb Stratum (Plot Size: 5x5)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Phalaris arundinacea*	85	Yes	FACW
2	*Onoclea sensibilis*	10	No	FACW
3	**Symphyotrichum sp.*	10	No	FACW
4	**Impatiens sp.*	5	No	FACW
5	*Rosa multiflora*	2	No	FACU
6				
7				
8				
9				
10				
		112	= Total Cover	
	50 % of total cover:	56.0	20 % of total cover:	22.4

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	75	x 1 =	75
FACW species	110	x 2 =	220
FAC species	0	x 3 =	0
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column totals	187 (A)		303 (B)

Prevalence Index = B/A = 1.62

Hydrophytic Vegetation Indicators:

- X 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Identified to a genus level did not have adequate characteristics to identify to the species level. These species were given a FACW indicator based on the common species found within this area to calculate to dominance and prevalance test.

SOIL **Sampling Point:** DPK011_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 4/2	100					Silt loam	
4-10	10YR 4/2	90	7.5YR 4/3	10	C	M	Silt loam	Rock present
10-13	10YR 4/2	98	7.5YR 4/3	2	C	M	Silt loam	Rock present

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 13"

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK012_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.99165	Long.:	-77.328631	Datum:	NAD 83
Soil Map Unit Name:	Wa - Wayland silty clay loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	No	, soil	No	, or hydrology	No	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in a large open PEM dominated by P. arundinacea. A large drainage feature with a large volume of water flows north to south near this data point. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
X	High Water Table (A2)		Marl Deposits (B15)	X	Drainage Patterns (B10)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Moss Trim Lines (B16)
	Water Marks (B1)	X	Oxidized Rhizospheres on Living Roots (C3)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Other (Explain in Remarks)		Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)				Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)				Microtopographic Relief (D4)
	Water-Stained Leaves (B9)			X	FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	11"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	6"

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK012_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Phalaris arundinacea*	100	Yes	FACW
2 **Solidago sp.*	10	No	FACU
3			
4			
5			
6			
7			
8			
9			
10			
	110	= Total Cover	
50 % of total cover:	55.0	20 % of total cover:	22.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column totals	110 (A)		240 (B)

Prevalence Index = B/A = 2.18

Hydrophytic Vegetation Indicators:

- X 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Identified to a genus level did not have adequate characteristics to identify to the species level. These species were given a FACU indicator based on the common species found within this area to calculate to dominance and prevalance test.

SOIL **Sampling Point:** DPK012_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-7	10YR 4/2	80	7.5YR 4/4	20	C	PL	Silt loam	Organics present
7-16	10YR 4/1	90	10YR 5/4	10	C	M	Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK013_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Rise	Local relief (concave, convex, none):	Convex	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.991172	Long.:	-77.328975	Datum:	NAD 83
Soil Map Unit Name:	Wa - Wayland silty clay loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation No, soil No, or hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No, soil No, or hydrology No naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No		
Hydric soil present?	No	**Is the sampled area within a wetland?**	**No**
Indicators of wetland hydrology present?	No		

Remarks:

Upland data point is located an upland inclusion surrounded by a PEM wetland. Upland data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Drainage Patterns (B10)
High Water Table (A2)	Marl Deposits (B15)	Moss Trim Lines (B16)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Geomorphic Position (D2)
Iron Deposits (B5)	Other (Explain in Remarks)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)		Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (D5)
Water-Stained Leaves (B9)		

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology is absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK013_UPL

Tree Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Acer saccharum*	5	Yes	FACU
2				
3				
4				
5				
		5	= Total Cover	
	50 % of total cover:	2.5	20 % of total cover:	1.0

Sapling/Shrub Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1	*Rosa multiflora*	5	Yes	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		5	= Total Cover	
	50 % of total cover:	2.5	20 % of total cover:	1.0

Herb Stratum (Plot Size: 5x5)		Absolute % Cover	Dominant Species?	Indicator Status
1	**Solidago sp.*	30	Yes	FACU
2	*Monarda fistulosa*	20	No	FACU
3	*Phalaris arundinacea*	20	No	FACW
4	*Asclepias syriaca*	20	No	UPL
5	*Achillea millefolium*	15	No	FACU
6				
7				
8				
9				
10				
		105	= Total Cover	
	50 % of total cover:	52.5	20 % of total cover:	21.0

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	75	x 4 =	300
UPL species	20	x 5 =	100
Column totals	115 (A)		440 (B)

Prevalence Index = B/A = 3.83

Hydrophytic Vegetation Indicators:

_ 1-Rapid test for hydrophytic vegetation

_ 2-Dominance test is >50%

_ 3-Prevalence index is ≤3.0*

_ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

_ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Identified to a genus level, did not have adequate characteristics to identify to the species level. These species were given a FACU indicator based on the common species found within this area to calculate to dominance and prevalance test.

SOIL **Sampling Point:** DPK013_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 4/3	100					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **No**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK014_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.990373	Long.:	-77.329174	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrvile silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are all severally disturbed due to active agricultural practices. Upland data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Drainage Patterns (B10)
High Water Table (A2)	Marl Deposits (B15)	Moss Trim Lines (B16)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Geomorphic Position (D2)
Iron Deposits (B5)	Other (Explain in Remarks)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)		Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (D5)
Water-Stained Leaves (B9)		

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology is absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK014_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25%	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0.25	= Total Cover	
50 % of total cover:	0.1	20 % of total cover:	0.1

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0.25	x 5 =	1.25
Column totals	0.25 (A)		1.25 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

_ 1-Rapid test for hydrophytic vegetation

_ 2-Dominance test is >50%

_ 3-Prevalence index is ≤3.0*

_ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Zea maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominace test.

SOIL **Sampling Point:** DPK014_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-13	10YR 4/3	100					Silt loam	
13-16	10YR 4/2	90	7.5YR 4/3	10	C	M	Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **No**

Remarks:

Hydric soil absent

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK015_PEM
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township		
Landform (hillslope, terrace, etc.):	Drainageway	Local relief (concave, convex, none):	Concave	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.99032	Long.:	-77.328965
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A

Datum: NAD 83

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
	High Water Table (A2)		Marl Deposits (B15)	X	Drainage Patterns (B10)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Moss Trim Lines (B16)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)	X	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Other (Explain in Remarks)		Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)				Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)				Microtopographic Relief (D4)
	Water-Stained Leaves (B9)				FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	16"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	11"

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK015_PEM

Tree Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)		Absolute % Cover	Dominant Species?	Indicator Status
1				UPL
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)		Absolute % Cover	Dominant Species?	Indicator Status
1	**Zea maize*	20	Yes	UPL
2	*Phalaris arundinacea*	20	Yes	FACW
3	***Echinchloa sp.*	15	Yes	FACW
4				
5				
6				
7				
8				
9				
10				
		55	= Total Cover	
	50 % of total cover:	27.5	20 % of total cover:	11.0

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species?	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
	50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column totals	55 (A)		170 (B)

Prevalence Index = B/A = 3.09

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level did not have adequate characteristics to identify at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK015_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-7	10YR 5/1	90	7.5YR 4/3	10	C	M	Silty Clay Loam	
7-12	10YR 5/1	75	7.5YR 4/6	25	C	M	Silty Clay Loam	
12-16	10YR 5/1	95	7.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK016_UPL
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township		
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.990718	Long.:	-77.32787	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrvile silt loam			NWI Classification:	N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Upland data point is associated with Wetland002K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Other (Explain in Remarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology was absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK016_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25%	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0.25	= Total Cover	
50 % of total cover:	0.1	20 % of total cover:	0.1

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0.25	x 5 =	1.25
Column totals	0.25 (A)		1.25 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

_ 1-Rapid test for hydrophytic vegetation

_ 2-Dominance test is >50%

_ 3-Prevalence index is ≤3.0*

_ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Zea maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominace test.

SOIL **Sampling Point:** DPK016_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-11	10YR 4/3	100					Silty clay loam	
11-16	10YR 5/3	100					Silty clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **No**

Remarks:

Hydric soil absent

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK017_PEM
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township		
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.990737	Long.:	-77.327664	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	PFO1A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Wetland is missing hydrophytic vegetation, however with the presence of hydrology, hydric soils, and current vegetation disturbances, wetland delineators assumed this area to be a wetland. Data point is associated with Wetland002K. Point resides in a PFO1A NWI, although this area is no longer forested.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)	X	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	16"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	11"

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK017_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	20	Yes	UPL
2 **Echinchloa sp.	20	Yes	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	40	= Total Cover	
50 % of total cover:	20.0	20 % of total cover:	8.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column totals	40 (A)		140 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

- 1-Rapid test for hydrophytic vegetation
- 2-Dominance test is >50%
- 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Z. maize does not appear on the NCNE NWPL and is assumed as an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK017_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-9	10YR 4/1	100					Silty Clay Loam	
9-16	10YR 4/1	90	10YR 4/3	10	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK018_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Drainageway	Local relief (concave, convex, none):	Concave	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.991267	Long.:	-77.326046	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	R5UBH		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	No	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located next to a large man-made drainage area with very shallow banks on a very low gradient slope. Surrounding area consist of P. arundinacea and a large active agriculture field. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
X	High Water Table (A2)		Marl Deposits (B15)	X	Drainage Patterns (B10)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Moss Trim Lines (B16)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)	X	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Other (Explain in Remarks)		Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)				Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)				Microtopographic Relief (D4)
	Water-Stained Leaves (B9)			X	FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	11"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	8"

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK018_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Phalaris arundinacea*	50	Yes	FACW
2 *Nasturtium officinale*	20	Yes	OBL
3 *Juncus effusus*	5	No	OBL
4			
5			
6			
7			
8			
9			
10			
	75	= Total Cover	
50 % of total cover:	37.5	20 % of total cover:	15.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	75 (A)		125 (B)

Prevalence Index = B/A = 1.67

Hydrophytic Vegetation Indicators:

- X 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

SOIL **Sampling Point:** DPK018_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 4/2	80	7.5YR 3/3	20	C	M	Silt Loam	
8-16	10YR 4/2	95	7.5YR 3/3	5	C	M	Silt Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK019_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.991113	Long.:	-77.326035	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Upland data point is associated with Wetland002K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Other (Explain in Remarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK019_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2 **Echinchloa sp.	30	Yes	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	55	= Total Cover	
50 % of total cover:	27.5	20 % of total cover:	11.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	55 (A)		185 (B)

Prevalence Index = B/A = 3.36

Hydrophytic Vegetation Indicators:

- 1-Rapid test for hydrophytic vegetation
- 2-Dominance test is >50%
- 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level did not have adequate characteristics to identify at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK019_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 4/3	100					Silty Clay Loam	
8-16	10YR 5/3	100					Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **No**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK020_PEM
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	ElklandTownship		
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.989966	Long.:	-77.326707
Datum:	NAD 83				
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Wetland is missing hydrophytic vegetation, however with the presence of hydrology, hydric soils, and current vegetation disturbances, wetland delineators determined this area to be a wetland. Data point is associated with Wetland004K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)	X	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
X	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? Yes

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK020_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	20	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	20	= Total Cover	
50 % of total cover:	10.0	20 % of total cover:	4.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column totals	20 (A)		100 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- X Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

SOIL **Sampling Point:** DPK020_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-5	10YR 4/1	100					Silty Clay Loam	
5-16	10YR 4/1	90	10YR 5/6	10	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK021_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Rise	Local relief (concave, convex, none):	Convex	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.989782	Long.:	-77.326736	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present?	Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)	

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Upland data point is associated with Wetland004K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Drift Deposits (B3)
High Water Table (A2)	Marl Deposits (B15)	Algal Mat or Crust (B4)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Iron Deposits (B5)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Inundation Visible on Aerial Imagery (B7)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Sparsely Vegetated Concave Surface (B8)
	Recent Iron Reduction in Tilled Soils (C6)	Water-Stained Leaves (B9)
	Thin Muck Surface (C7)	
	Other (Explain in Remarks)	

Secondary Indicators (minimum of two required)

Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)
Drainage Patterns (B10)	Geomorphic Position (D2)
Moss Trim Lines (B16)	Shallow Aquitard (D3)
Dry-Season Water Table (C2)	Microtopographic Relief (D4)
Crayfish Burrows (C8)	FAC-Neutral Test (D5)
Saturation Visible on Aerial Imagery (C9)	

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK021_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2 **Ranunculus sp.	30	Yes	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	55	= Total Cover	
50 % of total cover:	27.5	20 % of total cover:	11.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	55 (A)		185 (B)

Prevalence Index = B/A = 3.36

Hydrophytic Vegetation Indicators:

- 1-Rapid test for hydrophytic vegetation
- 2-Dominance test is >50%
- 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics identify to species at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK021_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-7	10YR 4/3	100					Silty Loam	
7-14	10YR 5/3	100					Silty Clay Loam	Rock Present

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 14"

Hydric soil present? **No**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK022_PEM
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	ElklandTownship		
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.989492	Long.:	-77.326697
Datum:	NAD 83				
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	PEM1A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Wetland is missing hydrophytic vegetation, however with the presence of hydrology, hydric soils, and current vegetation disturbances, wetland delineators determined this area to be a wetland. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)	X	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
X	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK022_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	25	= Total Cover	
50 % of total cover:	12.5	20 % of total cover:	5.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	25 (A)		125 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- X Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

SOIL **Sampling Point:** DPK022_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-7	10YR 4/1	80	7.5YR 4/4	20	C	M	Silty Clay Loam	
7-16	10YR 4/1	90	7.5YR 3/4	10	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK023_UPL
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township		
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	none	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.989074	Long.:	-77.32649	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Upland data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Other (Explain in Remarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK023_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	25	= Total Cover	
50 % of total cover:	12.5	20 % of total cover:	5.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	25 (A)		125 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- 1-Rapid test for hydrophytic vegetation
- 2-Dominance test is >50%
- 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

SOIL **Sampling Point:** DPK023_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 4/2	100					Silty Loam	
14-16	10YR 4/2	90	7.5YR 4/4	10	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **No**

Remarks:

Hydric soil absent

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK024_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Drainageway	Local relief (concave, convex, none):	Concave	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.988815	Long.:	-77.326192	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	R2UBH		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located on the edge of an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)	X	Drainage Patterns (B10)
X	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):		
Water table present?	Yes	X	No		Depth (inches):	5"	
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	Surface	**Wetland Hydrology Present? Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK024_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Phalaris arundinacea*	50	Yes	FACW
2 **Zea maize*	25	Yes	UPL
3			
4			
5			
6			
7			
8			
9			
10			
	75	= Total Cover	
50 % of total cover:	37.5	20 % of total cover:	15.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	75 (A)		225 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

SOIL **Sampling Point:** DPK024_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 4/1	80	7.5YR 4/4	20	C	M	Silty Clay Loam	
8-16	10YR 4/1	95	7.5YR 3/3	5	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/21/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK025_PEM
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township		
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.989009	Long.:	-77.327778	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No		
Hydric soil present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Wetland is missing hydrophytic vegetation, however with the presence of hydrology, hydric soils, and current vegetation disturbances, wetland delineators determined this area to be a wetland. Data point is associated with Wetland001K. Saturation can be seen on aerial imagery of this wetland cell.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)	X	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
X	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK025_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	25	= Total Cover	
50 % of total cover:	12.5	20 % of total cover:	5.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	25 (A)		125 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- X Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

SOIL **Sampling Point:** DPK025_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 4/3	100					Silty Clay Loam	
10-16	10YR 4/1	85	10YR 5/4	15	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK026_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.988969	Long.:	-77.328185	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Upland data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Other (Explain in Remarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK026_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	25	= Total Cover	
50 % of total cover:	12.5	20 % of total cover:	5.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	25 (A)		125 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- 1-Rapid test for hydrophytic vegetation
- 2-Dominance test is >50%
- 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

SOIL **Sampling Point:** DPK026_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-9	10YR 4/3	100					Silty Clay Loam	
9-15	10YR 4/2	95	10YR 3/3	5	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK027_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.988918	Long.:	-77.328761	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Data point is associated with Wetland001K. Saturation is visible on aerial imagery.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

X	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)	X	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes	X	No		Depth (inches):	1"
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK027_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2 **Echinochloa sp	15	Yes	FACW
3 Eleocharis palustris	10	Yes	OBL
4			
5			
6			
7			
8			
9			
10			
	50	= Total Cover	
50 % of total cover:	25.0	20 % of total cover:	10.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	50 (A)		165 (B)

Prevalence Index = B/A = 3.30

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK027_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-9	10YR 4/3	100					Silty Clay Loam	
7-16	10YR 4/2	90	10YR 5/4	10	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK028_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	none	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.989074	Long.:	-77.32649	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Upland data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)	
	High Water Table (A2)	
	Saturation (A3)	
	Water Marks (B1)	
	Sediment Deposits (B2)	
	Drift Deposits (B3)	
	Algal Mat or Crust (B4)	
	Iron Deposits (B5)	
	Inundation Visible on Aerial Imagery (B7)	
	Sparsely Vegetated Concave Surface (B8)	
	Water-Stained Leaves (B9)	
	Aquatic Fauna (B13)	
	Marl Deposits (B15)	
	Hydrogen Sulfide Odor (C1)	
	Oxidized Rhizospheres on Living Roots (C3)	
	Presence of Reduced Iron (C4)	
	Recent Iron Reduction in Tilled Soils (C6)	
	Thin Muck Surface (C7)	
	Other (Explain in Remarks)	

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial Imagery (C9)
	Stunted or Stressed Plants (D1)
	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK028_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	35	Yes	UPL
2 **Ranunculus sp.	15	Yes	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	50	= Total Cover	
50 % of total cover:	25.0	20 % of total cover:	10.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	35	x 5 =	175
Column totals	50 (A)		205 (B)

Prevalence Index = B/A = 4.10

Hydrophytic Vegetation Indicators:

- 1-Rapid test for hydrophytic vegetation
- 2-Dominance test is >50%
- 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK028_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 4/3	100					Silty Clay Loam	
10-16	10YR 4/2	85	7.5YR 4/4	15	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/21/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK029_PEM
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township		
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.98802	Long.:	-77.329366	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severally disturbed due to the active agricultural practices. Wetland is missing hydrophytic vegetation, however with the presence of hydrology, hydric soils, and current vegetation disturbances, wetland delineators determined this area to be a wetland. Data point is associated with Wetland004K. Saturation is visible on aerial imagery.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
X	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)	X	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
X	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	12"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	10"

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK029_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2 **Panicum sp.	30	Yes	FAC
3			
4			
5			
6			
7			
8			
9			
10			
	55	= Total Cover	
50 % of total cover:	27.5	20 % of total cover:	11.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	55 (A)		215 (B)

Prevalence Index = B/A = 3.91

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- X Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FAC indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK029_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 4/1	90	7.5YR 4/4	10	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L, M)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/22/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK030_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.988959	Long.:	-77.325173	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located between an active agriculture field and a man-made drainage. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
X	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)						

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):		
Water table present?	Yes	X	No		Depth (inches):	12"	
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	7"	**Wetland Hydrology Present? Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK030_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Panicum sp.*	20	Yes	FAC
2 *Phalaris arundinacea*	15	Yes	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	35	= Total Cover	
50 % of total cover:	17.5	20 % of total cover:	7.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	15 (A)		30 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- X 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FAC indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK030_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-7	10YR 4/2	75	7.5YR 4/4	25	C	M	Silt Loam	
7-16	10YR 5/1	85	7.5YR 3/3	15	C	M	Silt Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/22/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK031_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.988461	Long.:	-77.325341	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Upland data point is associated with Wetland001K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Other (Explain in Remarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK031_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2 **Ranunculus sp.	10	Yes	FACW
3 **Echinochloa sp.	10	Yes	FACW
4			
5			
6			
7			
8			
9			
10			
	45	= Total Cover	
50 % of total cover:	22.5	20 % of total cover:	9.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	45 (A)		165 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- X 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK031_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 4/3	100					Silty Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **No**

Remarks:

Hydric soil absent

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/22/2022
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK032_PEM
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township		
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.988227	Long.:	-77.325302	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	PEM1A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Wetland is missing hydrophytic vegetation, however with the presence of hydrology, hydric soils, and current vegetation disturbances, wetland delineators determined this area to be a wetland. Data point is associated with Wetland001K. Saturation and standing water are visible on aerial imagery.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

X	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)	X	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes	X	No		Depth (inches):	1/2"
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK032_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2 **Panicum sp.	30	Yes	FAC
3			
4			
5			
6			
7			
8			
9			
10			
	55	= Total Cover	
50 % of total cover:	27.5	20 % of total cover:	11.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	55 (A)		215 (B)

Prevalence Index = B/A = 3.91

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- X Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FAC indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK032_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 4/2	75	7.5YR 4/4	25	C	M	Silt Loam	With gravel and coal
6-17	10YR 4/1	90	7.5YR 3/3	10	C	M	Silt Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/22/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK033_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.987483	Long.:	-77.325341	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Wetland is missing hydrophytic vegetation, however with the presence of hydrology, hydric soils, and current vegetation disturbances, wetland delineators determined this area to be a wetland. Data point is associated with Wetland009K. Saturation is visible on aerial imagery.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

X	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)	X	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
X	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)

Field Observations:

Surface water present?	Yes	X	No		Depth (inches):	1/2"
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK033_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2 **Echinochloa sp.	5	No	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	30	= Total Cover	
50 % of total cover:	15.0	20 % of total cover:	6.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	30 (A)		135 (B)

Prevalence Index = B/A = 4.50

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- X Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **Yes**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK033_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-7	10YR 4/2	90	7.5YR 3/3	10	C	M	Silt Loam	
7-16	10YR 4/2	98	7.5YR 3/3	2	C	M	Silt Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/22/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK034_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.987507	Long.:	-77.326	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Upland data point is associated with Wetland008K & Wetland009K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Other (Explain in Remarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK034_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2 *Lamium purpureum	10	Yes	UPL
3 **Ranunculus sp.	5	No	FACW
4			
5			
6			
7			
8			
9			
10			
	40	= Total Cover	
50 % of total cover:	20.0	20 % of total cover:	8.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	35	x 5 =	175
Column totals	40 (A)		185 (B)

Prevalence Index = B/A = 4.63

Hydrophytic Vegetation Indicators:

_ 1-Rapid test for hydrophytic vegetation

_ 2-Dominance test is >50%

_ 3-Prevalence index is ≤3.0*

_ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Plants do not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK034_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 3/1	100					Silty Loam	With coal fragments throughout

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **No**

Remarks:

Hydric soil absent

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/22/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK035_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.988132	Long.:	-77.326797	Datum:	NAD 83
Soil Map Unit Name:	Wa - Wayland silty clay loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No		
Hydric soil present?	Yes	**Is the sampled area within a wetland?**	**Yes**
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Wetland is missing hydrophytic vegetation, however with the presence of hydrology, hydric soils, and current vegetation disturbances, wetland delineators determined this area to be a wetland. Data point is associated with Wetland001K. Saturation is visible on aerial imagery.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Drainage Patterns (B10)
X	High Water Table (A2)		Marl Deposits (B15)		Moss Trim Lines (B16)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)	X	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
X	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	12"
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	9"

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK035_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	25	= Total Cover	
50 % of total cover:	12.5	20 % of total cover:	5.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	25 (A)		125 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- X Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

SOIL **Sampling Point:** DPK035_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 4/1	90	7.5YR 3/3	10	C	M	Silt Loam	
4-16	10YR 4/1	80	7.5YR 3/3	20	C	M	Silty Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histisol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Suface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- [ ] Thin Dark Surface (S9) (LRR R, MLRA 149B)
- [ ] Loamy Mucky Mineral (F1) (LRR K, L)
- [ ] Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- [ ] 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- [ ] Coast Prairie Redox (A16) (LRR K, L, R)
- [ ] 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- [ ] Dark Surface (S7) (LRR K, L, M)
- [ ] Polyvalue Below Surface (S8) (LRR K, L)
- [ ] Thin Dark Surface (S9) (LRR K, L)
- [ ] Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- [ ] Piedmont Floodplain Soils (F19) (MLRA 149B)
- [ ] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- [ ] Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Elkland, Tioga	Sampling Date:	4/22/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK036_PEM		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Elkland Township				
Landform (hillslope, terrace, etc.):	Depression	Local relief (concave, convex, none):	Concave	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.987514	Long.:	-77.32759	Datum:	NAD 83
Soil Map Unit Name:	Wa - Wayland silty clay loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**Yes**
Hydric soil present?	Yes		
Indicators of wetland hydrology present?	Yes		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation is are severely disturbed due to the active agricultural practices. Wetland is missing hydrophytic vegetation, however with the presence of hydrology, hydric soils, and current vegetation disturbances, wetland delineators determined this area to be a wetland. Data point is associated with Wetland006K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
	High Water Table (A2)		Marl Deposits (B15)		Drainage Patterns (B10)
	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Moss Trim Lines (B16)
	Water Marks (B1)	X	Oxidized Rhizospheres on Living Roots (C3)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C6)		Saturation Visible on Aerial Imagery (C9)
X	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Iron Deposits (B5)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Inundation Visible on Aerial Imagery (B7)				Microtopographic Relief (D4)
X	Sparsely Vegetated Concave Surface (B8)				FAC-Neutral Test (D5)
	Water-Stained Leaves (B9)				

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **Yes**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: DPK036_PEM

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	25	= Total Cover	
50 % of total cover:	12.5	20 % of total cover:	5.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	25 (A)		125 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid test for hydrophytic vegetation
- ___ 2-Dominance test is >50%
- ___ 3-Prevalence index is ≤3.0*
- ___ 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- X Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Z. maize does not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

SOIL **Sampling Point:** DPK036_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 4/1	90	7.5YR 3/3	8	C	M	Silt Loam	
			7.5YR 4/4	2	C	PL		
10-16	10YR 4/1	98	7.5YR 3/3	2	C	PL	Silt Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils*:**

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L, M)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **Yes**

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	CHK Subbasin 4 PRM	City/County:	Osceola, Tioga	Sampling Date:	4/22/2022		
Applicant/Owner:	Resource Environmental Solutions	State:	PA	Sampling Point:	DPK037_UPL		
Investigator(s):	R. Barnhill, F. Page	Section, Township, Range:	Osceola Township				
Landform (hillslope, terrace, etc.):	Plain	Local relief (concave, convex, none):	None	Slope (%):	00-05		
Subregion (LRR or MLRA)	LRR R: MLRA 140	Lat.:	41.987265	Long.:	-77.328628	Datum:	NAD 83
Soil Map Unit Name:	Ow - Orrville silt loam			NWI Classification:	N/A		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in Remarks.)

Are vegetation	Yes	, soil	Yes	, or hydrology	Yes	significantly disturbed?	Are "normal circumstances" present? Yes
Are vegetation	No	, soil	No	, or hydrology	No	naturally problematic?	(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	No	**Is the sampled area within a wetland?**	**No**
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		

Remarks:

Data point is located in an active agriculture field. Soils, hydrology, and vegetation are severely disturbed due to the active agricultural practices. Upland data point is associated with Wetland006K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Other (Explain in Remarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Wetland Hydrology Present? **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology absent

VEGETATION - Use scientific names of plants. Sampling Point: DPK037_UPL

Tree Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Sapling/Shrub Stratum (Plot Size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Herb Stratum (Plot Size: 5x5)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Zea maize	25	Yes	UPL
2 **Ranunculus sp.	20	Yes	FACW
3 Cardamine pensylvanica	10	No	FACW
4 **Echinochloa sp	5	No	FACW
5			
6			
7			
8			
9			
10			
	60	= Total Cover	
50 % of total cover:	30.0	20 % of total cover:	12.0

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
50 % of total cover:	0.0	20 % of total cover:	0.0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			Multiply by:
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column totals	60 (A)		195 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators:

- 1-Rapid test for hydrophytic vegetation
- 2-Dominance test is >50%
- 3-Prevalence index is ≤3.0*
- 4-Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. (7.6 cm) DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? **No**

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

*Plants do not appear on the NCNE NWPL and is assumed to have an UPL indicator status for the prevalance and dominance test.

**Identified to a genus level, did not have adequate characteristics to identify at the time of survey. These species were given a FACW indicator based on the common species found within the area to calculate the dominance and prevalance test.

SOIL **Sampling Point:** DPK037_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-9	10YR 3/2	100					Silt loam	
9-16	10YR 4/3	100					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Suface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

***Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Indicators for Problematic Hydric Soils***:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric soil present? **No**

Remarks:

Hydric soil absent

APPENDIX D:
Stream Data Forms

Stream Classification Data Form

Stream Name/Code:	Camp Book Perennial
Sampling Location:	Camp Brook Restoration Site
Date/Time:	6/22/2021, 9:00 AM EST
Investigators:	J. Twill, K. Knopsnider, R. Barnhill

Stream Hydrology	
Estimated Flow (gpm)	50-100
Wetted Width (ft)	15-30
Water Depth (ft)	1-5

Photos		**GPS Point**
DS	**US**	
Photos 1 -2	Photos 1 -2	Multiple

Hydrology Source(s)	
X	Spring
X	Seep
X	Run-off
	Pond

Substrate Type(s)	
	Bedrock
X	Boulder
X	Cobble
X	Gravel
	Sand
	Silt
	Clay
	Artificial

Weather Conditions:		**5-Day Precipitation?**		
	Sunny		Yes	X
X	Partly Cloudy		No	
	Cloudy			
	Rain			

Channel Embeddedness	
	Completely (100 %)
X	Mostly (75 %)
	Halfway (50 %)
	Little/None (0-33%)

Watershed Characteristics	
X	Forest
X	Pasture
	Old Field
X	Open Field
X	Wetland
X	Mixed Used
	Industrial
	Mining
	Residential

Macroinvertebrate Observations
Physidae
Leuctridae

Channel Conditions	
15-30	Active Width (ft)
X	Bed/Banks
X	Alluvial Channel
X	Eroded Channel
	Debris -filled
	Terrestrial Vegetation

Other Observations
Tadpoles and fish present

Recommended USACE JD Status	
	TNW
X	RPW
	Non-RPW

Stream Type:	
X	Perennial
	Intermittent
	Ephemeral

Stream Classification Data Form

Stream Name/Code:	S1, S2, S3, S4, S5, S6 Perennial
Sampling Location:	Camp Brook Restoration Site
Date/Time:	6/22/2021, 9:00 AM EST
Investigators:	J. Twill, K. Knopsnider, R. Barnhill

Stream Hydrology	
Estimated Flow (gpm)	10-50
Wetted Width (ft)	1-15
Water Depth (ft)	1-5

Photos		**GPS Point**
DS	**US**	
Photos 3-10	Photos 3-10	Multiple

Hydrology Source(s)	
X	Spring
X	Seep
X	Run-off
	Pond

Weather Conditions:		**5-Day Precipitation?**		
	Sunny		Yes	X
X	Partly Cloudy		No	
	Cloudy			
	Rain			

Substrate Type(s)	
	Bedrock
	Boulder
	Cobble
X	Gravel
	Sand
X	Silt
X	Clay
	Artificial

Watershed Characteristics	
	Forest
X	Pasture
	Old Field
X	Open Field
X	Wetland
X	Mixed Used
	Industrial
	Mining
	Residential

Macroinvertebrate Observations
Physidae
Leuctridae

Channel Embeddedness	
	Completely (100 %)
X	Mostly (75 %)
	Halfway (50 %)
	Little/None (0-33%)

Other Observations
Tadpoles and fish present

Channel Conditions	
1-15	Active Width (ft)
X	Bed/Banks
X	Alluvial Channel
X	Eroded Channel
	Debris -filled
	Terrestrial Vegetation

Recommended USACE JD Status	
	TNW
X	RPW
	Non-RPW

Stream Type:	
X	Perennial
	Intermittent
	Ephemeral

APPENDIX E:
Soils Found Within the Delineation Area

Soils Found Within the Delineation Area[1]										
Soil Series Symbol	Soil Series Description	Soil Series Setting (Landform)	Farmland Classification	Soil Limitations				Hydrologic Soil Group	Acres	% Area
				Depth to Restrictive Features		Natural Drainage Class	Hydric			
				Depth to Any Soil Restrictive Layer (inches)	Depth to Water Table (inches)					
MdC	Mardin channery silt loam, 8 to 15 percent slopes	Mountains, hills	Farmland of statewide importance	14 to 26	13-24	Moderately well drained	No	D	0.5	0.5
MaC	Mardin channery silt loam, 8 to 15 percent slopes	Mountains, hills	Farmland of statewide importance	14 to 26	13-24	Moderately well drained	No	D	4.4	4.3
LoD	Lordstown channery loam, 20 to 30 percent slopes	Mountains, hills	Not prime farmland	20 to 40	>80	Well drained	No	C	22.4	22.1
VoC	Volusia channery silt loam, 8 to 15 percent slopes	Mountains, hills	Farmland of statewide importance	10 to 22	6 to 18	Somewhat poorly drained	Yes	D	10.4	10.2
ChB	Chenango gravelly loam, 2 to 12 percent slopes	Outwash terraces	Prime farmland	40 to 120	>80	Well drained	No	A	3	3
Wa	Wayland silty clay loam	Floodplains	Farmland of statewide importance	40 to 60	0	Very poorly drained	Yes	C/D	13	12.9
Ow	Orrville silt loam	Floodplains	Farmland of statewide importance	40 to 70	12 to 30	Somewhat poorly drained	No	B/D	46.6	46
Ph	Philo silt loam	Floodplains	Prime farmland	40 to 70	18 to 36	Moderately well drained	Yes	C	1.1	1.1

Notes:

1. Soils data obtained from the following: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed (April 2022).
2. This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

Appendix F: Photographs

Stream Photographs

Photo 1: Camp Brook, Perennial, Facing Upstream

Photo 2: Camp Brook, Perennial, Facing Downstream

Photo 3: Stream S1, Perennial, Facing Upstream Through Emergent Wetland 1 Complex, Large Presence of Invasive Reed Canary Grass

Photo 4: Stream S1, Perennial, Facing Downstream Through Emergent Wetland 1 Complex

Photo 5: Stream S3, Perennial, Facing Upstream

Photo 6: Stream S4, Perennial, Facing Upstream

Photo 7: Stream S3, Perennial, Facing Upstream

Photo 8: Stream S4, Perennial, Facing Downstream

Photo 9: Stream S5, Perennial, Facing Upstream

Photo 10: Stream S6, Perennial, Facing Downstream

Wetland Photographs

Photo 1: Representative Disturbed PEM Overview, Wetland W1-PEM, Sampling Point DPK025, Facing South, Hydrology and Disturbance of Vegetation/Soil from Crop Planting

Photo 2: Soil Core, Wetland W1-PEM, Sampling Point DPK015 Showing Hydric F3 Depleted Matrix Indicator

Photo 3: Representative Open Field PEM Overview, Wetland W1-PEM, Sampling Point DPK012, Facing North, Hydrophytic Reed Canary Grass Monoculture

Photo 4: High Water Table Hydrology of Wetland W1-PEM, Sampling Point DPK010

Photo 5: Drainage Patterns Hydrology of Wetland W1-PEM, DP031, Facing East

Photo 6: Representative of Wetland Lacking Hydrophytic Vegetation Due to Severe Disturbance, W1-PEM, DPK022, Note Surface Water

Photo 7: Representative PFO Overview, Wetland W1-PFO, Sampling Point DPK011, Facing South, Note Water-Stained Leaves

Photo 8: Soil Core of Wetland W1-PFO, Sampling Point DPK008, Showing F3 Depleted Matrix Hydric Soil Indicator

Photo 9: High Water Table Hydrology of Wetland WK001-PFO, Sampling Point DPK011

Photo 10: Representative PEM Overview, Wetland 2-PEM, Sampling Point DPK017, Facing South

Photo 11: Soil Core of Wetland W2-PEM, Sampling Point DPK017 Showing F3 Depleted Matrix Hydric Soil Indicator

Photo 12: Representative PEM Overview, Wetland 4-PEM, Sampling Point DPK020, Facing West

Photo 13: Soil Core of Wetland W4-PEM, Sampling Point DPK020 Showing F3 Depleted Matrix Hydric Soil Indicator

Photo 14: Representative PEM Overview, Wetland 6-PEM, Sampling Point DPK036, Facing East, Note Severe Disturbance and Lacking Hydrophytic Vegetation

Photo 15: Soil Core of Wetland W6-PEM, Sampling Point DPK036 Showing F3 Depleted Matrix Hydric Soil Indicator With Oxidized Rhizospheres On Living Roots

Photo 16: : Representative PEM Overview, Wetland 9-PEM, Sampling Point DPK033, Facing South, Note Surface Water and Severe Disturbance

Photo 17: Soil Core of Wetland W9-PEM, Sampling Point DPK033 Showing F3 Depleted Matrix Hydric Soil Indicator

Photo 18: Algal Mat or Crust Hydrology of Wetland W9-PEM, DPK033

APPENDIX D
PRM SITE PHOTOGRAPHS

Photograph 1: Overview of existing PEM wetland dominated by *Phalaris arundinacea* (reed canary grass) within the proposed PRM site.

Photograph 2: Additional view of existing PEM wetlands at the boundary with PFO components within the proposed PRM site.

Photograph 3: Invasive dominated PEM wetlands within the proposed PRM site.

APPENDIX E
PNDI RECEIPT

1. PROJECT INFORMATION

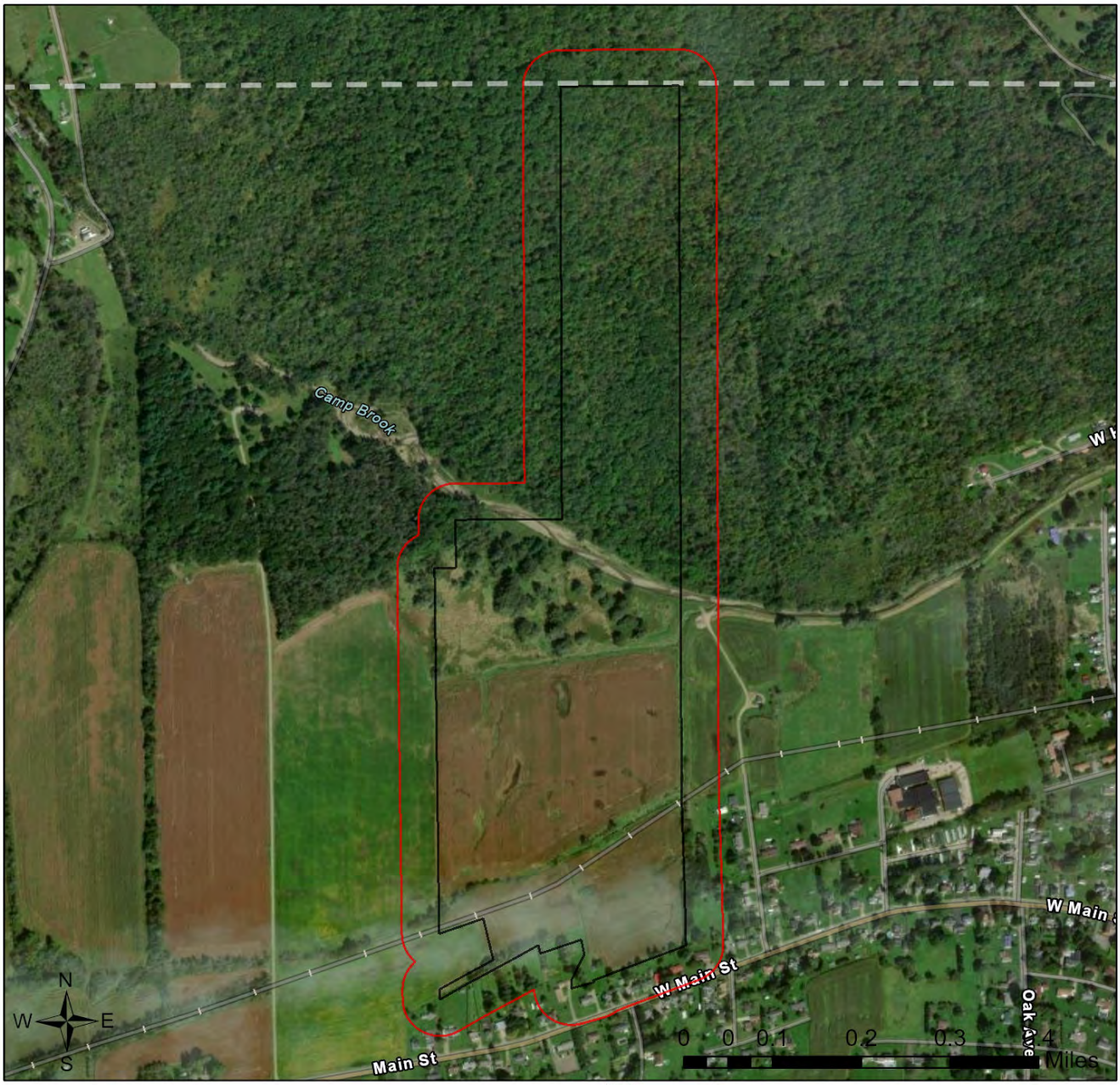
Project Name: **Camp Brook Restoration Site - Phase 2**
Date of Review: **2/20/2025 09:50:59 AM**
Project Category: **Habitat Conservation and Restoration, Wetland Restoration, Wetland Creation, or Wetland Enhancement**
Project Area: **106.19 acres**
County(s): **Tioga**
Township/Municipality(s): **Elkland Borough**
ZIP Code:
Quadrangle Name(s): **ELKLAND**
Watersheds HUC 8: **Tioga**
Watersheds HUC 12: **MIddle Cowanesque River**
Decimal Degrees: **41.992112, -77.327072**
Degrees Minutes Seconds: **41° 59' 31.6042" N, 77° 19' 37.4580" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

Camp Brook Restoration Site - Phase 2

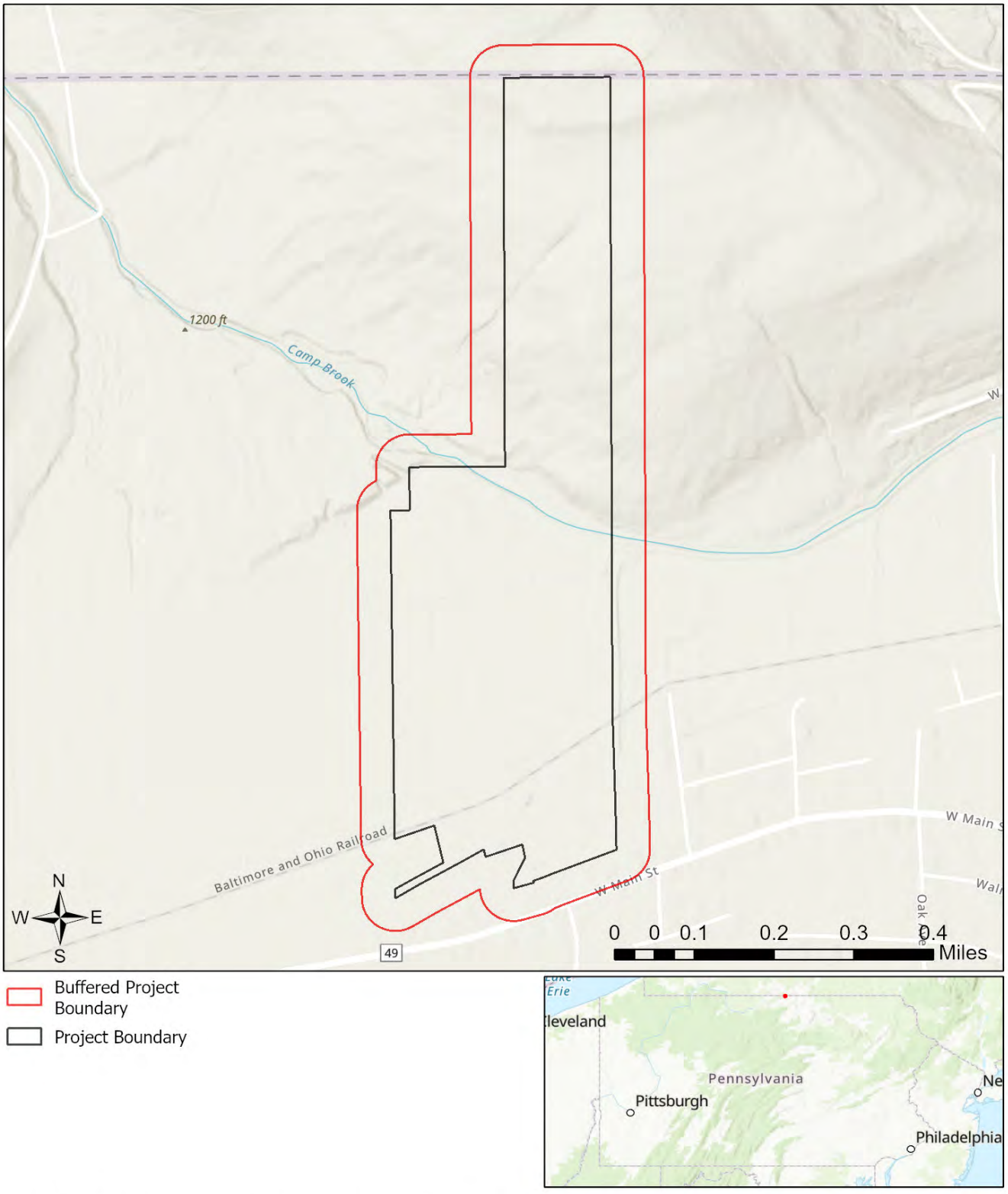


Buffered Project Boundary

Project Boundary

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Camp Brook Restoration Site - Phase 2



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission
Bureau of Wildlife Management
Division of Environmental Review
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: **Paul Golubic**
Company/Business Name: **Resource Environmental Solutions, LLC**
Address: **317 East Carson Street, Suite 242**
City, State, Zip: **Pittsburgh, PA 15219**
Phone:(**412**) **303-2163** Fax:(_____)
Email: **pgolubic@res.us**

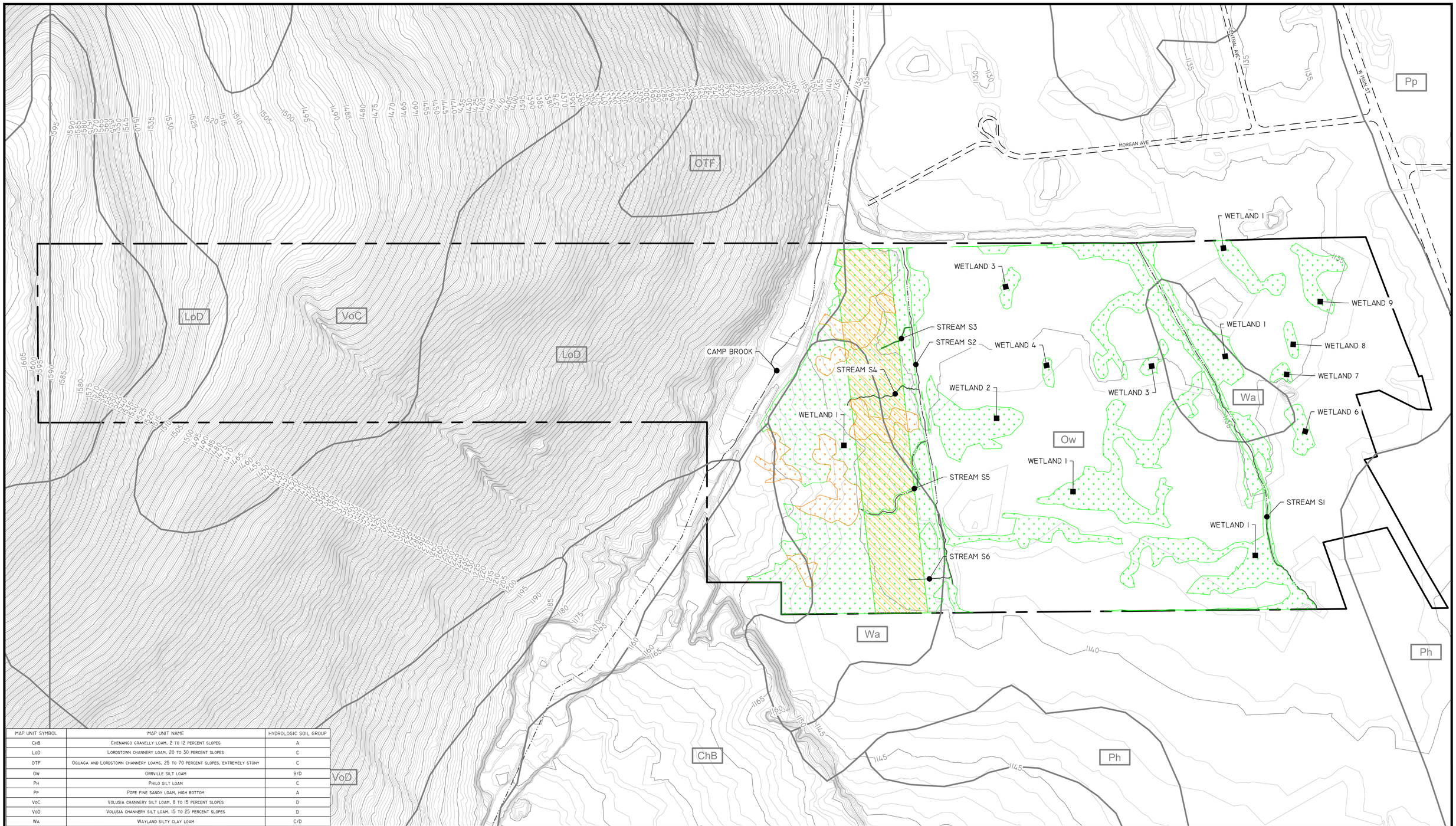
8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Paul Golubic
applicant/project proponent signature

2/20/2025
date

APPENDIX F
MITIGATION PLAN



MAP UNIT SYMBOL	MAP UNIT NAME	HYDROLOGIC SOIL GROUP
ChB	Chenango gravelly loam, 2 to 12 percent slopes	A
LoD	Lordstown channery loam, 20 to 30 percent slopes	C
OTF	Oquaga and Lordstown channery loams, 25 to 70 percent slopes, extremely stony	C
Ow	Orrville silt loam	B/D
Ph	Philo silt loam	C
Pp	Pope fine sandy loam, high bottom	A
VoC	Volusia channery silt loam, 8 to 15 percent slopes	D
VoD	Volusia channery silt loam, 15 to 25 percent slopes	D
Wa	Wayland silty clay loam	C/D

REVISIONS

NO.	DESCRIPTION	DATE	BY

LEGEND

- PROPERTY BOUNDARY
- EXISTING THALWEG
- EXISTING PEM WETLANDS
- EXISTING PFO WETLANDS
- EXISTING STRUCTURES
- ROAD
- ACCESS PATH
- TREE LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SOILS BOUNDARY
- TIOGA PATHWAY REFORESTATION ENHANCEMENT PRM

NOTES

SEAL

SCALE

0 150 300 600 Feet

SCALE: 1" = 150'

RESOURCE ENVIRONMENTAL SOLUTIONS
317 EAST CARSON STREET, SUITE 242
PITTSBURGH, PA 15219
WWW.RES.US
TELEPHONE: (717) 385-1131
EMAIL: ESNYDER@RES.US

PRM PLAN FOR TIOGA PATH PROJECT

PROPOSED PRM

DRAWN BY:	AUTHOR	PENNSYLVANIA	
CHECKED BY:	REVIEWER	TIOGA COUNTY	ELKLAND BOROUGH
APPROVED BY:	ES	SHEET: C100	PROJECT NO: 11788
DATE:	JUNE 5, 2025		COORDINATE SYSTEM: PA83-NF

R:\PROJECTS\PA\11788-NFG-TIOGA PATHWAY\ENGINEERING\PLAN SHEETS
COORDINATE SYSTEM: PA83-NF

PLANTING DETAIL NOTES:

A. GENERAL:

1. PLANT DETAILS ARE INCORPORATED INTO THIS SPECIFICATION BY REFERENCE.

2. QUALITY ASSURANCE
   2.1. SUPPLIER CERTIFICATION: THE SUPPLIER OF ALL SEEDS AND/OR VEGETATION SHALL CERTIFY THAT ORIGIN OF THE SEEDS FROM WHICH THE PLANTS OR SEEDS WERE PRODUCED IS FROM THE EASTERN OR CENTRAL PORTIONS OF THE U.S. PRIOR TO PLANTING.
   2.2. INSTALLER QUALIFICATIONS: ENGAGE AN EXPERIENCED INSTALLER, WHO HAS SUCCESSFULLY COMPLETED RESTORATION PLANTING PROJECTS SIMILAR IN SIZE AND COMPLEXITY TO THIS PROJECT.
   2.3. INSTALLER'S FIELD SUPERVISION: INSTALLER TO MAINTAIN AN EXPERIENCED FULL-TIME SUPERVISOR ON THE PROJECT SITE WHEN PLANTING IS IN PROGRESS.

3. PLANT MATERIALS
   3.1. PROVIDE PLANT MATERIALS OF QUANTITY, SIZE, GENUS AND SPECIES INDICATED ON THE CONSTRUCTION DRAWINGS.

4. ALL PLANT MATERIALS AND WORK SHALL COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 2004 AMERICAN STANDARD FOR NURSERY STOCK. ALL SEEDS MUST MEET APPLICABLE STATE AND FEDERAL REGULATIONS AND MUST INCLUDE LABELING INDICATING SUPPLIER, FORMULATION, GERMINATION RATES AND SEED DATE. LABELS FROM ALL SEED INSTALLED ARE TO BE KEPT AND SUPPLIED TO OWNER AT COMPLETION OF PROJECT.

DO NOT MAKE SUBSTITUTIONS UNLESS APPROVED BY THE PROJECT MANAGER. REQUESTS FOR SUBSTITUTIONS MUST BE MADE IN WRITING TO THE PROJECT MANAGER AND APPROVED TO INSTALLATION. INCLUDE REASONS WHY THE SUBSTITUTIONS ATE BEING REQUESTED.

5. PROJECT ENGINEER MAY INSPECT PLANT MATERIALS EITHER AT PLACE OF GROWTH OR ON SITE DURING PLANTING ACTIVITIES, FOR COMPLIANCE WITH REQUIREMENTS FOR GENUS, SPECIES, VARIETY, SIZE, AND QUALITY. MATERIAL FOUND TO BE UNACCEPTABLE WILL BE REJECTED AND THE CONTRACTOR WILL BE REQUIRED TO SUPPLY REPLACEMENT MATERIAL WITHIN TIME FRAME (I.E., 1 WEEK). REJECTED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM PROJECT SITE. UNACCEPTABLE MATERIAL IS DEFINED AS THE FOLLOWING:
   5.1. PLANTS WITH BENT TRUNKS OR MULTIPLE LEADERS, UNLESS CHARACTERISTIC FOR THE SPECIES;
   5.2. PLANTS WITH DISEASED TRUNKS, STEMS, OR LEAVES;
   5.3. PLANTS WITH PEST-INFESTED TRUNKS, STEMS, OR LEAVES;
   5.4. PLANTS OF INSUFFICIENT SIZE;
   5.5. PLANTS WITH WRONG SPECIES/SUB-SPECIES; AND
   5.6. PLANTS HAVING ROOT GIRDLING IN THE CONTAINER.

6. DELIVERY, STORAGE, AND HANDLING
   6.1. PROTECT BARK, BRANCHES, AND ROOT SYSTEMS FROM SUN SCALD, DRYING, SWEATING, WHIPPING, AND OTHER HANDLING AND TYING DAMAGE. DO NOT BEND OR BIND-TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DESTROY THEIR NATURAL SHAPE. PROVIDE PROTECTIVE COVERING OF PLANTS DURING DELIVERY. DO NOT DROP PLANTS DURING DELIVERY.
   6.2. DELIVER PLANT MATERIALS AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND PLANT IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, FOLLOW STORAGE INSTRUCTIONS AS SHOWN IN TUBELING TREE PLANTING DETAIL.
   6.3. DO NOT REMOVE CONTAINER-GROWN STOCK FROM CONTAINERS UNTIL PLANTING TIME.
   6.4. SEED: SEED SHOULD BE CLEAN AND DRY. DO NOT USE SEED THAT HAS BECOME MOIST DURING DELIVERY OR STORAGE. IF SEED NEEDS TO BE TEMPORALLY STORED IT SHOULD BE STORED IN A COOL, DRY PLACE.

7. PROJECT CONDITIONS
   7.1. EXAMINE THE SUB-GRADE AND TOPSOIL, AND VERIFY THE ELEVATIONS PRIOR TO INSTALLING PLANT ON SEED MATERIAL. ALL SOIL AMENDMENTS AND CONDITIONING SHALL BE COMPLETED PRIOR TO SEEDING AND PLANT MATERIAL INSTALLATION. DO NOT PROCEED WITH THE WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN A MANNER ACCEPTABLE TO THE INSTALLER.
   7.2. CALL PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776, 72 HOURS PRIOR TO ANY EXCAVATION. DETERMINE LOCATION OF UNDERGROUND UTILITIES AND PERFORM WORK IN A MANNER WHICH WILL AVOID POSSIBLE DAMAGE. HAND EXCAVATE AS REQUIRED.

8. PLANTING AND SEEDING RESTRICTIONS
   8.1. PLANTS SHALL BE PLANTED DURING UNFROZEN SOIL CONDITIONS SEPTEMBER 15TH - MAY 15TH. PLANT INSTALLATION OUTSIDE OF THIS TIME PERIOD SHALL NOT OCCUR UNLESS APPROVED BY THE PROJECT CONSTRUCTION MANAGER AND MAY REQUIRE ADDITIONS TO THE SCOPE OF WORK, SUCH AS WATERING REGIMES, AND ADDITIONAL PLANT QUANTITIES.
   8.2. SEEDING SHALL BE COMPLETED DURING SEPTEMBER 15-MAY 15 TO THE GREATEST EXTENT POSSIBLE. DORMANT WINTER SEEDING SHALL NOT BE CONDUCTED WITH MORE THAN 2" OF SNOW ON THE GROUND AT THE TIME OF SEEDING. DUE TO THE SCHEDULE OF THE PROJECT, SOME PERMANENT SEEDING OUTSIDE THIS TIME PERIOD WILL BE NECESSARY. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMEDIAL SEEDING IN UNDER-PERFORMING AREAS DUE TO SEEDING OUTSIDE OF THIS TIME PERIOD. A COVER CROP SHALL BE SOWN AT THE TIME OF PERMANENT SEEDING TO PROVIDE QUICKER GERMINATION AND STABILIZATION PER THE PLAN SHEETS.
   8.3. THESE LIMITS MAY NOT BE MODIFIED UNLESS APPROVED BY THE PROJECT ENGINEER IN ADVANCE, WITH THE RISK OF SURVIVAL BORNE SOLELY BY THE CONTRACTOR.

9. WARRANTY
   9.1. WARRANTY PERIOD IS FOR ONE (1) YEAR AFTER DATE OF FINAL ACCEPTANCE AND COVERS DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM NEGLECT BY OWNER, ABUSE OR DAMAGE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS WHICH ARE BEYOND CONTRACTOR'S CONTROL.
   9.2. CONTRACTOR SHALL GUARANTEE A MINIMUM SURVIVAL RATE FOR THE WARRANTY PERIOD OF 85% FOR BALLED AND BURLAPPED, CONTAINER GROWN, AND TUBELINGS, AND 75% FOR BARE ROOT AND LIVE STAKES.
   9.3. IF SURVIVAL RATES ARE LESS THAN THE ABOVE WARRANTY RATES, THE CONTRACTOR SHALL REPLACE THE QUANTITY OF DEFECTIVE OR DEAD PLANTS UP TO THE ORIGINAL CONSTRUCTION DRAWING SPECIFIED PLANT QUANTITY. WARRANTY PLANTINGS SHALL OCCUR WITHIN THE NEXT PLANTING WINDOW (SEPTEMBER 15TH -JUNE 15TH, EXCLUDING FROZEN SOIL CONDITIONS) FOLLOWING THE END OF THE APPLICABLE WARRANTY PERIOD.
   9.4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY DURING THE WARRANTY PERIOD TO PROVIDE WRITTEN NOTICE OF ANY MAINTENANCE PRACTICE TO THE OWNER, WHICH IN THEIR OPINION WILL AFFECT THE GUARANTEE IF NOT REMEDIED PROMPTLY. THE PROJECT ENGINEER WILL RENDER AN OPINION OF ANY CONFLICT IF NECESSARY.

10. MAINTENANCE
   10.1. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL THROUGH FINAL ACCEPTANCE AND WARRANTY PERIOD.

B. EXECUTION:

INSTALL PLANT MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS AND DETAILS OF THE CONSTRUCTION DRAWINGS FOLLOWING THE ADDITION OF SOIL AMENDMENTS, SEEDING, AND INSTALLATION OF APPLICABLE EROSION CONTROL FABRIC.

1. CONTAINER GROWTH MATERIAL
   1.1. PLANTING OF CONTAINER GROWN MATERIAL SHALL OCCUR IN ACCORDANCE WITH LOCATIONS AND/OR PATTERNS SPECIFIC TO THE CONSTRUCTION DRAWINGS.
   1.2. PLANTING HOLES SHALL BE AT LEAST TWICE THE DIAMETER AND DUG TO THE SAME DEPTH AS THE CONTAINER IN WHICH THEY ARE GROWN. DO NOT REMOVE PLANT MATERIAL FROM CONTAINER UNTIL IMMEDIATELY BEFORE INSTALLATION. EXAMINE THE ROOTS TO SEE IF THEY ARE POT BOUND. CAREFULLY SEPARATE ANY POT BOUND OR CRAMPED ROOTS AND SPREAD THEM OUT WHEN PLACING THE PLANT WITHIN THE HOLE SO THAT THE ROOTS CAN GROW WITHOUT FURTHER CONSTRICTION OF THE ROOT BALL.
   1.3. SET PLANT MATERIALS PLUMB AND CENTERED WITHIN HOLE, ENSURING THAT THE TOP OF THE ROOT BALL IS SLIGHTLY ELEVATED ABOVE THE SURROUNDING SOIL ELEVATIONS. BACKFILL AROUND ROOT BALL WITH SUITABLE NATIVE SOIL, MAINTAINING PLUMB, AND GENTLY TAMPING BACKFILL LAYERS TO ELIMINATE VOIDS. WATER IS BACKFILL LAYERS TO THE POINT OF SOIL SATURATION.
   1.4. FOLLOWING THE BACKFILLING, ADD EXISTING SOIL TO BRING THE FINAL GRADE IN THE PLANTING HOLE TO THE SURROUNDING SOIL SURFACE. RAKE THE UNUSED EXISTING SOIL OUTSIDE THE PLANTING HOUSE, TAKING CARE NOT TO MOUND THE SOIL OR TO SIGNIFICANTLY ALTER THE EXISTING GRADES.
2. BAREROOT AND TUBELING MATERIAL
   2.1. IT SHOULD BE ANTICIPATED THAT THE SOIL MAY BE COMPACTED MORE THAN OPTIMAL FOR PLANTING AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RIP SOIL TO ASSURE OPTIMAL PLANTING CONDITION. SOIL SHALL BE RIPPED TO A DEPTH OF 9-12".
   2.2. BAREROOT MATERIAL SHALL BE TREATED WITH ROOT DIP ACCORDING TO THE MANUFACTURERS RECOMMENDATION PRIOR TO PLANTING. MATERIALS SHALL BE PLANTED IMMEDIATELY OR OTHERWISE STORED PER THE MANUFACTURER'S RECOMMENDATIONS.
3. LIVE STAKE MATERIAL
   3.1. LIVE STAKE MATERIAL SHALL BE KEPT MOIST ACCORDING TO MANUFACTURES RECOMMENDATIONS. DO NOT ALLOW THE LIVE STAKES TO DRY OUT PRIOR TO INSTALLATION.
   3.2. MATERIAL SHALL BE PLANTED ACCORDING TO THE DETAIL PROVIDED. THE USE OF A PUNCH/PLANTING BAR, AUGER, REBAR, OR WATER-JET MAY BE USED TO PRE-DRILL HOLE IF NECESSARY. TAMP SOIL AROUND STAKE FOLLOWING INSTALL.
4. SEEDING
   4.1. SEEDING SHALL OCCUR AS SHOWN ON THE PLANTING PLAN. IN ACCORDANCE WITH THE CURRENT VERSION OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL SEED SHALL BE APPLIED PRIOR TO INSTALLATION OF ANY EROSION CONTROL FABRIC. AREAS APPLIED WITH HERBICIDE MAY BE SEEDED 7 DAYS AFTER APPLICATION.
   4.2. SOW SEED WITH A SPREADER OR A HYDROSEED MACHINE WITH MANUFACTURER RECOMMENDED BINDING AGENT. IN AREAS WITH DENSE EXISTING VEGETATION, INSTALL SEED WITH A NATIVE NO-TILL DRILL SEEDER. DO NOT BROADCAST DROP SEED WHEN WIND VELOCITY EXCEEDS 5 MPH. EVENLY DISTRIBUTE SEED BY SOWING EQUAL QUANTITIES IN TWO DIRECTIONS AT RIGHT ANGLES TO EACH OTHER.
   4.3. DO NOT USE WET SEED OR SEED THAT IS MOLDY OR OTHERWISE DAMAGED IN TRANSIT OR STORAGE.
   4.4. SOW SEED PRIOR TO INSTALLATION OF EROSION CONTROL FABRIC WHERE APPLICABLE.
   4.5. IF BROADCAST, ROLL SEEDED AREAS LIGHTLY, AND WATER WITH A FINE SPRAY.
   4.6. PROTECT SEEDED AREAS AGAINST EROSION BY SPREADING STRAW MULCH IMMEDIATELY FOLLOWING COMPLETION OF SEEING OPERATIONS IF OTHER EROSION CONTROL MEASURES ARE NOT OTHERWISE SPECIFIED. SPREAD UNIFORMLY AT A RATE OF 2 TONS PER ACRE (90 LB. PER1,000 S.F.) TO FORM A CONTINUOUS BLANKET OVER SEEDED AREAS. SPREAD BY HAND, BLOWER, OR OTHER SUITABLE EQUIPMENT. ANCHOR STRAW MULCH BY CRIMPING INTO TOPSOIL BY SUITABLE MECHANICAL EQUIPMENT.
   4.7 STRAW EROSION CONTROL BLANKET IS A SUITABLE ALTERNATIVE TO BE USED INSTEAD OF BLOWN OR CRIMPED STRAW.
5. LOCATION
   5.1. ALL PLANT MATERIAL IS TO BE INSTALLED AS SHOWN ON THE PLANTING PLANS FOR THE PROTOTYPE.
   5.2. UPLAND TREE PLANTINGS ARE TO BE INSTALLED IN A 9X9 GRID PATTERN.
   5.3. FLOODPLAIN PLANTINGS ARE TO BE INSTALLED IN A CLUMPED FASHION WITH A MINIMUM OF 3' SPACING BETWEEN PLANTS. PLANTS ARE TO BE INSTALLED BASED UPON THE HYDROLOGIC TOLERANCES AND SITE CONDITIONS AFTER CONSTRUCTION IS COMPLETED.
   5.4. ALL LIVE STAKES ARE TO BE INSTALLED ALONG STREAM BANKS, POOLS, AND FLOODPLAIN POOLS BASED UPON SPACING INDICATED IN THE PLANTING PLAN SPECIES LIST.
6. PLANT PROTECTION
   6.1. ALL PLANTS TO INCLUDE A 4' TREE CAGE AS INDICATED ON DETAIL PL-1, SHEET C100.

CARE OF SEEDLING UNTIL PLANTED

SEEDLINGS SHOULD BE PLANTED IMMEDIATELY. IF IT IS NECESSARY TO STORE MOSS-PACKED SEEDLINGS FOR MORE THAN 2 WEEKS, ONE PINT OF WATER PER PKG. SHOULD BE ADDED. IF CLAY-TREATED, DO NOT ADD WATER TO PKG. PACKAGES MUST BE SEPARATED TO PROVIDE VENTILATION TO PREVENT 'HEATING'. SEPARATING PACKAGES WITH WOOD STRIPS AND STORE OUT OF THE WIND IN A SHADED, COOL, (NOT FREEZING) LOCATION.

CARE OF SEEDLING DURING PLANTING

WHEN PLANTING, ROOTS MUST BE KEPT MOIST UNTIL TREES ARE IN THE GROUND. DO NOT CARRY SEEDLINGS IN YOUR HAND EXPOSED TO THE AIR AND SUN. KEEP MOSS-PACKED SEEDLINGS IN A CONTAINER PACKED WITH WET MOSS OR FILLED WITH THICK MUDDY WATER. COVER CLAY-TREATED SEEDLINGS WITH WET BURLAP ONLY.

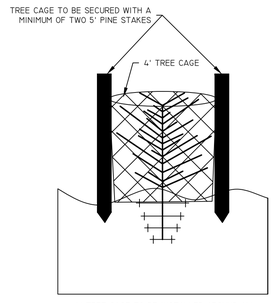
Proposed Planting Schedule for Tioga Pathway PRM Site*

SCIENTIFIC NAME	COMMON NAME	Type/Size	INDICATOR STATUS	NUMBER PER ACRE	QUANTITY
Acer saccharinum	Silver Maple	3-5 gallon, minimum 5'	FACW	20	90
Acer rubrum	Red Maple	3-5 gallon, minimum 5'	FAC	20	90
Alnus serrulata	Brookside Alder	1 gallon, minim 3'	OBL	30	135
Amelanchier canadensis	Canadian Service-Berry	1 gallon, minim 3'	FAC	30	135
Betula nigra	River Birch	3-5 gallon, minimum 5'	FACW	30	135
Carpinus caroliniana	American Hornbeam	1 gallon, minim 3'	FAC	20	90
Cephalanthus occidentalis	Common Buttonbush	1 gallon, minim 3'	OBL	20	90
Cornus amomum	Silky Dogwood	1 gallon, minim 3'	FACW	30	135
Lindera benzoin	Northern Spicebush	3-5 gallon, minimum 5'	FAC	20	90
Physocarpus opulifolius	Atlantic Ninebark	1 gallon, minim 3'	FACW	20	90
Platanus occidentalis	American Sycamore	3-5 gallon, minimum 5'	FACW	20	90
Quercus bicolor	Swamp White Oak	3-5 gallon, minimum 5'	FACW	20	90
Salix nigra	Black Willow	1 gallon, minim 3'	OBL	30	135
Quercus palustris	Pin Oak	3-5 gallon, minimum 5'	FACW	20	90
Viburnum dentatum	Southern Arrow-Wood	1 gallon, minim 3'	FAC	20	90
			TOTAL	**350**	**1575**

*The proposed planting species, type and quantities are subject to change pending availability at the time of implementation.

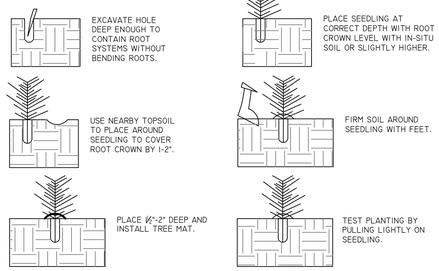
Proposed Restoration Seed Mix (Ernst-154, Floodplain Mix)

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	MIX DENSITY	SEEDING RATE (20 LBS/ AC)
Elymus virginicus	Virginia Wild Rye	FACW	20.00%	104.40
Dichanthelium clandestinum	Deer-Tongue Rosette Grass	FAC	14.50%	75.69
Andropogon gerardii	Big Bluestem	FAC	14.00%	73.08
Sorghastrum nutans	Yellow Indian Grass	FACU	14.00%	73.08
Carex vulpinoidea	Common Fox Sedge	OBL	10.00%	52.20
Carex scoparia	Pointed Broom Sedge	FACW	6.30%	32.89
Carex lurida	Shallow Sedge	OBL	6.30%	32.89
Verbena hastata	Simpler's-Joy	FACW	3.00%	15.66
Juncus effusus	Lamp Rush	FACW	2.00%	10.44
Asclepias incarnata	Swamp Milkweed	OBL	2.00%	10.44
Zizia aurea	Golden Alexanders	FAC	2.00%	10.44
Verbena urticifolia	White Vervain	FAC	1.00%	5.22
Solidago rugosa	Wrinkle-Leaf Goldenrod	FAC	0.60%	3.13
Symphyotrichum lanceolatum	White Panicled American-Aster	FACW	0.50%	2.61
Helenium autumnale	Fall Sneezeweed	FACW	0.50%	2.61
Symphyotrichum novae-angliae	New England American-Aster	FACW	0.50%	2.61
Symphyotrichum puniceum	Purple-Stem American-Aster	OBL	0.50%	2.61
Eupatorium perfoliatum	Common Boneset	FACW	0.40%	2.09
Monarda fistulosa	Oswego-Tea	UPL	0.40%	2.09
Euthamia graminifolia	Flat-Top Goldentop	FAC	0.40%	2.09
Scirpus cyperinus	Cottongrass Bulrush	FACW	0.30%	1.57
Lycopus americanus	Cut-Leaf Water-Horehound	OBL	0.30%	1.57
Mimulus ringens	Allegheny Monkey-Flower	OBL	0.30%	1.57
Lobelia siphilitica	Great Blue Lobelia	FACW	0.20%	1.04
		Total	**100%**	**522.00**

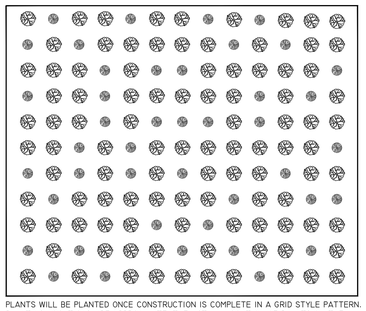


4' TREE CAGE TO BE INSTALLED AROUND ALL TREES AND SHRUBS.

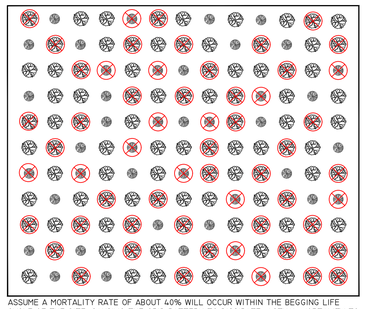
PL-1 C101 — PROTECTIVE TREE CAGE DETAIL
NOT TO SCALE



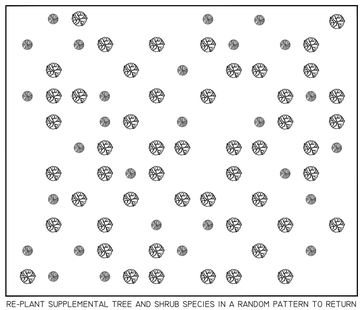
PL-2 C101 — CONTAINER & TUBELING PLANTING DETAIL
NOT TO SCALE



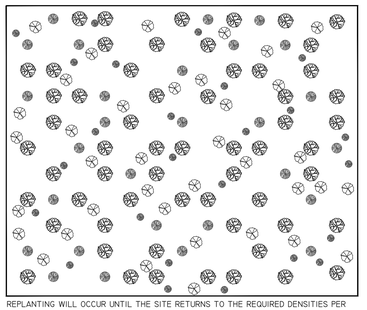
PLANTS WILL BE PLANTED ONCE CONSTRUCTION IS COMPLETE IN A GRID STYLE PATTERN. PLANTING LOCATIONS ARE APPROXIMATE, THE ACTUAL LOCATION OF PLANTS ON THE SITE WILL BE SUBJECT TO SITE CONDITIONS AT THE TIME OF PLANTING.



ASSUME A MORTALITY RATE OF ABOUT 40% WILL OCCUR WITHIN THE BEGGING LIFE CYCLE OF THE SITE, CAUSING THE GRID PATTERN TO DISSIPATE. ACTUAL MORTALITY TO BE VERIFIED DURING MONITORING.



RE-PLANT SUPPLEMENTAL TREE AND SHRUB SPECIES IN A RANDOM PATTERN TO RETURN THE SITE TO THE REQUIRED DENSITIES PER ACRE.



REPLANTING WILL OCCUR UNTIL THE SITE RETURNS TO THE REQUIRED DENSITIES PER ACRE AND THE SITE HAS BEEN CLOSED OUT

PL-3 C101 — MATRIX PLANTING PLAN DETAIL
NOT TO SCALE

REVISIONS

NO.	DESCRIPTION	DATE	BY

LEGEND

TUBELING
SHRUB
REPLANTED TUBELING
REPLANTED SHRUB

NOTES

SEAL

SCALE

RESOURCE ENVIRONMENTAL SOLUTIONS
317 EAST CARSON STREET, SUITE 242
PITTSBURGH, PA 15219
TELEPHONE: (717) 385-1131
WWW.RES.US
EMAIL: ESNYDER@RES.US

PRM PLAN FOR TIOGA PATH PROJECT

PLANTING DETAILS

DRAWN BY:	AUTHOR	PENNSYLVANIA	
CHECKED BY:	REVIEWER	TIOGA COUNTY	ELKLAND BOROUGH
APPROVED BY:	ES	SHEET: C100	PROJECT NO: 117788
DATE:	JUNE 5, 2025		COORDINATE SYSTEM: PA83-NF

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DESIGN\CAD\C100.DWG
COORDINATE SYSTEM: PA83-NF