ATTACHMENT L -2

ENVIRONMENTAL ASSESSMENT ENCLOSURE A

WETLAND DELINEATION REPORT

(UNDER SEPARATE COVER)

Note: This Attachment has been replaced in its entirety
Revised April 2017

Wetland Delineation Report
Atlantic Sunrise Project

Susquehanna County,
Pennsylvania

April 2017

Prepared for:

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

Prepared by:

ECOLOGY AND ENVIRONMENT, INC.
368 Pleasant View Drive
Lancaster, New York 14086

©2017 Ecology and Environment, Inc.

Table of Contents

Section **Page**

1 Introduction 1-1
1.1 Description of Project Facilities in Pennsylvania 1-1
1.1.1 Summary of Project Facilities in Susquehanna County 1-4

2 Study Area 2-1
2.1 Description of Study Area 2-1
2.2 Survey Access and Field Survey Coverage within Study Area 2-1

3 Wetland and Waterbody Delineation Methodology 3-1
3.1 Preliminary Information Review 3-1
3.2 Wetland Delineation Methodology 3-1
3.2.1 Wetland Function and Value Assessment 3-5
3.3 Waterbody Identification Methodology 3-6
3.4 Training and Organization 3-7
3.5 Mapping Methods 3-7
3.6 Quality Assurance/Quality Control 3-7
3.7 Agency Field Review 3-2

4 Results 4-1

5 References 5-1

Attachment

1 Project Location Map

2 Biologists' Résumés

3 USGS Topographic Maps with Wetland and Waterbody Locations

Table of Contents (cont.)

Attachment **Page**

4 Wetlands Data Package

- **4A: Wetland Tables**
- **4B: Wetland Documentation**
  - **Wetland Jurisdictional Field Data Sheets**
  - **Wetland and Upland Data Sheets**
  - **Wetland Function-Value Evaluation Forms**
  - **Wetland Photographs**

5 Waterbody Data Package

- **5A: Waterbody Tables**
- **5B: Waterbody Documentation**
  - **Waterbody Data Sheets**
  - **Waterbody Photographs**

List of Tables

Table		Page
1-1	Summary of Pipeline Facilities	1-2
1-2	Summary of New Aboveground Facilities	1-3
1-3	Summary of New Mainline Valves, Tie-In Assemblies, and Design Specification	1-4
1-4	Access Roads in Susquehanna County	1-4
1-5	Contractor Staging Areas in Susquehanna County	1-5
3-1	Wetland Soil Indicators the Northcentral and Northeast Region	3-3
3-2	Wetland Hydrology Indicators for the Northcentral and Northeast Region	3-4
3-3	Wetland Feature Identification Nomenclature	3-5
4-1	Summary of Field-Delineated Wetlands within the Susquehanna County Study Area	4-1
4-2	Summary of Field-Delineated Waterbodies within the Susquehanna County Study Area	4-2

List of Abbreviations and Acronyms

CPL	Central Penn Line
GIS	geographic information system
GPS	global positioning system
LiDAR	Light Detecting and Ranging
LRR	Land Resource Region
LRR R	Northeastern Forests Region
LRR S	Northern Mountains and Piedmont Region
MLV	mainline valve
NHD	National Hydrographic Dataset
NWI	National Wetlands Inventory
OHWM	ordinary high-water mark
PADEP	Pennsylvania Department of Environmental Protection
PEM	palustrine emergent
PFBC	Pennsylvania Fish and Boat Commission
PFO	palustrine forested
Project	Atlantic Sunrise Project
PSS	palustrine scrub-shrub
QA/QC	quality assurance/quality control
ROW	right-of-way
Transco	Transcontinental Gas Pipe Line Company, LLC
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1 Introduction

Transcontinental Gas Pipe Line Company, LLC (Transco) is proposing to construct and operate the Atlantic Sunrise Project (Project) to provide 1.7 million dekatherms per day of incremental firm transportation of natural gas from the Marcellus Shale production areas in northern Pennsylvania to its existing market areas, extending to as far south as the Station 85 Pooling Point in Choctaw County, Alabama. The Project includes modifications to the existing Transco Mainline system to reverse the direction of flow, enabling new north-to-south capabilities (bi-directional flow) to transport this new source of natural gas to existing markets. In Pennsylvania, the Project will include construction of approximately 196 miles of new 30-inch-, 36-inch-, and 42-inch-diameter pipeline; various aboveground facilities; and temporary and permanent access roads. Attachment 1 (Project Location Map) identifies the locations of proposed Project facilities in Pennsylvania. Additional facilities are proposed in Virginia, Maryland, North Carolina, and South Carolina; however, these facilities are not addressed in this report.

This wetland delineation report described wetland and waterbody resources associated with Project facilities located in Susquehanna County, Pennsylvania. ***This report updates the previous wetland delineation report dated August 2016. New information in this report is shown in bold italics.***

1.1 Description of Project Facilities in Pennsylvania

In Pennsylvania, the Project will include two new greenfield pipelines (Central Penn Line [CPL] North and CPL South) and two pipeline loops (Unity Loop and Chapman Loop). Table 1-1 provides a summary of the proposed pipelines within each county.

Aboveground facilities for the Project in Pennsylvania include modification of two existing compressor stations, two new compressor stations, two new meter stations, and three new regulator stations. Table 1-2 provides a summary, by location, of proposed modified and new aboveground facilities.

Table 1-1 Summary of Pipeline Facilities

Facility	County	Municipality	Beginning/End Milepost[a]	Miles
CPL North				
30-inch-diameter pipeline	Columbia	Sugarloaf Township	0.0-5.0	5.0
	Luzerne	Fairmount Township	5.0-10.3	5.4
		Ross Township	10.3-15.0	4.7
		Lake Township	15.0-19.3	4.3
		Lehman Township	19.3- M-0060 0.2	3.1
		Dallas Township	***M-0060 0.2 – M-0179 0.9***	***4.7***
	Wyoming	**Monroe Township**	***M-0179 0.9 – M-0179 4.3***	***3.4***
		Northmoreland Township	***M-0179 4.3***–M-0071 2.0	4.6
		Eaton Township	M-0071 2.0 – 35.0	2.4
		Falls Township	35.0-37.9	2.9
		Overfield Township	37.9-41.6	3.7
		Clinton Township	41.6-46.2	4.6
		Nicholson Township	46.2-50.6	4.8
	Susquehanna	Lenox Township	50.6-57.3	6.7
			CPL North Total	***60.4***
CPL South				
42-inch-diameter pipeline	Lancaster	Drumore Township	0.0-1.8	1.6
		Martic Township	1.8-8.2	6.7
		Conestoga Township	8.2-12.3	4.2
		Manor Township	12.3-19.6	7.4
		West Hempfield Township	19.6-23.9	4.4
		Rapho Township	23.9-27.4	3.5
		Mount Joy Borough	27.4-27.6	0.2
		Rapho Township	27.6-34.5	7.0
		Mount Joy Township	34.5-36.5	2.1
	Lebanon	South Londonderry Township	36.5-41.3	4.7
		South Annville Township	41.3-M-0424 1.5	5.0
		North Annville Township	M-0424 1.5-49.3	3.7
		East Hanover Township	49.3-52.8	3.6
		Union Township	52.8-62.4	11.2
		Cold Spring Township	62.4-64.3	0.2
	Schuylkill	Pine Grove Township	64.3-70.5	6.3
		Tremont Township	70.5-73.1	2.6
		Frailey Township	73.1- M-0201 0.4	1.4
		Porter Township	M-0201 0.4 - 75.0	0.5
		Hegins Township	75.0-79.1	4.1
		Eldred Township	79.1-M-0247 0.4	3.6
	Northumberland	East Cameron Township	M-0247 0.4–M-0323 0.1	2.1
		Coal Township	M-0323 0.1-89.7	5.1
		Ralpho Township	89.7-91.0	1.3
	Columbia	Cleveland Township	91.0-91.7	0.8
	Northumberland	Ralpho Township	91.7- M-0271 0.1	0.5
	Columbia	Cleveland Township	M-0271 0.1 – 95.4	3.2
		Franklin Township	95.4-99.7	4.3

Table 1-1 Summary of Pipeline Facilities

Facility	County	Municipality	Beginning/End Milepost[a]	Miles
		Montour Township	99.7-103.0	3.4
		Hemlock Township	103.0-M-0423 0.8	4.1
		Mount Pleasant Township	M-0423 0.8-112.0	5.3
		Orange Township	112.0-112.9	0.8
		Greenwood Township	112.9-118.2	5.4
		Jackson Township	118.2-125.0	6.8
		Sugarloaf Township	125.0-M-0353.01	0.2
			CPL South Total[b]	**127.3**
Chapman Loop				
36-inch-diameter pipeline	Clinton	Chapman Township	186.0-188.5	2.5
			Chapman Loop Total	**2.5**
Unity Loop				
42-inch-diameter pipeline	Lycoming	Jordan Township	120.3-121.4	1.0
		Franklin Township	121.4-123.8	2.4
		Penn Township	123.8-128.9	5.1
			Unity Loop Total	**8.5**
			Pennsylvania Subtotal[a]	***198.7***

[a] Where route modifications have been incorporated into the proposed route, new MPs have been developed. The new MPs are identified by inclusion of the associated route modification number (M-####) preceding the MP value. Beginning and ending MPs are approximate; therefore, the difference between beginning and ending mileposts in these areas does not necessarily equal the total length.

[b] Numbers may not sum exactly for CPL South due to rounding.

Key:
CPL = Central Penn Line

Table 1-2 Summary of New Aboveground Facilities

Facility	Milepost	Horsepower	Municipality	County
Pennsylvania				
Compressor Station 605	CPL North ***M-0121 0.2***	30,000	Clinton Township	Wyoming
Compressor Station 610	CPL South ***M-0360 0.2***	40,000	Orange Township	Columbia
Zick Meter Station	CPL North ***M-0119 0.0***	N/A	Lenox Township	Susque-hanna
Springville Meter Station	CPL North ***M-0071 1.0***	N/A	Northmoreland Township	Wyoming
North Diamond Regulator Station	***21.2***	N/A	Lehman Town-ship	Luzerne

Table 1-2 Summary of New Aboveground Facilities

Facility	Milepost	Horsepower	Municipality	County
West Diamond Regulator Station	*0.0*	N/A	Sugarloaf Township/ Jackson Township	Columbia
River Road Regulator Station	*0.0* Transco Mainline 1683.3	N/A	Drumore Township	Lancaster

Key:
CPL = Central Penn Line
L = Leidy Line system milepost
N/A = Not applicable

1.1.1 Summary of Project Facilities in Susquehanna County

Proposed facilities in Susquehanna County include 6.7-miles of CPL North, including a mainline valve (MLV), access roads, and staging areas. Installation of the MLV will primarily occur within the proposed pipeline construction and permanent ROWs. Table 1-3 provides a summary of the new mainline valves and design specifications for MLVs in Susquehanna County. A nominal 90-foot-wide construction ROW will be used for installation of the 30-inch-diameter CPL North pipeline, reduced to 75-feet at wetland crossings unless the full construction ROW width is needed based on site-specific conditions.

Table 1-3 Summary of New Mainline Valves, Tie-In Assemblies, and Design Specification

Facility	Milepost	ANSI Class	Municipality	County
CPL North				
CN-MLV-06	*M-0119 0.0*	600	Lenox Township	Susquehanna

Key:
ANSI = American National Standards Institute
CPL = Central Penn Line

Transco will utilize existing and new roads to access Project workspaces. Temporary access roads will be used during the construction phase of the Project, and these roads will be restored to preconstruction conditions following Project completion. Transco will maintain permanent access roads for the life of the respective facility. A list of the access roads in Susquehanna County is provided in Table 1-4.

Table 1-4 Access Roads in Susquehanna County

Access Road ID	Milepost	Use (permanent or temporary)	Length (feet)	Existing Road Type
CPL North				
AR-SU-041	50.7	Permanent	2,071	Gravel
AR-SU-044	52.1	Temporary	2,310	Gravel

Table 1-4 Access Roads in Susquehanna County

Access Road ID	Milepost	Use (permanent or temporary)	Length (feet)	Existing Road Type
AR-SU-045	52.9	Temporary	229	Gravel/vegetative
AR-SU-046	56.4	Permanent	793	Gravel/vegetative
AR-SU-046.1	57.1	Temporary	31	Vegetative
AR-SU-046.4	***57.2***	Temporary	22	Vegetative
AR-SU-047	***M-0119 0.0***	Permanent	808	Gravel
AR-SU-047.1	***M-0119 0.0***	Permanent	176	Vegetative

During construction of the pipeline facilities, areas off or adjacent to the construction rights-of-way (ROWs) will be required for contractor/pipe yards and staging areas. Staging areas will be used for parking, equipment turn-arounds, and temporary storage of equipment. Contractor/pipe yards will be used for parking, contractor offices, and the storage of construction equipment and pipe. No contractor/pipe yards will be located within Susquehanna County.

Contractor staging areas will be located at various points in the vicinity of the Project, at locations with convenient and safe access to the pipeline routes. Table 1-5 identifies the locations of staging areas for the Project in Susquehanna County.

Table 1-5 Contractor Staging Areas in Susquehanna County

County	Staging Area ID	Nearest Milepost	Size (acres)
Susquehanna	CN-CSA-SU-1-007	57.3	3.2
Susquehanna	CN-CAS-SU-1-008	57.1	5.6
		Susquehanna Total	**8.8**

2 Study Area

2.1 Description of Study Area

The boundaries of wetlands and waterbodies were identified within a 300-foot-wide survey corridor centered over the proposed pipeline (i.e., extending 150 feet to either side of the pipe centerline). A 50-foot-wide survey corridor was surveyed around each access road centerline. At the aboveground facilities, contractor/pipe yards, and staging areas, the associated workspace was surveyed. These areas are collectively referred to as the "Study Area" throughout this report. Project facility locations used to define the Study Area are based on the Project footprint submitted with Transco's ***May 2017*** Chapter 105 Supplemental Permit Application.

2.2 Survey Access and Field Survey Coverage within Study Area

Surveys are complete in 100.00% of the limits of disturbance in Susquehanna County as presented in the ***May 2017*** Chapter 105 Supplemental Permit Application.

3 Wetland and Waterbody Delineation Methodology

This section references and describes the regulatory manuals, definitions, and methodologies used to field delineate wetlands and waterbody features within the Study Area. Where potential wetland indicators were observed, data were collected at sample plot locations to determine whether a dominance of hydrophytic vegetation indicators, hydric soil indicators, and hydrology indicators were present. If each of these indicators was present within the sample plot, a wetland boundary was delineated and upland and wetland data plot locations were established. This section also describes the methodology used to delineate wetlands and waterbodies on no-access parcels.

3.1 Preliminary Information Review

U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps, the U.S. Geological Survey (USGS) National Hydrographic Dataset (NHD) (USGS 2014), and aerial photographs were reviewed prior to field work to determine potential locations of wetlands and waterbodies within the Study Area.

3.2 Wetland Delineation Methodology

The wetland delineation methodologies outlined in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the Northcentral and Northeast Regional Supplement (USACE 2012a), were used to identify and delineate wetlands.

According to the 1987 Corps Manual (Environmental Laboratory 1987), wetlands are characterized by the following three distinct environmental characteristics:

(1) *Vegetation*. The prevalent vegetation consists of macrophytes that are typically adapted to life in hydric soil conditions. These hydrophytic species, due to morphological, physiological, and/or reproductive adaptations, can and do persist in anaerobic soil conditions.

(2) *Soils*. Soils are present and have been classified as hydric, or they possess redoximorphic characteristics that are associated with anaerobic soil conditions.

(3) *Hydrology*. The area must be inundated either permanently or periodically at mean water depths less than 6.6 feet, or the soil is saturated at the surface for some time during the growing season of the prevalent vegetation.

The specific methods used to characterize and evaluate vegetation, soils, and hydrology are described below.

Vegetation

The location of each wetland and upland paired sampling point was selected based on vegetation community homogeneity and because the location was considered representative of the community. Species abundance in both the upland and wetland communities was visually estimated by percent cover within each vegetation stratum. Field biologists identified plant species using botanical references for the region. Dominant trees, shrubs/saplings, non-woody herbaceous plants, and woody vines were recorded within 30-foot-, 15-foot-, 5-foot-, and 30-foot-radius sample plots, respectively, centered on the survey plot. In cases where the plot radius extended beyond the wetland boundary, the plot terminated at the wetland boundary line for each respective stratum. The dominant species of each stratum of the community was identified according to the 50/20 rule, described as follows:

> "…dominants are the most abundant species that individually or collectively account for more than 50% of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for 20% of the total. For the purposes of this regional supplement, absolute percent cover is the recommended abundance measure for plants in all vegetation strata" (USACE 2012a).

The hydrophytic indicator status of each species was identified using the State of Pennsylvania 2014 Wetland Plant List (Lichvar et al. 2012). An area is considered to have hydrophytic vegetation if any of the following indicators is present at the sample site (USACE 2012a):

- the results of the rapid assessment include only species rated as OBL or FACW (Indicator 1);
- the results of the dominance test is greater than 50% (Indicator 2),
- the prevalence index is less than or equal to 3.0 (Indicator 3); or
- the plant community passes either the dominance test or the prevalence index after reconsideration of the indicator status of certain plant species that exhibit morphological adaptations for life in wetlands (Indicator 4).

The wetland classification system developed by Cowardin et al. (1979) was used to classify delineated wetland vegetation community cover types.

Soils

For each observation plot, the soil profile was characterized to determine whether hydric soil indicators were present. A hydric soil is defined as follows: a soil that formed under conditions of saturation, flooding, or ponding long enough during

the growing season to develop anaerobic conditions in the upper part (USDA Soil Conservation Service 1994).

Soil borings were collected with a hand-held auger or sharp-shooter shovel to depths of approximately 20 inches, unless otherwise restricted, to observe the soil profile and evaluate redoximorphic features, if present. Information collected for each soil profile included horizon depth, texture, color, and the presence or absence of redoximorphic features. Colors of the soil matrix and redoximorphic features were identified using Munsell® colors (Gretag/Macbeth 2000). All hydric soil determinations were based on criteria established in the 1987 Corps Manual (Environmental Laboratory 1987) and the applicable Regional Supplement (USACE 2012a, 2012b). Soils were considered hydric if at least one Primary Indicator or at least one Indicator for Problematic Hydric Soils was met. Table 3-1 lists the primary and secondary wetland soil indicators for the Northcentral and Northeast Region (USACE 2012a).

Table 3-1 Wetland Soil Indicators the Northcentral and Northeast Region

Hydric Soil Indicators		Indicators for Problematic Hydric Soils
Histosol (A1)	Stripped Matrix (S6)	2 cm Muck (A10) (LRR K, L, MLRA 149B)
Histic Epipedon (A2)	Dark Surface (S7) (LRR R, MLRA 149B)	Coast Prairie Redox (A16) (LRR K, L, R, MLRA 149B)
Black Histic (A3)	Polyvalue Below Surface (S8) (MLRA 147, 148)	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Hydrogen Sulfide (A4)	Thin Dark Surface (S9) (LRR R, MLRA 149B)	Dark Surface (S7) (LRR K, L, R)
Stratified Layers (A5)	Loamy Mucky Mineral (F1) (LRR K, L)	Polyvalue Below Surface (S8) (LRR K, L, R)
Depleted Below Dark Surface (A11)	Loamy Gleyed Matrix (F2)	Thin Dark Surface (S9) (LRR K, L, R)
Thick Dark Surface (A12)	Depleted Matrix (F3)	Fe-Mg Masses (F12) (LRR K, L, R)
Sandy Mucky Mineral (S1)	Redox Dark Surface (F6)	Piedmont Floodplain Soils (F19) (MLRA 149B)
Sandy Gleyed Matrix (S4)	Depleted Dark Surface (F7)	Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Sandy Redox (S5)	Redox Depressions (F8)	Red Parent Material (F21)
		Very Shallow Dark Surface (TF12)

Sources: USACE 2012a

Hydrology

The potential for wetland hydrology was evaluated by determining whether hydrologic indictors were present. A site was determined to contain wetland hydrology if at least one Primary Indicator was observed or at least two Secondary Indicators were observed. Field biologists noted the presence and depth of surface water, the water table, and saturation, if encountered, within the soil profile. Table

3-2 lists the primary and secondary wetland hydrology indicators for and the Northcentral and Northeast Region (USACE 2012a).

Table 3-2 Wetland Hydrology Indicators for the Northcentral and Northeast Region

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

Sources: USACE 2012a

Wetland boundaries were marked with blue and yellow survey flagging. Each wetland was given a unique alphanumeric designation based on survey segment location to assist in field survey location and documentation. An example of the unique identifier being used is "W-T01-22001-001," using the feature identification nomenclature in Table 3-3.

Each wetland documented during the field surveys was assigned a unique identification (ID) and, in some instances, was secondarily assigned an alpha and/or numerical suffix. Wetlands that contained multiple cover types (palustrine emergent [PEM], palustrine scrub-shrub [PSS], or palustrine forested [PFO]) received an A, B, or C suffix, as follows:

- A = PEM
- B = PSS
- C = PFO

If a wetland was part of a large complex that contained noncontiguous portions within the survey corridor (e.g., the same, hydrologically connected complex meandered in and out of the survey corridor, etc.), it received a numerical suffix (e.g., 1, 2, 3). In some cases, a wetland ID could have both an alpha and numerical suffix (i.e., if a wetland had both multiple types and noncontiguous portions). For clarity of discussion and crossing impact calculation, Transco separated wetlands into cover types to accurately reflect field conditions.

Table 3-3 Wetland Feature Identification Nomenclature

Feature	Team	ROW Survey Segment	Wetland Number	Flag Number
W – Wetland	T01 – T25	1, 15, 22, etc.	001, 002, 003, etc. 001A, 001B, 001C, etc.	001, 002, 003, etc.

Flag positions and data plot locations were collected by field biologists using a global positioning system (GPS) hand-held Trimble GeoXT loaded with ESRI ArcPad 10.0 software. A Wetland Determination Data Form from the applicable Regional Supplement and a Wetland Jurisdictional Field Data Sheet were completed for each delineated wetland and associated upland data point.

3.2.1 Wetland Function and Value Assessment

Field biologists performed functional assessments of wetlands within the Study Area using the USACE Highway Methodology (USACE 1999). A Wetland Function-Value Evaluation Form was completed for each wetland complex, and the results were used to determine functions and values of each wetland within the Study Area.

The eight wetland functions and five wetland values evaluated by the USACE Highway Methodology are described below.

- Wetland Functions:
  - Groundwater Recharge/Discharge: the relationship between the wetland and the underlying aquifer and groundwater quality;
  - Flood-flow Alteration: the ability of a wetland to retain floodwater after major rain events and to reduce potential flood damage;
  - Fish and Shellfish Habitat: the effectiveness of potential fish and shellfish habitat in the wetland and any associated waterbodies;
  - Sediment/Toxicant/Pathogen Retention: the ability of the wetland to prevent water quality degradation;
  - Nutrient Removal/Retention/Transformation: the ability of the wetland to inhibit excess nutrients from entering nearby aquifers or surface waters;
  - Production Export (Nutrient): the effectiveness of the wetland to produce food or other usable products;
  - Sediment/Offshore Stabilization: the means by which the wetland is preventing erosion; and
  - Wildlife Habitat: the ability of the wetland to provide habitat for animal species.
- Wetland Values:

- Recreation (Consumptive and Non-Consumptive): evaluates whether the wetland can be utilized for active and passive recreation activities;
- Educational/Scientific Value: evaluates whether the wetland could be considered adequate for use as an "outdoor classroom" or for scientific study/research;
- Uniqueness/Heritage: evaluates special values of the wetland, including unique or unusual attributes, history, and aesthetics;
- Visual Quality/Aesthetic: analyzes the visual and aesthetic quality of the wetland; and
- Threatened or Endangered Species Habitat: the ability of the wetland to support threatened or endangered species.

3.3 Waterbody Identification Methodology

The waterbody field survey methodology used for determining the locations and characteristics of waterbodies crossing or adjoining the Study Area was similar to the methodology used in the wetland survey. Waterbody boundaries were established using guidelines presented in 33 CFR 328.4(c), which states, "the limits of federal jurisdiction for non-tidal waters of the United States in the absence of adjacent wetlands is the ordinary high water mark [OHWM]. The OHWM is established by observations of water fluctuation, physical characteristics, such as a clear natural line impressed on the bank, shelving, changes in the soil character, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR 328.3(e)).

Perennial waterbodies were defined as those that flow throughout the year and are supplied by groundwater. Intermittent watercourses were categorized as waterbodies that carry water during portions of the year and may be supplied by ground water part of the year. During other times during the year, intermittent streams do not contain any water flow. Ephemeral waterbodies were categorized as those that flow only during or subsequent to a runoff event.

The Commonwealth of Pennsylvania water quality standards classify surface waters according to use. These standards were established to implement the Pennsylvania Clean Stream Law, which protects existing and designated surface water uses from degradation and negative change to the water's use. Uses include those associated with aquatic life, water supply, recreation, fish consumption, special protection, and navigation. Pennsylvania aquatic life classifications and criteria are set forth in Chapter 93 of the Pennsylvania Code and include the following designations: (1) Coldwater Fishes, (2) Warmwater Fishes, (3) Migratory Fishes, and (4) Trout Stocking [Fishery]. In addition, waterways or watersheds can also be classified as Exceptional Value or High Quality based on a variety of criteria, including chemistry, biology, and outstanding resources. Chapter 93 specifies designated uses for each waterbody or segment, regardless of whether they are being attained. Existing uses are those that are actively functioning in the waterbody on

or after November 28, 1975, regardless of whether they are included in the water quality standards (Pennsylvania Code 2014).

Trout water classifications also include: Approved Trout Water, Class A Wild Trout Streams, Stream Sections that Support Natural Reproduction of Trout, Warmwater/Coolwater Fisheries, Trout Stocked Streams, and Wilderness Trout Streams, under Title 58 of the Pennsylvania Code (Pennsylvania Code 2014). Approved Trout Waters are streams identified by the Pennsylvania Fish and Boat Commission (PFBC) as eligible for stocking, whereas Trout Stocked Streams are those streams that the PFBC stocked in 2013 or 2014. Both Class A Wild Trout Streams and Stream Sections that Support Natural Reproduction of Trout are defined as streams that support a population of naturally produced trout of sufficient size and abundance to support a long-term fishery. Class A Wild Trout Streams are not stocked with fish, while Stream Sections that Support Natural Reproduction of Trout may be stocked. Stream Sections that Support Natural Reproduction of Trout are commonly referred to as Wild Trout Waters. The PFBC also identifies Warmwater/Coolwater Fisheries as a special regulation area in Pennsylvania for fish species found in both warm waters and cooler waters but not in waters cold enough to support trout. The PFBC frequently stocks these fisheries, as they are very popular for sport fishing (PFBC 2014).

3.4 Training and Organization

Each field team was comprised of at least one experienced wetland biologist. Experienced wetland biologists have taken one or more courses in wetland delineations and have extensive knowledge of the area. The field teams were directed by Ecology and Environment's Field Team Coordinator. Résumés of the lead biologists are provided in Attachment 2.

3.5 Mapping Methods

Environmental data were collected on a hand-held Trimble GeoXH GPS unit and iPad. The GPS unit used ArcPad software to map and describe environmental features. The iPad was used to map habitats and land usage crossed by the survey corridor.

3.6 Quality Assurance/Quality Control

Field data, including GPS data, field data sheets, photos, and log books, were subject to an initial daily quality assurance/quality control (QA/QC) review by each team in the field. Further, data sheets and GPS data were subject to a weekly QA/QC review by each field team and the geographic information system (GIS) support team. A final QA/QC review was performed in the office by select field biologists, the Field Coordinator, and the GIS team.

3.7 Agency Field Review

On June 10, 2015, the USACE and PADEP conducted field reviews of wetlands and waterbodies delineated in the Study Area. Wetland and waterbody data presented in this report account for any adjustments made as a result of agency field review.

4 Results

Tables 4-1 and 4-2 summarize, by Project component, the field survey results for wetlands and waterbodies delineated in the Susquehanna County Study Area. Data packages with wetland and waterbody field survey results for the Susquehanna County Project components are provided in Attachments 4 and 5, respectively:

The above-referenced Attachments includes the following information:

- USGS topographic maps with wetland and waterbody locations,
- Wetland tables,
- Waterbody tables,
- Wetland jurisdictional field data sheets,
- Wetland functions and values data sheets,
- Waterbody data sheets, and
- Wetland and waterbody photographs.

Table 4-1 Summary of Field-Delineated Wetlands within the Susquehanna County Study Area

Facility	Type and Number of Wetlands in Study Area							
	PEM	PSS	PFO	PFO/ PEM	PSS/PEM	PFO/PSS	PFO/PSS/ PEM	Total
CPL North	13	0	3	3	0	0	1	20
Access Roads	0	0	0	0	0	0	0	0
Staging Areas	0	0	0	0	0	0	0	0
Susquehanna County Total	**13**	**0**	**3**	**3**	**0**	**0**	**1**	**20**

Key:
CPL = Central Penn Line
PEM = Palustrine emergent
PSS = Palustrine scrub-shrub
PFO = Palustrine forested

Table 4-2 Summary of Field-Delineated Waterbodies within the Susquehanna County Study Area

Facility	Perennial Waterbody	Intermittent Waterbody	Ephemeral Waterbody	Open Water	Total
CPL North	9	8	5	*2*	*24*
Access Roads	0	0	0	0	0
Staging Areas	0	0	0	0	0
Susquehanna County Total	**9**	**8**	**5**	*2*	*24*

Key:
CPL = Central Penn Line

5 References

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. United States Fish and Wildlife Service Biological Report 79/31, Washington D.C.

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

Gretag/Macbeth. 2000. Munsell® color. New Windsor, NY.

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. *The National Wetland Plant List: 2014 Update of Wetland Ratings*. Phytoneuron 2014-41: 1-42. http://wetland_plants.usace.army.mil/

Pennsylvania Code (PAC). 2014. PAC Title 25, Chapter 93.4b. Qualifying as High Quality or Exceptional Value Waters. http://www.pacode.com/secure/data/025/chapter93/chap93toc.html. Accessed on February 17, 2015.

Pennsylvania Fish and Boat Commission (PFBC). 2014. PA Trout Water Classifications. Available at: http://fishandboat.com/waters_trout.htm. Accessed on February 17, 2015.

U.S. Army Corps of Engineers (USACE). 2012a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0),* ed. J.S. Wakeley, R.W. Lichvar, C.V. Noble, and J.F. Berkowitz. ERDC/EL TR-12-1. U.S. Army Engineer Research and Development Center, Vicksburg, MS.

U.S. Army Corps of Engineers (USACE). 2012b. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0*, ed. J. F. Berkowitz, J. S. Wakeley, R. W. Lichvar, C. V. Noble. ERDC/EL TR-12-9. U.S. Army Engineer Research and Development Center, Vicksburg, MS.

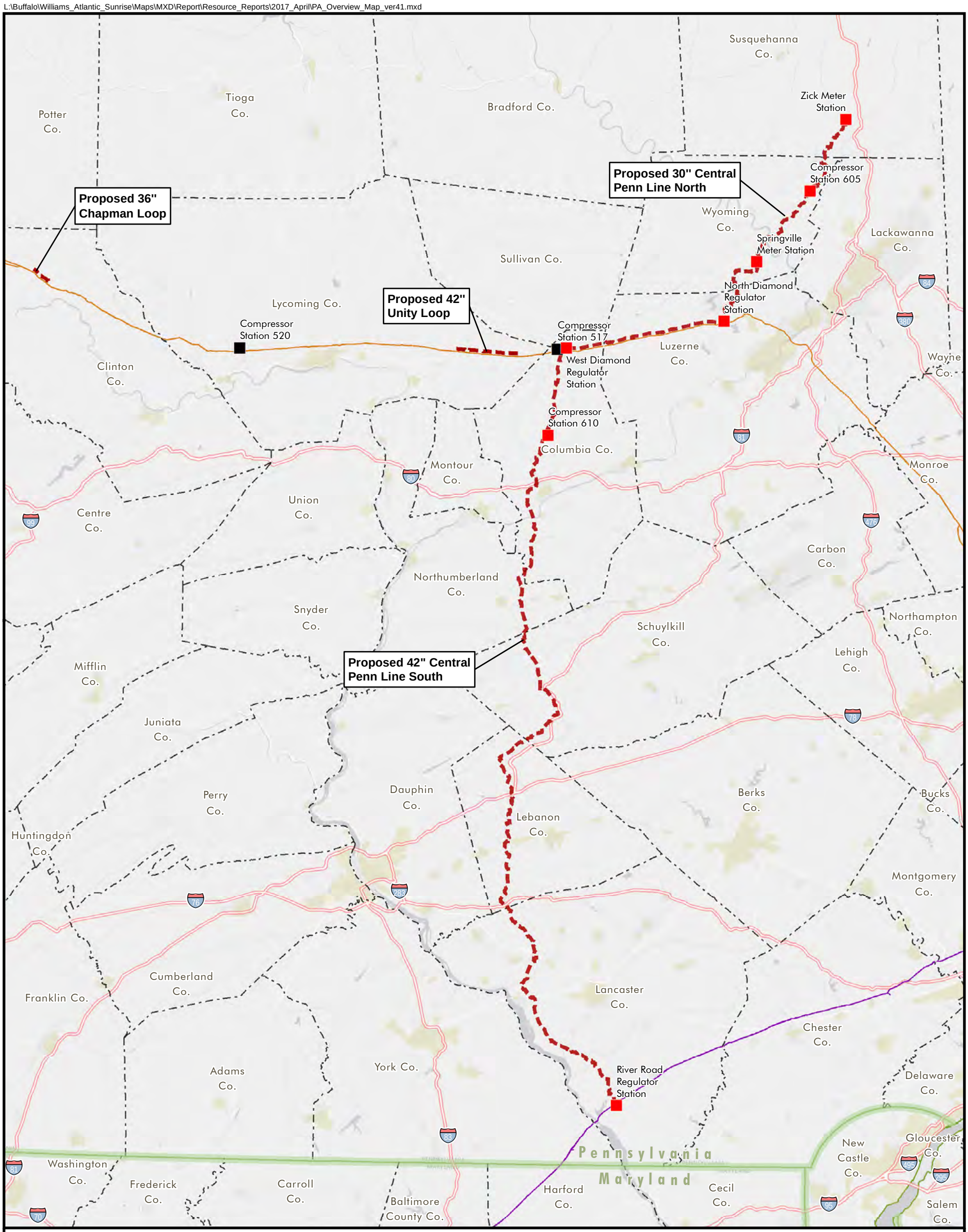
U.S. Army Corps of Engineers (USACE). 1999. *The Highway Methodology Workbook Supplement: Wetland Functions and Values, A Descriptive Approach*. U.S. Army Corps of Engineers, New England District.

U.S. Department of Agriculture (USDA) Soil Conservation Service. 1994. Changes in Hydric Soils of the United States. Federal Register 59(133): 35680-35681, July 13, 1994.

United States Geological Survey (USGS). 2014. Hydrography: National Hydrography Dataset and Watershed Boundary Dataset. Available online: http://nhd.usgs.gov/. Accessed: August 19, 2014.

1 Project Location Map

L:\Buffalo\Williams_Atlantic_Sunrise\Maps\MXD\Report\Resource_Reports\2017_April\PA_Overview_Map_ver41.mxd



Legend:

- Existing Aboveground Facility
- New Aboveground Facility
- State Boundary
- County Boundary
- Township Boundary
- Existing Transco Leidy Line Pipeline
- Existing Transco Mainline Pipeline
- Proposed 30" Central Penn Line North, Central Penn Line South, Chapman Line, and Unity Line

0 10 20

SCALE IN MILES

SITE LOCATION



DRAWING NO.	REFERENCE TITLE

ATLANTIC SUNRISE PROJECT: PENNSYLVANIA FACILITES

Williams

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
A	4/25/2017	JR	ISSUED FOR FERC PRE-FILING	1000891	BS	BS

DRAWN BY: JR	DATE: 4/25/2017	ISSUE FOR BID: N/A	SCALE: 1:800,000
CHECKED BY: BS	DATE: 4/25/2017	ISSUE FOR CONSTRUCTION: N/A	
APPROVED BY: BS	DATE: 4/25/2017	DRAWING NUMBER: **ATTACHMENT** 1: PROJECT LOCATION MAP	
WO: 1000891		2:17 PM 4/25/2017	

Data Sources: FEMA 2014; NRCS, USDA 2014.

2 Biologists' Résumés

EDUCATION

M.S. Rangeland Ecology & Watershed Management/ Environment & Natural Resources, University of Wyoming, 2009

B.S. Environmental Economics, University of Wyoming, 2005

CERTIFICATIONS

ACOE Certified Wetland Delineator
Safeland Training
40 Hour OSHA HAZWOPER
Certified NRCS Technical Service Provider #11-7187
BLM NEPA Training
Applying the NEPA Process & Writing Effective NEPA Documents
BLM Pesticide Applicator's Certification #10-083
Inventory and Survey Methods for Nonindigenous Plant Species

Years of Experience: 6

As an ecologist with Lowham Walsh LLC, Mr. Church directs and conducts project work related to ecological restoration. He works in close coordination with State and Federal regulatory agencies and oil and gas industry members to develop reclamation and native plant restoration and monitoring plans for rangelands disturbed during resource development. Mr. Church also assists with general biological surveys, the streamgaging program, GIS mapping, conducting ground water sampling, and collecting and analyzing affected soils for the Abandoned Mine Land reclamation program.

Wetland Lead, Atlantic Sunrise Project, Pennsylvania, Maryland, Virginia, North Carolina, and South Carolina. Mr. Uhrig was the wetland team lead for 2014 wetland delineations associated with the approximately 190-mile proposed Atlantic Sunrise natural gas pipeline. Proposed by Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of Williams Partners LP, the project consists of installing new pipeline and pipeline loops across 11 Pennsylvania counties, constructing two new compressor stations, and adding 2.5 miles of replacement pipeline in Virginia.

Ruby Pipeline Wetland and Biological Surveys, Nevada. Mr. Church conducted wetland delineations along the Nevada portion of the 676-mile Ruby natural gas pipeline. He also worked as a biological monitor on an ongoing study of migratory bird and raptor nesting behavior. His duties on the project included conducting clearance surveys along the pipeline right-of-way for migratory birds and monitoring nesting raptors adjacent to pipeline right-of-way construction in accordance with the Migratory Bird Treaty Act of 1918 (MBTA). His also documented all migratory bird and raptor nests ahead of pipeline right-of-way clearing and grading using Trimble Geo XT handheld GPS units and ArcPad software. All nests were then monitored until all chicks fledged or the nest was deemed no longer viable. Mr. Church also surveyed for threatened and endangered flora and fauna and conducted noxious weed surveys within the pipeline right-of-way.

Wetland Surveys, Navy SERE School, Maine. As a team member of this SERE expansion project, Mr. Church surveyed at 6,000-acre area for wetlands and streams and also conduct habitat delineation. He will conduct one more round of delineations in spring 2015 and submit a final report to the Navy in July 2015 for informed decision-making.

Red Butte Canyon Special Status Species Surveys & Habitat Assessment – National Ecological Observation, Inc. – Salt Lake County, UT. Teamed with parent company Walsh Environmental Scientists and Engineers, LLC (Walsh), Mr. Church conducted habitat assessment and surveys for Special Status (SS) species within the Red Butte Research Natural Area Core and Aquatic Array site Area of Potential Effect (APE) and associated Fundamental Sentinel Unit sampling locations, Great Basin - Domain 15 (F
Ecological Observatory Network (NEON). For this project, SS species are defined as those listed by the Endangered Species Act (ESA) as Endangered, Threatened or Candidate, as well as those listed as Sensitive by the US Forest Service (USFS), Region 4. In addition, avian species under protection of the Migratory Bird Treaty Act and eagles under the protection of the Bald and Golden Eagle Protection Act were considered the subject of this project.

Reservoir Reclamation Planning & Oversight – Confidential Client, Sheridan, WY. Mr. Church has conducted site reclamation planning for Marathon including the first plan approved through the Wyoming Department of Environmental Quality's newly implemented reservoir reclamation guidance. He has implemented and overseen soil sampling, soil remediation and mitigation plans, erosion control plans, and native plant restoration and monitoring for several CBNG reservoirs in the Powder River Basin.

Natural Resource Specialist – Bureau of Land Management (BLM), Palm Springs, CA. As a Natural Resource Specialist with the BLM, Mr. Church was responsible for implementing rangeland restoration projects. Mr. Church served as a member of the interdisciplinary team charged with NEPA project planning and coordination. Other aspects of Mr. Church's responsibilities included project design, permitting, budgeting, cooperative agreements, building and maintaining partnerships, project supervision and inspection, native seed collection, native seed germination and planting, soil and vegetation monitoring, and statistically analyzing and summarizing soil and vegetation monitoring data. Select projects are listed below.

- Served as BLM rangeland restoration coordinator to provide expertise on riparian and desert restoration as part of a multi-stakeholder, multi-year, multi-million dollar budgeted collaborative effort to restore wildlife habitat and native plants at the Dos Palmas Area of Critical Environmental Concern, which provides habitat for threatened and endangered wildlife and fish.
- Served as field office off-highway-vehicle (OHV) restoration coordinator as collateral duty to manage, and implement ten OHV grant funded wildlife habitat and native plant restoration and protection projects.
- Prepared restoration activity and pesticide use programmatic and subsequent EA's and water supply pipeline CX projects including Section 106 compliance and consultation with regulatory agencies; and reviewed and prepared land use plans, environmental impact statements, and environmental assessments as part of an interdisciplinary team.
- Prepared an EA to construct fencing on BLM administered land with Caltrans, Desert Water Agency, Riverside County Department of Transportation, & Union Pacific easements. Coordinated with Caltrans engineers & environmental to tie fenceline into existing bridge and guardrail structures. This included obtaining encroachment permits to construct in a right-of-way. Also included repairing or replacing Caltrans fenceline with Caltrans engineered fencing. Mr. Church coordinated with USFWS regarding timing of construction due to endangered plant and lizard species inhabiting the area. Coordinated with ACOE regarding plans to construct in waters of the US.
- Prepared a CX to expand a guardrail on city of Desert Hot Springs administered land directly adjacent to BLM land. Mr. Church obtained encroachment permits to construct in the right-of-way from the City of Desert Hot Springs. He constructed fenceline to City of Desert Hot Springs engineered standards.

BLM Road Repair Planning – Confidential Client, PRB. Mr. Church conducted planning and permitting for repair and revetment of a well pad access road that crossed private and federal property. The roadway was found to be in non-compliance with the BLM. Mr. Church developed a plan, in combination with engineering designs that was approved by both the BLM and the surface owner. The approved plan included replacement and repair of drainage control structures, revetment and stabilization of the road and embankments, erosion control, native plant seeding, and inspection and monitoring.

EDUCATION

B.S., Environmental Science,
University of North
Carolina at Wilmington

Mr. Fink has 10 years' experience, supporting E & E's environmental investigations and remedial programs for energy projects. He is skilled in wetland and stream delineation, bird and raptor nest surveys, surveys for listed threatened and endangered (T/E) species, and habitat classification. Mr. Fink helps monitor the work of site contractors to ensure cost-effectiveness, timeliness, and compliance with contract specifications and applicable regulations and permits; and he conducts post-construction and restoration environmental monitoring.

Wetland Delineation, Atlantic Sunrise Project, Pennsylvania and Virginia. E & E is preparing the Federal Energy Regulatory Commission (FERC) application for the 190-mile Atlantic Sunrise pipeline project. Proposed by Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of Williams Partners LP, the project consists of installing new pipeline and pipeline loops across 11 Pennsylvania counties, constructing two new compressor stations, and adding 2.5 miles of replacement pipeline in Virginia. As a member of the pipeline routing team, Mr. Fink assisted in development of the protocol for routing surveys to identify potential environmental obstacles to the proposed route. As a wetland delineation team lead, he coordinated the wetland teams along the 178 miles of greenfield pipeline and provided review of the field-delineated wetland data.

Wetland Delineation, Northern Pass Transmission Line, Quebec, Canada to Deerfield, New Hampshire. This project involved transmission and resource consultation for a third-party EIS to be submitted to the United States Department of Energy (DOE) for this proposed, highly controversial187-mile high-voltage direct current (HVDC) transmission line, designed to deliver hydropower from Quebec to southern New Hampshire. Mr. Fink and team completed a large-scale biological assessment to support the United States Department of Energy (DOE) EIS determination. His responsibilities included wetland delineations, cover type documentation and characterization, T/E species surveys, and assessment of potential construction obstacles.

Wetland Evaluation, Leidy Southeast Expansion Project, Pennsylvania and New Jersey. For Williams Gas Pipelines-Transco, Mr. Fink and team completed a biological assessment to support the FERC 7(c) filing for four pipeline loops nearing 30 miles in total length. He conducted wetland delineation, cover type documentation and characterization, and assessment of potential construction obstacles. Mr. Fink also contributed to the completion of the permitting reports.

Wetland Specialist, Kern River Pipeline Mitigation, Salt Lake City, Utah. For Kern River Gas Transmission Company, Mr. Fink was E & E's wetland specialist/biological monitor responsible for ensuring compliance with relevant permits and best management practices (BMPs) during the installation of a zinc and copper cathode system along 12 miles of the Kern River Pipeline. He provided pre- and post-construction photodocumentation for cathode system installation sites; verified wetlands in the project area; and met with landowners, officials of Salt Lake City Airport, and representatives of the United States Army Corps of Engineers (USACE), the pipeline company, and the construction contractor to modify the construction plan in order to limit impacts on wetlands. During construction, Mr. Fink conducted environmental inspections to ensure that proper environmental practices were being followed. Subsequently, he inspected site restoration activities and advised the contractor concerning the effectiveness of restoration efforts; established permanent monitoring locations to track site recovery; and conducted the first permit-required, periodic restoration assessment.

Wetland Delineation, Atlantic Access Pipeline, Pennsylvania and West Virginia. Mr. Fink performed preconstruction environmental surveys across Pennsylvania to support the FERC 7(c) filing for this 340-mile pipeline. He provided wetland and stream delineation, general habitat classification in eastern broadleaf forest and

central Appalachian broadleaf and conifer forest ecosystems, and conducted raptor nest searches and noxious weed surveys.

Mid-Atlantic Connector Project, Virginia. For this natural gas project of Williams Gas Pipelines, he performed preconstruction environmental surveys and provided photodocumentation for the FERC 7(c) prefiling for 2.8 miles of pipeline looping and modifications at two existing compressor stations. He wrote a field report detailing all findings for the Loudon pipe yard and access road and consulted with the Virginia Department of Game and Inland Fisheries concerning the management of eastern box turtles, which had been identified during surveys. Mr. Fink documented all observed wildlife; confirmed the absence of wetlands, streams, and other bodies of surface water; performed raptor and songbird nest searches, and provided a general habitat classification for small woodlands and disturbed areas.

Wetland Delineation, Columbia Gas Pipeline Integrity Management Program, Suffolk, Virginia. To support Columbia Gas Transmission Corporation, a NiSource company, in its pipeline integrity management activities under the DOT Pipeline Integrity Management Ruling, Mr. Fink performed a site visit and wetland delineation and compiled additional information concerning permit requirements for planned emergency pipeline repairs.

Ruby Natural Gas Pipeline, Wyoming to Oregon. This 675-mile, four-state natural gas pipeline of El Paso Corporation (now Kinder Morgan, Inc.) crosses private, state, and federal lands, including those managed by BLM and the USDA Forest Service. Mr. Fink and team conducted preconstruction environmental surveys for the ROW, ancillary facilities, and access roads; completed wetland delineations; and identified bodies of surface water, classified streams, and obtained stream flow measurements.

Paul Fisher, WPIT

COMPANY TITLE:

Environmental Technician II
Health and Safety Officer (HSO)

EDUCATION

- *Environmental Soil Science, Bachelors of Science, The Pennsylvania State University, University Park, Pennsylvania, 2009.*

PROFESSIONAL CERTIFICATIONS

- *NCCER Craft Instructor Performance Evaluator Certification October 2013*
- *Southwestern Energy (SWN) Training Assurance Program (TAP) Instructor Certification Oct. 2013*
- *Wetland Professional In Training (WPIT) Certification March 2012*
- *Occupational Safety and Health Professional Certification May 2012*

PROFESSIONAL TRAINING

- *2014 ABC Safety Expo - OSHA & Job Site Safety Training Jan. 2014*
- *NCCER Performance Verifications Feb. 2013*
  - *PV151 15.1 - PV152 15.2 - PV320 32.0*
- *AOCFG- Abnormal Operating Conditions- Field NCCER Sept. 18, 2013*
- *Custom Pipeline Inspector NCCER Sept. 2013*
  - *Task 15 - 15.1 , 15.2 & Task 32*
- *PA DEP ESCGP-2 Training July 2013 State College, PA*
- *OSHA 40 Hour HAZWOPER Training; AllProbe Environmental; June 2013*
- *E&S Manual Training – Scranton, PA - PA Association of Conservation Districts - May 2013, at the Hilton Scranton & Conference Center*
- *Hydric Soil Indicators Field Seminar April 2013 Pennsylvania Association of Professional Soil Scientists - Stoll Natural Resources Center, Wysox, PA*
- *Williams Contractor Safety; May 2012*
- *First Aid/ CPR; Emergency Care & Safety Institute; May 2012*
- *Primary Headwater Habitat Assessment Training – West Woods Metro Park, Geauga County, Ohio May 2012*
- *132 Hour Occupational Safety and Health Professional Training – OSHA Academy, May 2012*
- *"Planning Hydrology for Constructed Wetlands", Wetland Training Institute, State College, PA November 2011*
- *"Grasses, Sedges, and Rushes" Pennsylvania Institute for Conservation Education, Shavers Creek Environmental Center, Huntingdon, PA August 2011*
- *Hydrology of Wetlands Rutgers University – New Jersey Agricultural Experiment Station Tuckerton, New Jersey May, 2011*
- *"Functional Assessment as the Basis for Mitigation of Wetland Impacts - Overview and Discussion", State College, PA – M.N. Gilbert Environmental April , 2011*
- *ACOE Wetland Delineation/Regional Supplement Training Richard Chinn Environmental Training State College, March*

Mr. Fisher is a graduate from The Pennsylvania State University in 2009, where he was awarded Bachelors degree in Environmental Soil Science with a minor in Watershed and Water Resources. Since graduation he has gained experience in many environmental areas including wetland delineations, stream projects, threatened and endangered species surveys and GIS mapping. Mr. Fisher was awarded certification as a Wetland Professional In Training (WPIT) in March of 2012 and is activly working towards the full-time professional experience requirement to gain his Professional Wetland Scientist (PWS) Certifcation.

PROFESSIONAL EXPERIENCE

GENERAL ENVIRONMENTAL PROJECTS

- Used GIS software for mapping and analysis
- Used a Trimble GPS for mapping boundaries for mapping purposes
- Composed various Environmental Reports for landfills, gas companies, wind farms, construction companies, private landowners, and regulatory agencies
- Performed land analysis's using GIS Software for determining suitable areas for development.
- Completed various Environmental Permits for clients.

WETLAND AND STREAM RESTORATION PROJECTS

- Performed wetland monitoring and maintenance on various wetlands
- Performed Stream Surveys
- Practiced wetland delineations using US Army Corps of Engineers Wetlands Delineation Manual 1987 and applicable regional supplements
- Used the Pa Code Chapter 93 Water Quality Standards and Chapter 105 Dam safety and Waterway Management
- Used surveying equipment to characterize stream profiles for mapping and design purposes
- Delineated wetlands and water resources at several projects throughout Pennsylvania, Ohio and West Virginia.
- Checked seismic testing locations for wetlands.

BIOLOGICAL EXPERIENCE

- Assisted on several Timber Rattlesnake Phase I and II surveys
- Assisted on several Bog Turtle Phase II surveys
- Assisted on Allegheny Wood Rat surveys
- Helped with tracking Timber Rattlesnakes in Eastern Pennsylvania
- Identification and documentation of different herptile species at numerous wetland sites
- Composed various Threatened and Endangered species reports
- Preformed Macro-invertebrate sampling on several streams.

EDUCATION

M.E.M., Environmental Management, Duke University, Nicholas School of the Environment

B.S., Biology, Villanova University

TRAINING/CERTIFICATIONS

Wetland Delineation, Wetland Training Institute

Certified SCUBA diver, Professional Association of Diving Instructors

Ms. Overcash applies her training in biology, marine science, and environmental management to the preparation of EAs, EISs, and other NEPA and environmental compliance documentation. She has organized and conducted biological surveys, wetland delineations, threatened and endangered (T/E) species assessments, and other natural resource field surveys in support of E & E investigations and environmental mitigation programs for wind energy facilities, pipelines, transmission lines, and industrial and commercial facilities. Ms. Overcash applies her GPS and GIS skills to efficient field data collection and distribution.

Wetland Lead, Atlantic Sunrise Project, Pennsylvania. Ms. Overcash served as a field survey team lead for this Williams Gas Pipelines-Transco pipeline expansion project. She conducted wetland delineations and assessments, noxious weed surveys, and stream evaluations throughout the approximately 190-mile project. She also provided agency review of field-delineated wetlands. In addition, Ms. Overcash helped determine field protocols, and provided coordination on biological support to the field teams.

Wetland Assessment, Northern Pass Transmission Line, Quebec, Canada to Deerfield, New Hampshire. Ms. Overcash conducted wetland assessments and habitat characterizations throughout the length of the proposed 187-mile high-voltage direct current (HVDC) transmission line anticipated to deliver hydropower from Quebec to southern New Hampshire for a third-party EIS. She was also a team biological support lead.

Wetland Delineation, Praxair SLA Hydrogen Pipeline Expansion Project, Southeast Louisiana. As part of E & E's investigations for a proposed 50-mile hydrogen pipeline, Ms. Overcash conducted preconstruction biological surveys along the proposed pipeline route, including wetland delineations, noxious weed surveys, and habitat characterizations. She then contributed to the wetland report for the project, which was submitted to the United States Army Corps of Engineers (USACE).

Douglas Pass Project Wetland Assessments, Douglas Pass, Colorado. For Williams Gas Pipelines, Ms. Overcash completed functional assessments of nine wetlands in the impacted area using aerial imagery and ArcGIS. To accomplish these tasks Ms. Overcash interpreted historical aerials and imagery to determine historical environmental conditions and gauge the impacts of stressors to the wetlands of concern.

Post-Construction Assessments, Golden Triangle Storage Project, Beaumont, Texas. For Golden Triangle Storage, Inc., (GTS), a wholly owned subsidiary of AGL Resources, Ms. Overcash served as a field investigator. She conducted post-construction wetland assessments and noxious weed surveys for the project's 9-mile natural gas pipeline. Her tasks included verifying positive indicators for wetland hydrology, vegetation, and soils, comparing total vegetative cover with pre-existing conditions, and identifying and quantifying noxious weeds throughout the construction footprint. She also contributed to the formal reports submitted to USACE.

Baryonyx GOWind Turbine Demonstration Project. Ms. Overcash contributed to E & E's biological assessment (BA) and first-party EA for a 3-turbine demonstration project in the Gulf. She was lead author on the offshore BA for the installation of a research buoy and lead author for the on- and offshore BAs for the wind turbines, as well as the EA. She analyzed the project area and assessed impacts to various marine species.

EDUCATION

M.E.S.M., Conservation Biology, University of Rhode Island

B.S., Natural Resource Studies, University of Massachusetts

Ms. Perry offers extensive experience conducting aquatic and terrestrial vegetation and wildlife investigations to support projects for government and industry clients. She has led monitoring programs for reptiles, birds, mammals, and threatened and endangered (T/E) species, and her fieldwork includes mist netting and banding various species of birds; trapping for mammals, reptiles, and amphibians; vegetation and soil sampling; post-construction and restoration environmental monitoring; and wetland delineations and stream assessments.

Wetland Team, Atlantic Sunrise Project, Pennsylvania and Virginia. E & E is preparing the Federal Energy Regulatory Commission (FERC) application for the 190-mile Atlantic Sunrise pipeline project in Pennsylvania. Proposed by Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of Williams Partners LP, the project consists of installing new pipeline and pipeline loops across 11 Pennsylvania counties, constructing two new compressor stations, and adding 2.5 miles of replacement pipeline in Virginia. Ms. Perry was a member of the wetland team and was team lead for the wetland delineations and stream surveys to support the application. She also contributed to development of the migratory bird report, which presents conservation actions and proposed mitigation options related to migratory birds within the project area.

Wetland Delineation, Pipeline Permitting Project, Northeast. For a confidential client, Ms. Perry conducted wetland and stream delineations to support a FERC application regarding the expansion of seven existing compressor stations across three states in the northeast. She also authored the field survey report, Resource Report 2 (Water Use and Quality), and Resource Report 3 (Fish, Wildlife, and Vegetation).

Wetland Delineation, Leidy Southeast Expansion (LSE) Project, Pennsylvania and New Jersey. To support the FERC 7(c) application on behalf of Williams Gas Pipelines-Transco for this multi-state pipeline looping project, Ms. Perry was team lead for wetland and stream delineations. As part of her efforts, she conducted reviews with the NJDEP regarding previously completed delineations. She led the preparation of Resource Report 8 (Land Use, Recreation and Aesthetics), and supported the project manager and deputy project manager in organizing data. She also delineated wetlands, streams, and other waterbodies along access roads that connect to the pipeline ROW.

Northern Pass Transmission Line Wetland Delineation, Quebec, Canada to Deerfield, New Hampshire. Ms. Perry conducted wetland delineations and stream surveys, and downloaded GPS data for this proposed 187-mile high-voltage direct current (HVDC) transmission line anticipated to deliver hydropower from Quebec to southern New Hampshire. She also performed herpetological surveys for sensitive species and authored part of the herpetological section of the biological report.

Water Quality Certificate Compliance, Rockaway Delivery Lateral Project, Rockaway, New York. For Williams Gas Pipelines-Transco, Ms. Perry provided support throughout the FERC permit filing process in support of this three-mile underground and underwater natural gas pipeline extension. She conducted fieldwork to ensure compliance with the project's water quality certificate. Additionally, she contributed to the preparation of documents and analysis regarding offshore mitigation to present to regulatory agencies, and she helped complete the EA in compliance with NEPA regulations, which was prepared for the selected offshore mitigation option. Ms. Perry also prepared application materials for the individual permit for offshore mitigation, including the USACE joint application and associated permit documents, as well as the request for project review to the New York State Historic Preservation Office.

EDUCATION

B.S., Biology, Edinboro
University of Pennsylvania

Ms. Sharpe conducts aquatic and terrestrial vegetation and wildlife investigations to support E & E's preparation of EAs and EISs. Her fieldwork includes the sampling of biota, sediment, surface water, soil, and groundwater; and the monitoring of subcontractor activities to ensure timeliness, cost-effectiveness, and compliance with applicable regulations/permits.

Wetland and Stream Delineations for the APEX Express Pipeline Project, Austin, Texas. As a field technician, Ms. Sharpe performed Wetland and Stream Delineations and Assessments according to the 1987 Corps Manual and using the Eastern and Piedmont Regional Supplement Manual. She completed HHEI and ORAM forms, documented potential rare species habitats, and surveyed proposed pipeline corridors. She used GPS, maps, computer, and ARC/GIS to navigate and document information.

Wetland Surveys, GAI Consultants, Homestead, Pennsylvania. Ms. Sharpe performed wetland delineations and stream assessments according to the 1987 Corps Manual and using the Eastern and Piedmont Regional Supplement Manual, Compressor Pad Station evaluations, and other tasks as assigned.

Wetland Delineations, Lawhon & Associates, Westerville, Ohio. As a senior environmental technician and team lead, Ms. Sharpe performed wetland delineations, delineating about 25 wetlands, and assessing about 30 streams. She utilized Trimble/ArcGIS for her projects and was certified as a Roadway Worker Contractor.

Hurricane Relief for Gustav, Louisiana. Ms. Sharpe assisted in E & E's reconnaissance and recovery of hazardous waste containers in the wetland bayous of Louisiana. She navigated through bayous using infrared maps and GPS, assessed wetland flora, supervised hazardous waste field cleanup, and provided EIS.

Ruby Natural Gas Pipeline Project, Oregon. Ms. Sharpe assisted an ornithologist in an acoustic bird survey for the northern goshawk. She hiked along the center line and buffer zones of the pipeline using a GPS and Trimble/ArcGIS to locate potential nesting sites. She also documented wildlife and flora sightings of interest.

CardnoENTRIX, Mississippi Canyon 252- Deepwater Horizon BP Oil Spill, Riverview, Florida. Ms. Sharpe was a field technician on the following teams: Forensic Response Assessment Team (FRAT), Hot Shot (on call for immediate response to a sighting), Rapid Assessment Team (RAT), Sentinel Snare, and Safety Implementation Coordinator (SIC) Observer. Her responsibilities as a FRAT, RAT, and Hot Shot member included going to designated waypoints using a GPS/boat radar to search for and sample oil spills, assess booms, and look for distressed wildlife. She communicated report findings to the Command Center and the United States Coast Guard (USCG). She performed tasks from 18-ft to 64-ft boats on the Gulf up to 40 miles off shore. As a Sentinel Snare Team member, she monitored subsurface water levels for oil using snare sentinels. Ms. Sharpe recorded and maintained using a camera, GPS, Trimble/ArcGIS, field log book, daily reports, and timesheet. As a SIC Observer, she observed team members for safety, SOP, JHA, and HASP standards that are applied in the field.

EDUCATION

B.S., Environmental Science, cum laude, Allegheny College

TRAINING/CERTIFICATIONS

40-Hour Wetland Delineation Training, Wetland Training Institute
FERC Environmental Review and Compliance for Natural Gas Facilities
NEPA Training, E & E

Mr. Sheppard has led field teams for hundreds of wetland and stream delineations in Pennsylvania and Ohio to support pipeline site selection and permitting, and has prepared Federal Energy Regulatory Commission (FERC) resource reports, post-construction monitoring reports, United States Army Corps of Engineers (USACE) joint permits, and general permits to support interstate and midstream natural gas projects. He has experience conducting habitat and threatened and endangered (T/E) species surveys and post-construction monitoring and reporting. Mr. Sheppard also offers an extensive Geographic Information System (GIS) background, which, as a field scientist, allows for efficient processing of data, and an improved QA/QC process.

Wetland Field Leadership, Atlantic Sunrise Project, Pennsylvania. Mr. Sheppard is a lead author of Resource Report 2 - Water Use and Quality for inclusion in the Federal Energy Regulatory Commission (FERC) application for the 190-mile Atlantic Sunrise pipeline project in Pennsylvania. Proposed by Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of Williams Partners LP, the project consists of installing new pipeline and pipeline loops across 11 Pennsylvania counties, constructing two new compressor stations, and adding 2.5 miles of replacement pipeline in Virginia. Mr. Sheppard led a wetland field team on three trips totaling over two months of field time to delineate the proposed route. He also provided quality assurance (QA) on all field team data and ensured adherence to proper field protocols.

Wetland Lead, Navy Photovoltaic (PV) Solar Systems, Multiple Locations. E & E managed EAs to support the Navy's plans to install solar PV systems at multiple facilities near the Atlantic Ocean and Gulf of Mexico. As wetland team lead for the EA for Naval Weapon Station (NWS) Earle in New Jersey, Mr. Sheppard led one week of field work in winter to conduct a wetland delineation and bat habitat assessment. He researched, developed, and executed a wetland protocol specific to New Jersey, which uses a different USACE manual than the rest of the United States. He also authored the template wetland delineation report for the NWS Earle EA and five other facilities, authored the NWS Earle wetland delineation report, provided preliminary review of the other wetland delineation reports, and provided the wetland sections of the NWS Earle EA.

Post-Construction Wetland Monitoring, Northeast Supply Link Project, Pennsylvania, New Jersey, and New York. On behalf of Williams Gas Pipelines-Transco, E & E completed a FERC 7(c) filing for natural gas pipeline loops, a new greenfield compressor station, and several aboveground facility modifications in three states. As field coordinator and field team lead, Mr. Sheppard coordinated and led the post-construction wetland and invasive species monitoring for the project. Coordination was especially challenging as it required merging conflicting project-specific restoration and monitoring procedures from FERC and the States of Pennsylvania and New Jersey into one field protocol. Mr. Sheppard also authored the monitoring report.

Wetland Evaluation, Tucker County, West Virginia. For a confidential client, Mr. Sheppard provided assessment of wetland mitigation strategies for an eminent domain dispute. He completed an assessment of the site's potential as a wetland mitigation bank and identified areas with suitable conditions for wetland creation, enhancement, or preservation. He used GIS to efficiently process field decisions into preliminary mapping and acreages. The project was complicated by the fact that some areas were already under construction, so Mr. Sheppard assessed those areas using historical aerials and nearby reference sites with similar conditions.

EDUCATION

B.S., Chemical Engineering,
Bucknell University

TRAINING/CERTIFICATIONS
Wetland Delineation Training,
Florida Department of
Environmental Protection

With over 11 years' experience, Mr. Stoos supports E & E investigations and remedial programs for wind energy, pipeline, and industrial and commercial facilities. He participates in environmental regulatory compliance evaluations; completes wetland delineations; designs, implements, and monitors wetland restoration projects; performs threatened and endangered (T/E) species surveys; and assists in the preparation of EAs, EISs, and ERs. He also conducts environmental sampling and helps monitor the work of site contractors to ensure cost-effectiveness, timeliness, and compliance with contract specifications and applicable regulations and permits.

Wetland Delineation Lead, Atlantic Sunrise Project, Pennsylvania and Virginia. E & E is preparing the Federal Energy Regulatory Commission (FERC) application for the 190-mile Atlantic Sunrise pipeline project. Proposed by Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of Williams Partners LP, the project consists of installing new pipeline and pipeline loops across 11 Pennsylvania counties, constructing two new compressor stations, and adding 2.5 miles of replacement pipeline in Virginia.

As lead biologist, Mr. Stoos provides oversight for the routing surveys and wetland/waterbody surveys. He provided the costing for the wetland delineations across the entire project, including over 178 miles of greenfield pipeline, two loops, and multiple compressor stations. Mr. Stoos also developed the protocols being used for the wetland/waterbody surveys and has continued to make improvements to them as the project progresses. In addition, Mr. Stoos developed the initial schedule for the wetland teams after identifying the field leads for the project and have assisted the field coordinators while in the field together. As a coordinator and team member for the routing surveys, Mr. Stoos led the development of protocols for surveys to identify potential environmental obstacles to routing, including wetland impacts. He provided coordination between E & E and the survey crews and acted as a liaison to the client if any issues arose. Mr. Stoos also assisted in the development of the iPad application to allow the wetland teams to map habitat types while in the field, and development of an application the routers are using to map the proposed changes to the pipeline route.

Wetland Lead, Northern Pass Transmission Line Third-Party EIS, Quebec, Canada to Deerfield, New Hampshire. E & E provided transmission and resource consultation to support a third-party EIS to be submitted to DOE for a presidential permit for this proposed 187-mile high-voltage direct current (HVDC) transmission line, designed to deliver hydropower from Quebec to southern New Hampshire. As wetland delineation lead, Mr. Stoos managed the wetland delineation effort along the proposed route and conducted agency review with the client.

Wetland Evaluation, Leidy Southeast Expansion Project, Pennsylvania and New Jersey. For Williams Gas Pipelines-Transco, Mr. Stoos and team completed a biological assessment (BA) to support the FERC 7(c) filing for four pipeline loops nearing 30 miles in total length. His responsibilities included wetland delineation, cover type documentation and characterization, and assessment of potential construction obstacles. Mr. Stoos also contributed to the completion of the permitting reports.

Wetland Delineations for Wind Energy Projects, Oklahoma. For a major E & E wind energy client, Mr. Stoos performed wetland delineations for a site in Oklahoma, including data collection and GPS data uploads using Trimble instrumentation.

Wetland Delineation for the Route 219 Extension, Erie and Cattaraugus Counties, New York. For the New York State Department of Transportation, to support E & E's environmental investigations for the proposed 28-mile Route 219 extension project, he conducted wetland delineations to determine the location, quality, and jurisdiction of wetlands and streams and identified habitat types.

Wetland Delineations, Ruby Natural Gas Pipeline, Elko and Washoe Counties, Nevada. For this four-state natural gas pipeline of El Paso Corporation (now Kinder Morgan, Inc.), Mr. Stoos performed wetland delineations to determine the location, quality, and jurisdiction of local wetlands and streams.

Wetland Lead, Atlantic Access Pipeline, Pennsylvania and West Virginia. On behalf of Williams Gas Pipelines-Transco, he led E & E's wetland and habitat surveys for this 340-mile natural gas pipeline and supported the preparation of resource reports for the FERC 7(c) filing.

Wetland Delineations, Northeast Supply Line Diversification Project, Pennsylvania and New York. For Tennessee Gas Pipeline, an El Paso (now Kinder Morgan) company, Mr. Stoos helped prepare the FERC 7(c) filing for 15 miles of a proposed pipeline looping in Potter, Tioga, and Bradford Counties, Pennsylvania. He led wetland delineation, conducted surveys for endangered plants, and helped prepare the joint application permit. In addition, he performed wetland delineations at Tennessee Gas Pipeline facilities in New York.

Kern River 2003 Apex Expansion, California, Nevada, Utah, and Wyoming. For Kern River Gas Transmission, Mr. Stoos was an E & E biological team member for this pipeline expansion project that involved nearly 30 miles of new looping pipeline through the Wasatch Mountains as well as new compression facilities within the Great Basin and Mojave Desert. He conducted habitat, land-use, and wetland surveys and investigated the potential presence of T/E species. He provided T/E species consultation with USFWS, the United States Forest Service, and the Utah Department of Wildlife Resources to develop survey protocol, impact minimization techniques, and mitigation measures compatible with the project schedule. He also analyzed impacts on fish, wildlife, and vegetation in the project area and prepared Resource Report 3 (Fish, Wildlife, and Vegetation) for the FERC 7(c) filing.

EDUCATION

B.S., Civil/Environmental Engineering, Florida State University

B.S., Biology, University of North Florida

TRAINING/CERTIFICATIONS

Licensed Engineer-in-Training, State of Florida

Authorized Agent, Gopher Tortoise Surveys and Relocations, Florida Fish and Wildlife Conservation Commission

Certified SCUBA diver, Professional Association of Diving Instructors

Mr. Tucker provides both engineering and biological investigation support for E & E projects, with particular expertise in wetland assessment and delineation. He contributes to the development of site remediation and restoration plans, conducts surveys for threatened and endangered (T/E) species, and participates in multimedia environmental sampling programs. He also completes background literature reviews; site file searches; and interviews with agency representatives, facility employees, and local residents to obtain information concerning site operations, involved processes, products and by-products, waste disposal practices, regulatory compliance histories, and agency and public perceptions and concerns.

Wetland Delineation, Northern Pass Transmission Line, Quebec, Canada to Deerfield, New Hampshire. This project involved transmission and resource consultation for a third-party EIS to be submitted to the United States Department of Energy (DOE) for this proposed, highly controversial,187-mile high-voltage direct current (HVDC) transmission line, designed to deliver hydropower from Quebec to southern New Hampshire. Mr. Tucker and team completed a large-scale biological assessment to support the DOE's EIS determination. His responsibilities included wetland delineations, cover type documentation and characterization, T/E species surveys, and assessment of potential construction obstacles.

Wetland Evaluation, Leidy Southeast Expansion Project, Pennsylvania and New Jersey. For Williams Gas Pipelines-Transco, Mr. Tucker and team completed a biological assessment (BA) to support the FERC 7(c) filing for four pipeline loops nearing 30 miles in total length. His responsibilities included wetland delineation, cover type documentation and characterization, and assessment of potential construction obstacles. Mr. Tucker also contributed to the completion of the permitting reports, including Land Use, Recreation, and Aesthetics.

Wetland Delineation, Atlantic Access Pipeline, Pennsylvania and West Virginia. For Williams Gas Pipelines-Transco, he was a member of the E & E team that completed a large-scale BA to support the FERC 7(c) filing for this 340-mile pipeline. His responsibilities included wetland delineation, cover type documentation and characterization, T/E species surveys, documentation of noxious weeds, and assessment of potential construction obstacles.

Wetland Delineations for Wind Energy Projects, Oklahoma. For a major E & E wind energy client, Mr. Tucker performed wetland delineations for a site in Oklahoma, including data collection and GPS data uploads using Trimble instrumentation.

Biological Investigation, Ripley-Westfield Wind Farm, Chautauqua County, New York. Mr. Tucker completed three weeks of fieldwork to support the wetland and biological investigations for this 52-turbine, 125-MW wind generation project of Pattern Renewables Development. He wrote species profiles and contributed to site mapping and report compilation.

BEN VIRTS, PWS, PWD

Environmental Scientist

Overview

Through expertise in practical project implementation and responsible resource stewardship, Ben works closely with Timmons Group clients and the regulatory community to foster the evolution of projects from conceptual to realized opportunities. As a certified Professional Wetland Scientist and Virginia Professional Wetland Delineator, his experience includes environmental constraints analyses, wetland delineations, stream assessments, buffer determinations and Section 401 and 404 Permitting. Through a range of general and individual permitting experience, he has assisted clients in the development of both large and small projects.

Ben regularly works closely with municipalities, organizations, and private landowners to support growth while fostering water quality and wildlife habitat improvements. He has honed these skills by working closely with clients to explore traditional development, stream restoration, and mitigation bank development opportunities. He has completed the initial siting feasibility assessments for projects and then worked closely with his clients and the regulatory community to assist the evolution of these projects from potential to realized opportunities. Ben maintains a focus on meeting the goals of his clients while creating project solutions that both meet regulatory goals and minimize natural resource impacts.

Select Project Experience

- Bennett's Creek, City of Suffolk, VA
- Cephas Industries Environmental Assessment, City of Richmond, VA
- Cheroenhaka Wetland Mitigation Bank, Southampton County, VA
- Cherokee Lake Forebay Improvements, City of Richmond, VA
- Fleet Maintenance Trail, Chesterfield County, VA
- Chudoba Farm Wetlands, Prince George County, VA
- Compensatory Mitigation Area, Culpeper County, VA
- Conifer/Bluffside Drainage Improvements and Stormwater Basin, Chesterfield County, VA
- Courtland Water and Wastewater Treatment Plant Survey and Wetlands, Southampton County, VA
- Creighton Road Wetland Mitigation, Henrico County, VA
- Crosspointe Centre Central Basin Wetlands, Survey and Environmental Site Assessment, Prince George, VA
- Eastern Dam Analysis, James City County, VA
- Echo Lake Improvement, Henrico County, VA
- Magnolia Green Environmental Services, Chesterfield County, VA
- Falling Creek Farms Drainage Project, Chesterfield County, VA
- Gaylord Road Feasibility Study and Drainage Design, Henrico County, VA
- Glenthorne Stream Mitigation Bank, Nellysford, VA
- Golden Road Drainage Improvements, Henrico County, VA
- Willow Oaks Neighborhood Drainage Study and Improvements, City of Richmond, VA

Education

- BS, Environmental Science, Aquatic Resources Concentration, Virginia Tech, 1997; Minors: Biology and Chemistry

Registration

- Professional Wetland Scientist
- Professional Wetland Delineator, Virginia
- DCR Erosion & Sediment Inspector
- NCDWQ Intermittent and Perennial Flow Assessment Certification

Experience

- 17 Years

Affiliation

- Society of Wetland Scientists
- Virginia Association of Wetland Professionals
- Virginia Water Monitoring Council
- New York State Wetlands Forum

Training

- Rosgen Stream Restoration
  - Level I - Applied Fluvial Geomorphology
  - Level II - River Morphology and Application
  - Level III - River Assessment and Monitoring
  - Level IV – River Restoration and Natural Channel Design
- NCSU Stream Restoration Program: Stream Restoration Construction
- Wetland Construction and Planning

ETHAN VIRTS

Environmental Scientist

Overview

Ethan is an Environmental Scientist in the Environmental Services Group located in the firm's Richmond corporate headquarters. He is focused on providing Timmons Group's clients a variety of environmental services including state and federal natural resource agency coordination, coordination of threatened and endangered species surveys, and wetland delineations.

Through a combination of his past experience with Virginia Department of Transportation as an Environmental Planner in the New River Valley (including Pulaski County), academic background, and extensive field experience, Ethan encompasses a broad spectrum of technical skills including threatened and endangered species biological survey coordination in the New River Valley, coordination with state agencies regarding wild trout impacts for construction projects, avoidance/minimization of critical species habitat in association with road construction projects, and woody plant identification.

Select Project Experience

- Compensatory Mitigation Area, Culpeper County, VA
- Cosby High School, Chesterfield County, VA
- Cumberland Patriots Landing Apartments, New Kent County, VA
- Deepwater Terminal Road Extended, City of Richmond, VA
- Eastern Dam Analysis, James City County, VA
- Magnolia Green Environmental Services, Chesterfield County, VA
- Federal Club Regulatory Permit Compliance, Glen Allen, VA
- Forest Lake Section D Wetlands Permitting, City of Charlottesville, VA
- New Courts Building, Hanover County, VA
- Wayside Dam Design, Hanover County, VA
- Henrico High School Slope Failure Analysis, Henrico County, VA
- Hidden Lake Dam, Stafford County, VA
- Hillcrest Business Park & Interstate Industrial Park, South Hill, VA
- Hospitality VII Wetland Delineation, Chester, VA
- Iron Bound BMP Design, James City County, VA
- James Madison University Newman Lake Dam Design, Harrisonburg, VA
- James River Water Association Permit Relocation and JPA Submission, Fluvanna County, VA
- Luck Stone Boscobel Water and Sewer Design, Goochland County, VA
- Madison & Ohio Streets Engineering Design Services, City of Waynesboro, VA
- Massaponax Quarry Groundwater, Spotsylvania County, VA
- Maurice Avenue Drainage Improvements, City of Richmond, VA
- Meadowville Stormwater and Environmental Services, Chesterfield County, VA
- Meadowville Tech Park - Wetland Redelineation, Chesterfield County, VA
- Pioneer Sewer Extension, City of Richmond, VA
- Regional BMP, Chesterfield County, VA

Education

- BS, Environmental Science, Virginia Tech, 2004

Registrations/Certifications

- DCR Erosion & Sediment Inspector, Virginia, 2013
- DCR Erosion & Sediment Control Plan Reviewer, 2010
- VA Certified Nutrient Management Planner, 2014
- OSHA 40-Hr. HAZWOPPER

Experience

- 11 Years

Training

- Wetland Delineation Course: Grasses, Sedges, and Rushes Identification Course, Winter Plant Identification

MARK HEPNER

Environmental Scientist

Overview

Mark Hepner is an Environmental Scientist in the Environmental Services group located in the Richmond corporate headquarters office. His expertise includes surveying for aquatic and semi-aquatic species and the evaluation of aquatic habitat. He utilizes his expertise in performing initial site assessments for wetland and stream mitigation projects and post-construction success monitoring.

Mark's academic background includes specializing in fisheries and wildlife science and his previous work experience includes field and laboratory research of fish, mammal, reptile, amphibian, songbird, waterfowl, and aquatic and terrestrial invertebrates. Mark came to Timmons Group with a broad range of technical and research skills, from forest ecology to ichthyology.

Mark is a Virginia-certified Erosion and Sediment Inspector.

Select Project Experience

- Magnolia Green Environmental Services, Chesterfield County, VA
- Grayson Hill Ponds, Henrico County, VA
- Hancock Village Permit Compliance, Chesterfield County, VA
- Hoehns Lake Stream Restoration, Henrico County, VA
- Iluka Brink Stream Restoration, Greensville County, VA
- Iluka Concord Restoration Wetlands, Sussex Counties, VA
- Interim Impound Lot VSMP, City of Alexandria, VA
- James River Water Treatment Plant and Pipeline, Louisa County, VA
- John Rolfe Parkway Environmental Monitoring, Henrico County, VA
- James River Water Association Permit Relocation, Fluvanna County, VA
- Lakota Mitigation Bank Performance Monitoring, Culpeper County, VA
- Madison & Ohio Streets Engineering Design Services, Waynesboro, VA
- Meadowville Technology Park/Construction Administration & Inspection Services, Chesterfield County, VA
- Mega Site Due Diligence and Master Planning, Sussex County, VA
- Moorefield Park Pond Maintenance, City of Richmond, VA
- Mountain Run Mitigation Site, Orange County, VA
- Pinewood Wind Energy Environmental Services, Pulaski County, VA
- Princeton & Reedy Creeks Monitoring, City of Richmond, VA

Education

- BA, Wildlife and Fisheries Resources, West Virginia University, 2007

Registrations/Certifications

- Erosion and Sediment Inspector, Virginia, 2013
- VDACS 5-A Certified Pesticide Applicator, Virginia, 2012

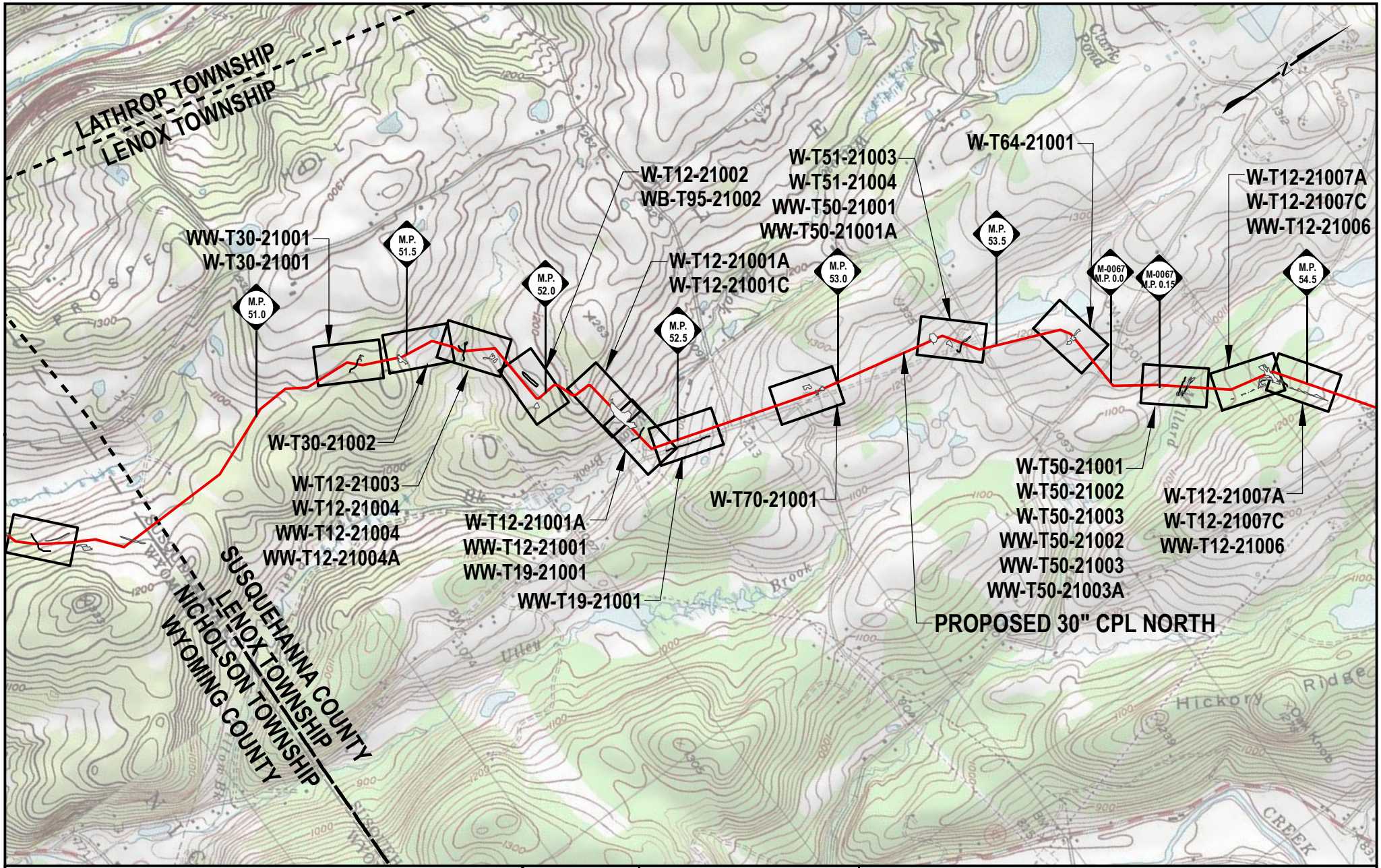
Experience

- 7 Years

Training

- Rosgen Stream Restoration
  - Level I - Applied Fluvial Geomorphology
  - Level II - River Morphology and Application
  - Level III - River Assessment and Monitoring
- COE Wetland Delineation Swamp School - Basic Wetland Delineation (Regional Supplements)

3 USGS Topographic Maps with Wetland and Waterbody Locations



LEGEND

- PROPOSED 30" CPL NORTH
- EXISTING PIPELINES
- TOWNSHIP BOUNDARY
- CONTRACTOR STAGING AREA

WB WATERBODY
WW WATERWAY
W WETLANDS

0 2,000 4,000 6,000
SCALE IN FEET

DRG 7.5 MIN. QUAD MAP:
o41075f7 (HOP BOTTOM, PA)
o41075f6 (LENOXVILLE, PA)

DRAWING NO.

REFERENCE TITLE

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
A	7/14/2015	CNC	ISSUED FOR INFORMATION	1161481	KS/JD	MJH
B	7/20/2015	CNC	ISSUED FOR INFORMATION	1161481	KS/JD	MJH
C	11/02/2015	CNC	ISSUED FOR INFORMATION	1161481	KS/JD	MJH
D	6/7/2016	JAG	ISSUED FOR INFORMATION	1161481	ELR	MJH
E	4/25/2017	CNC	ISSUED FOR INFORMATION	1161481	LR	MJH

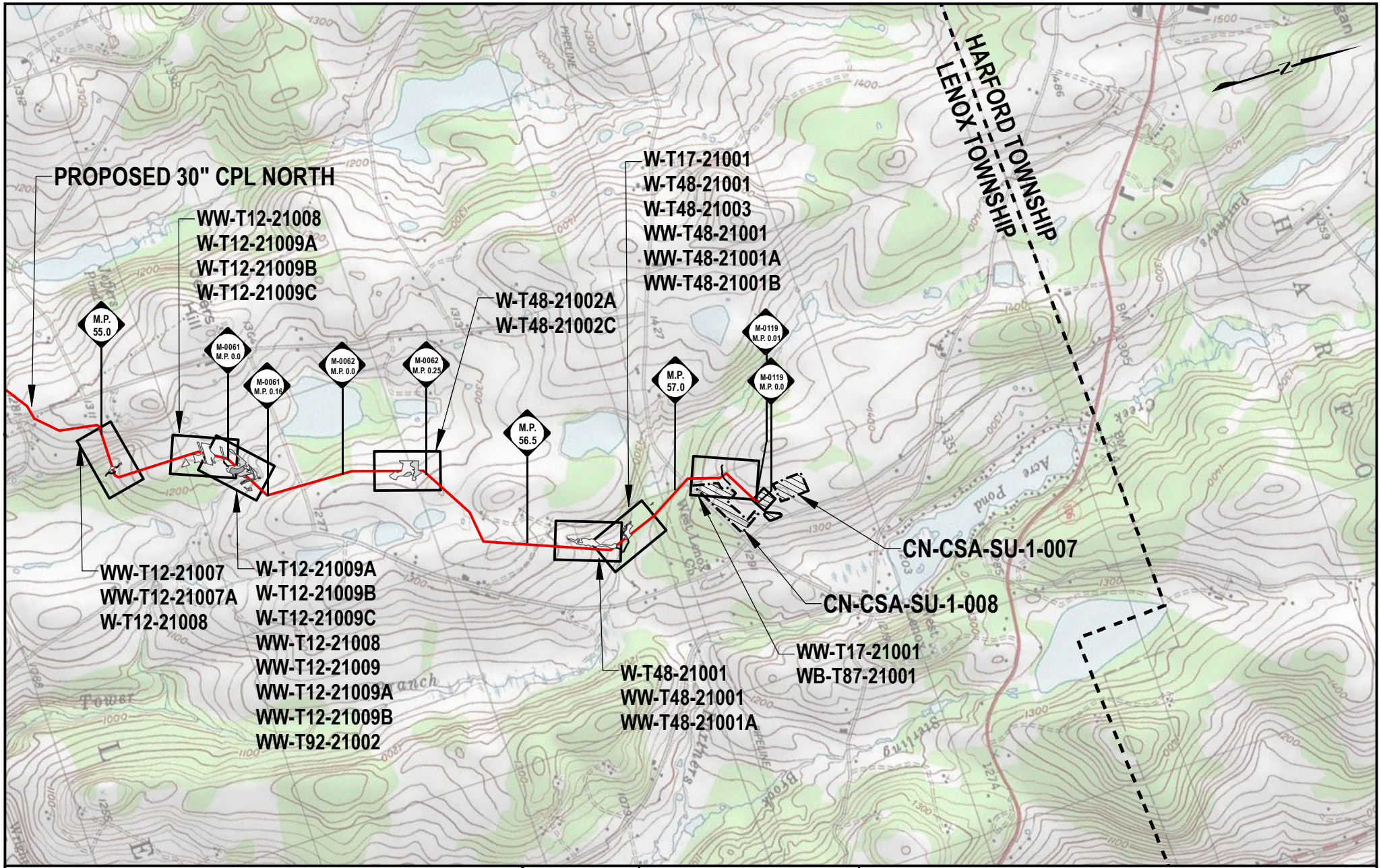
WOOD GROUP MUSTANG

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
WETLAND DELINEATION OVERVIEW MAP
ATLANTIC SUNRISE PROJECT
PROPOSED 30" CPL NORTH
M.P. 50.58 TO M.P. 57.3
WYOMING & SUSQUEHANNA COUNTIES, PENNSYLVANIA

Williams

DRAWN BY: CNC	DATE: 7/14/2015	ISSUE FOR BID:	SCALE: 1"= 2000'
CHECKED BY: KS/JD	DATE: 7/14/2015	ISSUE FOR CONSTRUCTION:	E
APPROVED BY: MJH	DATE: 7/14/2015	DRAWING NUMBER: 24-1601-70-09-A/50.58-004	SHEET 1 OF 2
WO: 1161481		11:37 AM 4/26/2017	

\\houvgtgweb2\gis\1_Beta_Projects\101769-NEW\PJD-USACE\CPLN\Wetland Delinitation\Susquehanna\2017_04\24-1601-70-09-A_50.58-004-p1-062016.mxd



LEGEND

- PROPOSED 30" CPL NORTH
- EXISTING PIPELINES
- TOWNSHIP BOUNDARY
- CONTRACTOR STAGING AREA

WB WATERBODY
WW WATERWAY
W WETLANDS

DRG 7.5 MIN. QUAD MAP:
o41075f6 (LENOXVILLE, PA)

0 2,000 4,000 6,000
SCALE IN FEET

DRAWING NO.	REFERENCE TITLE

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
A	7/14/2015	CNC	ISSUED FOR INFORMATION	1161481	KS/JD	MJH
B	7/20/2015	CNC	ISSUED FOR INFORMATION	1161481	KS/JD	MJH
C	11/02/2015	CNC	ISSUED FOR INFORMATION	1161481	KS/JD	MJH
D	6/7/2016	JAG	ISSUED FOR INFORMATION	1161481	ELR	MJH
E	4/25/2017	CNC	ISSUED FOR INFORMATION	1161481	LR	MJH

WOOD GROUP MUSTANG

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
WETLAND DELINEATION OVERVIEW MAP
ATLANTIC SUNRISE PROJECT
PROPOSED 30" CPL NORTH
M.P. 50.58 TO M.P. 57.3
SUSQUEHANNA COUNTY, PENNSYLVANIA

Williams

DRAWN BY:	CNC	DATE:	7/14/2015	ISSUE FOR BID:	SCALE: 1"= 2000'
CHECKED BY:	KS/JD	DATE:	7/14/2015	ISSUE FOR CONSTRUCTION:	E
APPROVED BY:	MJH	DATE:	7/14/2015	DRAWING NUMBER: 24-1601-70-09-A/50.58-004	SHEET 2 OF 2
WO:	1161481			11:27 AM 4/26/2017	

\\houvgtgweb2\gis\1_Beta_Projects\101769-NEW\PJD-USACE\CPLN\Wetland Delinitation\Susquehanna\2016_12 - Copy\24-1601-70-09-A_50.58-004-p2-062016.mxd

4 Wetland Data Package

4A. Wetland Table

Wetlands Delineated within the Atlantic Sunrise Project Study Area in Susquehanna County : CPL North

Wetland ID	Milepost	Latitude Longitude	Township County	USGS Quad	Acreage[1]	Cowardin Class[2]	Percentage of Overall Wetland	Hydrology Indicator[3]		Hydrophytic Vegetation Indicator[3]	Hydric Soil Indicator[3]	Wetland Description
								Primary	Secondary			
W-T30-21001	51.36	41.65421 -75.76170	Lenox, Susquehanna	Hop Bottom	0.04	PEM	100	A1	D2, D5	1, 2	F3	Depressional PEM in a forested area. All trees located in upland areas.
W-T30-21002	51.48	41.65560 -75.76022	Lenox, Susquehanna	Hop Bottom	0.19	PEM	100	N/A	D2, D5	2	F3	PEM wetland in old logging road. Appears to be isolated.
W-T12-21004	51.76	41.65870 -75.75741	Lenox, Susquehanna	Hop Bottom	0.13	PEM	100	A2, A3	N/A	3	F3	PEM located in abandoned livestock pasture.
W-T12-21003	51.81	41.65879 -75.75708	Lenox, Susquehanna	Hop Bottom	0.04	PEM	100	A1, A2, A3	D5	1, 2	F3	PEM wetland located in abandoned livestock pasture.
W-T12-21002	51.97	41.65909 -75.75363	Lenox, Susquehanna	Hop Bottom	0.10	PEM	100	A1, A2, A3	D2, D5	2	F3	Depressional spring-fed PEM wetland located in abandoned cattle pasture.
W-T12-21001A	52.24	41.66179 -75.75133	Lenox, Susquehanna	Hop Bottom	1.34	PEM	97.62	A1, A3	D5	1, 2	F3	PEM/PFO located in an agricultural field.
W-T12-21001C						PFO	2.38					
W-T70-21001A	52.92	41.66892 -75.74540	Lenox, Susquehanna	Lenoxville	0.24	PEM	100	C3	D2	1, 2, 3	F3	Wetland is located in a fallows field. Isolated, no connections to a waterway.
W-T51-21004	53.31	41.67438 -75.74353	Lenox, Susquehanna	Lenoxville	0.40	PEM	100	A3, C3	D5	1, 2	F3	PEM depression on a hillslope in a fallow field.
W-T51-21003	53.40	41.67571 -75.74239	Lenox, Susquehanna	Lenoxville	0.03	PEM	100	A1, A2, A3, C1	D2, D5	2	A4	Riparian PEM in a forested area with some groundwater seepage occurring along the right bank of the stream
W-T64-21001	53.74	41.67917 -75.73892	Lenox, Susquehanna	Lenoxville	0.24	PEM	100	C3	D1, D2, D5	1, 2	F3, F6	PEM wetland located in a maintained field on a hillslope.
W-T50-21001	54.11	41.68146 -75.73277	Lenox, Susquehanna	Lenoxville	0.06	PFO	100	A2, A3, C1	D5	2, 4	A4	PFO abutting Millard Creek.
W-T50-21002	54.12	41.68177 -75.73294	Lenox, Susquehanna	Lenoxville	0.01	PFO	100	A2, A3, C3	D5	2, 4	F6	Floodplain PFO wetland
W-T50-21003	54.14	41.68213 -75.73300	Lenox, Susquehanna	Lenoxville	0.10	PFO	100	A3, C3	D5	2	F3	PFO abutting WW-T50-21003 and WW-T50-21003a.
W-T12-21007A	54.26	41.68313 -75.73079	Lenox, Susquehanna	Lenoxville	1.10	PEM	65.40	A1, A2, A3	B10, D2, D5	1, 2	F3, F6	PEM/PFO abutting WW-T12-21006 within a mixed hardwood forest.
W-T12-21007C						PFO	34.60					
W-T12-21008	55.10	41.69094 -75.72062	Lenox, Susquehanna	Lenoxville	0.10	PEM	100	A3	D5	2	F3	Small PFO wetland in a larger mixed hardwood forest.
W-T12-21009A	55.39	41.69417 -75.71943	Lenox, Susquehanna	Lenoxville	3.43	PEM	49.05	A2, A3	D5	2	F3	Large PEM/PFO wetland abutting stream WW-T12-21009. PEM portion is located in an open field.
W-T12-21009B						PSS	12.24					
W-T12-21009C						PFO	38.71					
W-T48-21002A	M-0062 0.18	41.70226 -75.71521	Lenox, Susquehanna	Lenoxville	1.81	PEM	61.99	A1, A2, A3, C3	D5	2	F3	Seep/spring-fed wetland complex in and next to an active pasture
W-T48-21002C						PFO	38.01					
W-T48-21001	56.69	41.70887 -75.70790	Lenox, Susquehanna	Lenoxville	0.94	PEM	100	A2, A3	D5	1, 2	F3	PEM on a hillslope in a fallow pasture, historically disturbed by heavy grazing.
W-T48-21003	56.81	41.71042 -75.70771	Lenox, Susquehanna	Lenoxville	0.40	PEM	100	A1, A2, A3	D2, D5	2	F3	Floodplain PEM containing hillside seep and abutting WW-T48-21001.
W-T17-21001	56.93	41.71180 -75.70895	Lenox, Susquehanna	Lenoxville	0.02	PEM	100	A2, A3	N/A	3	A11, F3	Small PEM located in an open field.

[1] Acreages less than 0.01 acre may show as 0.00 due to rounding.
[2] Cowardin et al (1979) wetland classifications: PEM = Palustrine Emergent Wetland; PSS = Palustrine Scrub-Shrub Wetland; PFO = Palustrine Forested Wetland
[3] Refer to Section 3.2 of the wetland delineation report for definitions of wetland indicators.

4B. Wetland Documentation

WETLAND ID: W- T30-21001

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Abuts WW-T30-21001.

Associated Stream:

☑ **yes**

☐ **no**

If yes, list ID: WW- T30-21001

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

☑ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☑ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☑ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**

☑ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 10/23/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T30-21001

Investigator(s): Katherine Perry, Sarah Craig Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.654252 Long: -75.761512 Datum: D_North_American_1983

Soil Map Unit Name: Morris channery silt loam, 3 to 8 percent slopes, moderately erod NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

Depressional PEM wetland in a forested area. All trees located in upland areas.

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 _____	Depth (inches): 0.5
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Greater than 1 inch of rain in previous 12 hours.

VEGETATION – Use scientific names of plants. Sampling Point: W-T30-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5)			
1. Onoclea sensibilis	20	Y	FACW
2. Nasturtium officinale	80	Y	OBL
3. Geum rivale	10	N	OBL
4. Persicaria pensylvanica	10	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

SOIL

Sampling Point: W-T30-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					Muck	
1-3	10YR 2/1	73	5YR 4/3	25	C	M	C	
1-3			7.5YR 4/6	2	C	M		
3-4	2.5YR 4/3	98	7.5YR 4/6	2	C	M	C	
4-16	10YR 5/2	80	7.5YR 5/8	20	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 10/23/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T30-21001

Investigator(s): Katherine Perry, Sarah Craig Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): 3-5

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.654273 Long: -75.761511 Datum: D_North_American_1983

Soil Map Unit Name: Morris channery silt loam, 3 to 8 percent slopes, moderately erod NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: U-T30-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	75	Y	FACU
2. Acer rubrum	25	Y	FAC
3.			
4.			
5.			
6.			
7.			
	100	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Solidago rugosa	15	Y	FAC
2. Acer rubrum	5	N	FAC
3. Rubus phoenicolasius	10	Y	FACU
4. Glechoma hederacea	5	N	FACU
5. Viola sororia	5	N	FAC
6. Rubus allegheniensis	15	Y	FACU
7. Oxalis stricta	10	Y	FACU
8. Galium mollugo	5	N	FACU
9.			
10.			
11.			
12.			
	70	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	120	x 4 =	480
UPL species	0	x 5 =	0
Column Totals:	170 (A)		630 (B)

Prevalence Index = B/A = 3.71

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✓

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

SOIL

Sampling Point: U-T30-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2							Duff	
2-5	7.5YR 4/3						L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 5 inches. Multiple pits attempted.

Wetland Function-Value Evaluation Form

Total area of wetland 0.04ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 1490ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T30-21001

Latitude 41.65421 Longitude -75.76170

Prepared by: KP Date 10/23/2014

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

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

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 10/23/2014 **Direction:** W **Position:** Wetland



Date Collected: 10/23/2014 **Direction:** E **Position:** Upland

WETLAND ID: W- T30-21002

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**
☐ **no**
☑ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

May drain to Willow Creek, but a full determination cannot be made.

Associated Stream:

☐ **yes**
☑ **no**

If yes, list ID: WW-_____
(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet):_____

Wetland Association to Stream

Is the wetland:

☐ **directly abutting**
☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**
☐ **Ecological connection**
☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☐ **ephemeral surface**
☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**
☐ **confined**
☐ **other, explain:_____**

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 10/23/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T30-21002

Investigator(s): Katherine Perry, Sarah Craig Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2-4

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.655551 Long: -75.760457 Datum: D_North_American_1983

Soil Map Unit Name: Mardin flaggy silt loam, 8 to 15 percent slopes, moderately eroded NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No ____	**Is the Sampled Area within a Wetland?** **Yes ✓ No ____**
Hydric Soil Present?	Yes ✓	No ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

PEM wetland in old logging road. Appears to be isolated.

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 ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-T30-21002

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Scirpus atrovirens	60	Y	OBL
2. Rumex crispus	20	Y	FAC
3. Persicaria sagittata	15	N	OBL
4. Persicaria pensylvanica	20	Y	FACW
5. Rubus hispidus	5	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	120 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

SOIL

Sampling Point: W-T30-21002

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	95	7.5YR 5/6	5	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Rock refusal at 8 inches. Many small rocks throughout soil.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 10/23/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T30-21002

Investigator(s): Katherine Perry, Sarah Craig Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): 3-5

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.655667 Long: -75.760575 Datum: D_North_American_1983

Soil Map Unit Name: Mardin flaggy silt loam, 8 to 15 percent slopes, moderately eroded NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: U-T30-21002

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	60	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	60	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Viola sororia	15	Y	FAC
2. Daucus carota	5	N	UPL
3. Oxalis stricta	15	Y	FACU
4. Rubus phoenicolasius	30	Y	FACU
5. Dryopteris carthusiana	10	N	FACW
6. Persicaria pensylvanica	5	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	80	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	25	x 3 =	75
FACU species	105	x 4 =	420
UPL species	5	x 5 =	25
Column Totals:	140 (A)		530 (B)

Prevalence Index = B/A = 3.79

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

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

SOIL

Sampling Point: U-T30-21002

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Duff	
2-6	10YR 3/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 6 inches. Multiple pits attempted.

Wetland Function-Value Evaluation Form

Total area of wetland 0.19 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, Agriculture lands Distance to nearest roadway or other development 1430ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? N/A

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

Wetland I.D. W-T30-21002

Latitude 41.65421 Longitude -75.76170

Prepared by: KP Date 10/23/2014

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

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

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 10/23/2014 **Direction:** E **Position:** Wetland



Date Collected: 10/23/2014 **Direction:** W **Position:** Upland

WETLAND ID: W- T12-21004

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Abuts WW-T12-21003.

Associated Stream:

☑ **yes**

☐ **no**

If yes, list ID: WW- T12-21003

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

☑ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☑ **intermittent surface** ☐ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☑ **discrete** ☐ **overland sheet flow**

☐ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/23/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21004

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 8

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.658628 Long: -75.757351 Datum: D_North_American_1983

Soil Map Unit Name: Morris channery silt loam, 8 to 15 percent slopes moderately erod NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No ____	**Is the Sampled Area within a Wetland?** **Yes ✓ No ____**
Hydric Soil Present?	Yes ✓	No ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Rock encountered at 2 inches. Water table present at ground surface.

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21004

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5)			
1. Symphyotrichum novae-angliae	30	Y	FACW
2. Trifolium repens	20	Y	FACU
3. Juncus effusus	5	N	OBL
4. Ranunculus acris	4	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	59 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	30	x 2 =	60
FAC species	4	x 3 =	12
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	59 (A)		157 (B)

Prevalence Index = B/A = 2.66

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

One of the dominant species present is Schedonorus pratensis, however, it is not included in the vegetation calculations because this species has allelopathic characteristics in a livestock pasture setting.

SOIL

Sampling Point: W-T12-21004

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 4/2	95	7.5YR 3/4	5	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Rock refusal at 2 inches.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/23/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T12-21004

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 8

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.658684 Long: -75.757478 Datum: D_North_American_1983

Soil Map Unit Name: Morris channery silt loam, 8 to 15 percent slopes moderately erode NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Data point in located in an inactive livestock pasture.

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 ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Rock encountered at 6 inches. No saturation or water table present in pit.

VEGETATION – Use scientific names of plants. Sampling Point: U-T12-21004

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Leucanthemum vulgare	20	Y	UPL
2. Symphyotrichum laeve	10	Y	FACU
3. Dalea leporina	8	N	UPL
4. Asclepias syriaca	5	N	UPL
5. Plantago major	2	N	FACU
6. Crataegus crus-galli	2	N	FAC
7. Rosa multiflora	1	N	FACU
8.			
9.			
10.			
11.			
12.			
	48 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	13	x 4 =	52
UPL species	33	x 5 =	165
Column Totals:	48 (A)		223 (B)

Prevalence Index = B/A = 4.65

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✓

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

Schedonorus pratensis dominant, but not counted in vegetation calculations due to allelopathic characteristics in a livestock pasture setting.

SOIL

Sampling Point: U-T12-21004

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 6 inches.

Wetland Function-Value Evaluation Form

Total area of wetland 0.13ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 1830ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T12-21004

Latitude 41.65870 Longitude -75.75741

Prepared by: EV Date 6/23/2014

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

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

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/23/2014 **Direction:** NW **Position:** Wetland



Date Collected: 06/23/2014 **Direction:** NW **Position:** Upland

WETLAND ID: W- T12-21003

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Abuts WW-T12-21002.

Associated Stream:

☑ **yes**

☐ **no**

If yes, list ID: WW- T12-21002

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

☑ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☑ **intermittent surface** ☐ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☑ **discrete** ☐ **overland sheet flow**

☐ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/23/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21003

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 4

Subregion (LRR or MLRA): LRR R (Excluding MLRA Lat: 41.658628 Long: -75.75711 Datum: D_North_American_1983

Soil Map Unit Name: Morris channery silt loam, 8 to 15 percent slopes moderately erod NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

Located in abandoned livestock pasture.

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 _____	Depth (inches): 0.5	
Water Table Present?	Yes ✓	No _____	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0	**Wetland Hydrology Present?** **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21003

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Persicaria pensylvanica	20	Y	FACW
2. Sagittaria cuneata	10	Y	OBL
3. Juncus effusus	8	Y	OBL
4. Trifolium repens	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Schedonorus pratensis is the dominant species, however, it was not included in the vegetation calculations because it has allelopathic characteristics in a livestock pasture setting.

SOIL

Sampling Point: W-T12-21003

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/2	95	7.5YR 4/6	5	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Rock refusal at 6 inches.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/23/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T12-21003

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 8

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.658648 Long: -75.7572 Datum: D_North_American_1983

Soil Map Unit Name: Morris channery silt loam, 8 to 15 percent slopes moderately erode NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Data point is located in an inactive livestock pasture.

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 ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Rock was encountered at 6 inches. No saturation or water table was present.

VEGETATION – Use scientific names of plants. Sampling Point: U-T12-21003

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5)			
1. Symphyotrichum laeve	40	Y	FACU
2. Dalea leporina	15	Y	UPL
3. Daucus carota	10	N	UPL
4. Plantago major	3	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	68 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

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 (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	43	x 4 =	172
UPL species	25	x 5 =	125
Column Totals:	68 (A)		297 (B)

Prevalence Index = B/A = 4.37

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✓

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

Schedonorus pratensis is dominant, however, this species was not included in the vegetation calculations due to having allelopathic characteristics in a livestock pasture setting.

SOIL

Sampling Point: U-T12-21003

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/3	97	7.5YR 4/6	3	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 6 inches.

Wetland Function-Value Evaluation Form

Total area of wetland 0.04ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 1750ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T12-21003

Latitude 41.65879 Longitude -75.75708

Prepared by: EV Date 6/23/2014

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

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

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/23/2014 **Direction:** N **Position:** Wetland



Date Collected: 06/23/2014 **Direction:** N **Position:** Upland

WETLAND ID: W- T12-21002

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**
☐ **no**
☑ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Topographic contours and aerial coverage suggests drainage connection to WT12-21004 off-ROW approximately 1,000 feet to the southwest, but a full determination cannot be made.

Associated Stream:

☐ **yes**
☑ **no**

If yes, list ID: WW-_____
(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet):_____

Wetland Association to Stream

Is the wetland:

☐ **directly abutting**
☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**
☐ **Ecological connection**
☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☐ **ephemeral surface**
☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**
☐ **confined**
☐ **other, explain:_____**

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/23/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21002

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.658889 Long: -75.753495 Datum: D_North_American_1983

Soil Map Unit Name: Lordstown and Oquaga very stony silt loams, 0 to 12 percent slopes NWI classification: PFO

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____**
Hydric Soil Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

Spring-fed wetland located in abandoned cattle pasture.

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 ____	Depth (inches): 1
Water Table Present?	Yes ✔	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21002

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Crataegus crus-galli	10	Y	FAC
2. Rosa multiflora	8	Y	FACU
3.			
4.			
5.			
6.			
7.			
	18 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Persicaria pensylvanica	15	Y	FACW
2. Sagittaria cuneata	15	Y	OBL
3. Symphyotrichum novae-angliae	10	N	FACW
4. Boehmeria cylindrica	8	N	OBL
5. Plantago major	5	N	FACU
6. Trifolium repens	2	N	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Dominant species present is Schedonorus pratensis, however, this species was not included in vegetation calculations because it has allelopathic characteristics in a livestock pasture setting.

SOIL

Sampling Point: W-T12-21002

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/2	95	7.5YR 4/3	5	C	M	Mucky Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Rock refusal at 3 inches.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/23/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T12-21002

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.658935 Long: -75.753344 Datum: D_North_American_1983

Soil Map Unit Name: Lordstown and Oquaga very stony silt loams, 0 to 12 percent slopes NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Rock encountered at 1 inch. No saturation or water table was present.

VEGETATION – Use scientific names of plants. Sampling Point: U-T12-21002

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharum	35	Y	FACU
2. Fraxinus americana	25	Y	FACU
3. Acer rubrum	20	Y	FAC
4. Ulmus rubra	10	N	FAC
5. Prunus serotina	10	N	FACU
6.			
7.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. Crataegus crus-galli	15	Y	FAC
2. Rosa multiflora	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
	25	= Total Cover	
Herb Stratum (Plot size: 5)			
1. Viola sororia	10	Y	FAC
2. Ulmus rubra	5	N	FAC
3. Rosa multiflora	5	N	FACU
4. Boehmeria cylindrica	5	N	OBL
5. Symphyotrichum laeve	3	N	FACU
6. Rubus pubescens	3	N	FACW
7. Daucus carota	2	N	UPL
8.			
9.			
10.			
11.			
12.			
	33	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	3	x 2 =	6
FAC species	60	x 3 =	180
FACU species	88	x 4 =	352
UPL species	2	x 5 =	10
Column Totals:	158 (A)		553 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✔

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

SOIL

Sampling Point: U-T12-21002

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 1 inch.

Wetland Function-Value Evaluation Form

Total area of wetland 0.10ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Mature forest and agriculture Distance to nearest roadway or other development 800ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? N/A

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

Wetland I.D. W-T12-21002

Latitude 41.65909 Longitude -75.75363

Prepared by: EV Date 6/23/2014

Wetland Impact:
Type PFO Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		6,8,13		Springfed wetland that quickly sinks in rock fractures
Floodflow Alteration	X		5,9		Depression receives and retains runoff from uplands
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		9		There are no drainage ditches present
Nutrient Removal	X		5		Wetland is saturated due to presence of spring
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X		1,3,4,5,19,20	X	Dense amphibian population likely present
Recreation		X			
Educational/Scientific Value	X		2,5,13		valuable habitat / waterhole for wildlife
Uniqueness/Heritage	X		16		Wetland appears unpolluted
Visual Quality/Aesthetics	X		5,8,10,12		Valuable waterhole for wildlife
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/23/2014 **Direction:** S **Position:** Wetland



Date Collected: 06/23/2014 **Direction:** N **Position:** Upland

WETLAND ID: W- T12-21001

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Drains to WW-T12-21001 via DD-T12-003.

Associated Stream:

☑ **yes**

☐ **no**

If yes, list ID: WW- T12-21001

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 50

Wetland Association to Stream

Is the wetland:

☐ **directly abutting**

☑ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☑ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

wetland hillslope above connected by dd-t12-003

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☑ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**

☑ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/23/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21001A

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 10

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.661604 Long: -75.750999 Datum: D_North_American_1983

Soil Map Unit Name: Wellsboro flaggy silt loam, 15 to 25 percent slopes, moderately e NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓** **No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

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 _____	Depth (inches): 1
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Rock encountered at 6 inches. No water was present in hole. Some surface water on ground surface due to recent rain and poorly-drained soil.

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21001A

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Phalaris arundinacea	45	Y	FACW
2. Symphyotrichum novae-angliae	35	Y	FACW
3. Scirpus atrovirens	8	N	OBL
4. Carex straminea	3	N	OBL
5. Carex vulpinoidea	3	N	OBL
6. Ranunculus acris	2	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	96 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

SOIL

Sampling Point: W-T12-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/2	95	7.5YR 5/8	5	C	M	L	
4-6	7.5YR 4/1	92	7.5YR 4/6	8	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Rock refusal at 6 inches.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/24/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21001C

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 10

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.661817 Long: -75.75139 Datum: D_North_American_1983

Soil Map Unit Name: Wellsboro flaggy silt loam, 15 to 25 percent slopes, moderately e NWI classification: PFO

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No ____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** ____
Hydric Soil Present?	Yes ✓	No ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Rock encountered at 6 inches. Water table was not present in upper 6 inches of soil.

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21001C

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Crataegus crus-galli	65	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Crataegus crus-galli	40	Y	FAC
2. Sambucus nigra	15	Y	FACW
3. Cornus alba	5	N	FACW
4. Alnus incana	5	N	FACW
5.			
6.			
7.			
	65 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Phalaris arundinacea	50	Y	FACW
2. Symphyotrichum novae-angliae	20	Y	FACW
3. Onoclea sensibilis	15	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

SOIL

Sampling Point: W-T12-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 3/2	98	7.5YR 5/8	2	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Rock refusal at 6 inches.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/23/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T12-21001

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.661511 Long: -75.751094 Datum: D_North_American_1983

Soil Map Unit Name: Wellsboro flaggy silt loam, 15 to 25 percent slopes, moderately e NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Rock refusal at 4 inches. No saturation or water table present.

VEGETATION – Use scientific names of plants. Sampling Point: U-T12-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus americana	10	Y	FACU
2. Acer rubrum	10	Y	FAC
3.			
4.			
5.			
6.			
7.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. Rubus pubescens	10	Y	FACW
2. Rosa multiflora	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
	15	= Total Cover	
Herb Stratum (Plot size: 5)			
1. Schedonorus pratensis	50	Y	FACU
2. Rubus pubescens	8	N	FACW
3. Dalea leporina	5	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	63	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	18	x 2 =	36
FAC species	10	x 3 =	30
FACU species	65	x 4 =	260
UPL species	5	x 5 =	25
Column Totals:	98 (A)		351 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✓

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

SOIL

Sampling Point: W-T12-21001

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 4 inches.

Wetland Function-Value Evaluation Form

Total area of wetland 1.34ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture, Existing ROW Distance to nearest roadway or other development 400ft

Dominant wetland systems present PEM, PFO Contiguous undeveloped buffer zone present Yes

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

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T12-21001

Latitude 41.66179 Longitude -75.75133

Prepared by: EV, DH Date 6/23/14, 6/28/14

Wetland Impact:
Type PEM, PFO Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,6,7,9,13		Wetland is underlain by shallow bedrock
Floodflow Alteration	X		3,5,9,13,18	X	Vegetation (herbaceous) is very dense in this wetland, hill slope above wetland contains little flood stroage
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		4,7,9,10,13,16	X	Hillside wetland that does not contain drainage ditches
Nutrient Removal	X		4,5,7,8,9,10,12,14	X	Vegetation (emergent) is dense, therefore potential for attenuation; agriculture fields exist above wetland on hillside
Production Export	X		1,4,7		Dense emergent vegetation is present, deer tracks noted in wetland
Sediment/Shoreline Stabilization	X		2,3		wetland located on hillside
Wildlife Habitat	X		4,5,7,8,13,17,19,21	X	Area surrounding on one side is open hay field, deer tracks observed in wetland
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics	X		1,7,10,12		Easily viewable wetland with no trash present, PFO and PEM wetlands visible
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/23/2014 **Direction:** NW **Position:** Wetland (PEM)



Date Collected: 06/24/2014 **Direction:** S **Position:** Wetland (PFO)



Date Collected: 06/23/2014 **Direction:** N **Position:** Upland

WETLAND ID: W- T70-21001

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☑ **yes**

☐ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Associated Stream:

☐ **yes**

☑ **no**

If yes, list ID: ² ² -_____

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet):_____

Wetland Association to Stream

Is the wetland:

☐ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☐ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**

☐ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/24/2016

Applicant/Owner: Transco State: PA Sampling Point: W-T70-21001

Investigator(s): Zack Fink, Joseph Carlo Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.669341 Long: -75.744877 Datum: D_North_American_1983

Soil Map Unit Name: Volusia channery silt loam, 3 to 8 percent slopes, eroded NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No _____	**Is the Sampled Area within a Wetland?** **Yes ✔ No _____**
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland plot is roughly 1' lower in elevation than paired upland plot. Wetland is located in a fallows field. 3 boundaries, plot located in northeast boundary. Isolated, no connections to a waterway.

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 ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dry soils; however oxidized rhizospheres within living root channels present within top 6 inches of pit. Not regularly inundated.

VEGETATION – Use scientific names of plants. Sampling Point: W-T70-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5)			
1. Agrostis gigantea	35	Y	FACW
2. Juncus effusus	20	Y	OBL
3. Anthoxanthum odoratum	15	N	FACU
4. Carex vulpinoidea	8	N	OBL
5. Euthamia graminifolia	5	N	FAC
6. Dichanthelium clandestinum	5	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	88 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	28	x 1 =	28
FACW species	40	x 2 =	80
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	88 (A)		183 (B)

Prevalence Index = B/A = 2.08

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets vegetation indicators.

SOIL

Sampling Point: W-T70-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 5/2	90	7.5YR 6/6	10	C	M	L	
8-12	10YR 4/2	85	7.5YR 3/4	10	C	M/PL	CL	
			7.5YR 5/6	5	C	M/PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Meets hydric soil indicators.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/24/2016

Applicant/Owner: Transco State: PA Sampling Point: U-T70-21001

Investigator(s): Zack Fink, Joseph Carlo Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hilltop Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.669458 Long: -75.744906 Datum: D_North_American_1983

Soil Map Unit Name: Volusia channery silt loam, 3 to 8 percent slopes, eroded NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Pit is approximately 1' higher in elevation, relative to paired wetland pit within adjacent forest.

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 ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Does not meet hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: U-T70-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya ovata	65	Y	FACU
2. Carya tomentosa	30	Y	UPL
3. Acer saccharum	10	N	FACU
4.			
5.			
6.			
7.			
	105	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. Betula lenta	40	Y	FACU
2. Acer saccharum	15	N	FACU
3. Carya tomentosa	5	N	UPL
4.			
5.			
6.			
7.			
	60	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Carex gracillima	10	Y	FACU
2. Solidago rugosa	5	Y	FAC
3. Acer saccharum	5	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	145	x 4 =	580
UPL species	35	x 5 =	175
Column Totals:	185 (A)		770 (B)

Prevalence Index = B/A = 4.16

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

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

Does not meet vegetation indicators.

SOIL

Sampling Point: U-T70-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5	10YR 2/1							Organic
0.5-3	10YR 3/2	100					L	
3-8	10YR 4/3	100					L	
8-12	10YR 4/4	97	7.5YR 4/6	3	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Does not meet hydric soil indicators.

Wetland Function-Value Evaluation Form

Total area of wetland 0.24ac Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forested, agricultural Distance to nearest roadway or other development 600ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T70-21001

Latitude 41.66892 Longitude -75.74540

Prepared by: ZJF Date 6/24/16

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	☐	☒	5,15	☐	
Floodflow Alteration	☐	☒	2,3,7	☐	
Fish and Shellfish Habitat	☐	☒	1	☐	
Sediment/Toxicant Retention	☐	☒	4,5,7,9	☐	
Nutrient Removal	☐	☒	8,9	☐	
Production Export	☐	☒	1,4,7,12	☐	
Sediment/Shoreline Stabilization	☐	☒	2,5,15	☐	no nearby watercourse
Wildlife Habitat	☒	☐	1,3,4,5,7,8,10,13,17,19	☒	
Recreation	☐	☒	3,10	☐	
Educational/Scientific Value	☐	☒	2,8,10,13	☐	
Uniqueness/Heritage	☐	☒	9,10,16,17,19	☐	
Visual Quality/Aesthetics	☐	☒	5,7,9,10,11,12	☐	
ES Endangered Species Habitat	☐	☒		☐	
Other	☐	☐		☐	

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/24/2016 **Direction:** S **Position:** Overview



Date Collected: 06/24/2016 **Direction:** Down **Position:** Wetland



Date Collected: 06/24/2016 **Direction:** Down **Position:** Upland

WETLAND ID: W- T51-21004

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☑ **yes**

☐ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Associated Stream:

☐ **yes**

☑ **no**

If yes, list ID: ² ² -_____

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet):_____

Wetland Association to Stream

Is the wetland:

☐ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☐ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**

☐ **confined**

☐ **other, explain:_____**

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/22/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T51-21004

Investigator(s): Zack Fink, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.674441 Long: -75.743357 Datum: D_North_American_1983

Soil Map Unit Name: Volusia channery silt loam, 8 to 15 percent slopes, eroded NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔** **No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

PEM depression on hillslope in fallow field.

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 ✔	Depth (inches): ____
Water Table Present?	Yes ____	No ✔	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0-3

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation from 0-3" depth only.
Meets hydrology indicator.

VEGETATION – Use scientific names of plants. Sampling Point: W-T51-21004

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Carex vulpinoidea	30	Y	OBL
2. Scirpus atrovirens	10	N	OBL
3. Juncus effusus	10	N	OBL
4. Agrostis stolonifera	30	Y	FACW
5. Phalaris arundinacea	5	N	FACW
6. Carex tribuloides	5	N	FACW
7. Phleum pratense	10	N	FACU
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets hydrophytic vegetation indicators.

SOIL Sampling Point: W-T51-21004

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SiL	
2-14	10 YR 4/1	90	7.5 YR 4/6	3	C	M	SiL	
2-14			7.5 YR 3/4	7	C	M		redox also in PL
14-16	2.5 Y 5/2	80	7.5 YR 3/4	10	C	M	CL	
14-16			7.5 YR 4/6	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Meets hydric soil indicator.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/22/2015

Applicant/Owner: Transco State: PA Sampling Point: U-T51-21004

Investigator(s): Zack Fink, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.67447 Long: -75.743267 Datum: D_North_American_1983

Soil Map Unit Name: Volusia channery silt loam, 8 to 15 percent slopes, eroded NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Plot is located on a hillslope downslope from the wetland depression. Paired with W-T51-21004.

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 ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Does not meet hydrology indicators.
Well-drained slope outside of wetland depression. Dry.

VEGETATION – Use scientific names of plants. Sampling Point: U-T51-21004

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Rosa multiflora	2	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	2 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Phleum pratense	25	Y	FACU
2. Bromus inermis	25	Y	UPL
3. Dactylis glomerata	25	Y	FACU
4. Lolium perenne	5	N	FACU
5. Agrostis stolonifera	15	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

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 (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	62	x 4 =	248
UPL species	25	x 5 =	125
Column Totals:	102 (A)		403 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

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

Clear shift in emergen vegetation from wetland to upland plot. Sedges and rushes reduced.
Does not meet hydrophytic vegetation indicator.

SOIL

Sampling Point: U-T51-21004

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 3/2	100					L	
14-16	2.5 Y 5/3	88	7.5 YR 4/4	2	C	M	CL	
14-16			10 YR 3/2	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Does not meet hydric soil indicator.

Wetland Function-Value Evaluation Form

Total area of wetland 0.40ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Falow agriculture, forested Distance to nearest roadway or other development 400ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? N/A

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

Wetland I.D. W-T51-21004

Latitude 41.67438 Longitude -75.74353

Prepared by: ZJF Date 7/22/2015

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		5,10,13		Intermittent discharge
Floodflow Alteration		X	3,5,15,18		On slope
Fish and Shellfish Habitat		X	1		
Sediment/Toxicant Retention		X	4,7,9		
Nutrient Removal		X	5,7,8,9,11		
Production Export		X	1,7,10		
Sediment/Shoreline Stabilization		X			Isolated
Wildlife Habitat	X		3,4,5,7,8,10,13,18	X	
Recreation		X	3,4,10,11		
Educational/Scientific Value		X	10,11,14		
Uniqueness/Heritage		X	17,19		
Visual Quality/Aesthetics		X	9,10,11,12		
ES Endangered Species Habitat		X			
Other					

Notes:
Isolated PEM in field on slope

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 07/22/2015 **Direction:** SW **Position:** Overview



Date Collected: 07/22/2015 **Direction:** N **Position:** Wetland



Date Collected: 07/22/2015 **Direction:** N **Position:** Upland

WETLAND ID: W- T51-21003

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

- ☐ **yes**
- ☑ **no**
- ☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

abutts stream WW-T50-21001

Associated Stream:

- ☑ **yes**
- ☐ **no**

If yes, list ID: ² ² - T50-21001

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

- ☑ **directly abutting**
- ☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

- ☐ **Discrete wetland hydrologic connection**
- ☐ **Ecological connection**
- ☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

- ☐ **intermittent surface**
- ☐ **ephemeral surface**
- ☑ **perennial surface**
- ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

- ☑ **discrete**
- ☐ **overland sheet flow**
- ☐ **confined**
- ☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/22/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T51-21003

Investigator(s): Zack Fink, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.675518 Long: -75.742382 Datum: D_North_American_1983

Soil Map Unit Name: Wyalusing silt loam NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔** **No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Riparian PEM in forested area. Some groundwater seepage occurs along the right bank of the stream, mostly between TOB and OHWM

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 ____	Depth (inches): 0.5
Water Table Present?	Yes ✔	No ____	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: W-T51-21003

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Rosa multiflora	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Carex stricta	20	Y	OBL
2. Impatiens capensis	15	Y	FACW
3. Glyceria striata	7	N	OBL
4. Persicaria sagittata	3	N	OBL
5. Dryopteris intermedia	3	N	FAC
6. Cinna arundinacea	3	N	FACW
7. Pilea pumila	3	N	FACW
8. Solidago rugosa	3	N	FAC
9. Osmundastrum cinnamomeum	10	N	FACW
10.			
11.			
12.			
	67 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets hydrophytic vegetation indicators.

SOIL

Sampling Point: W-T51-21003

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/1	100					SL	
12-15	10 YR 3/1	97	5G 5/2	3	D	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✔ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

Rock refusal at 15".
Meets hydric soil indicators.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/22/2015

Applicant/Owner: Transco State: PA Sampling Point: U-T51-21003

Investigator(s): Zack Fink, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 6

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.675539 Long: -75.742462 Datum: D_North_American_1983

Soil Map Unit Name: Wyalusing silt loam NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Plot is located on hillslope above stream and wetland. Approx 5ft above stream. Just downslope from plot is an area of groundwater seepage where the wetland extends up the slope/stream bank.

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 ✔	Depth (inches): ____
Water Table Present?	Yes ____	No ✔	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✔	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Approx. 3ft upslope from wetland boundary and outside area of hillside seepage.
Does not meet hydrology indicator.

VEGETATION – Use scientific names of plants. Sampling Point: U-T51-21003

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharum	70	Y	FACU
2. Prunus serotina	20	Y	FACU
3. Fraxinus americana	5	N	FACU
4.			
5.			
6.			
7.			
	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. Rosa multiflora	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	
Herb Stratum (Plot size: 5)			
1. Polystichum acrostichoides	5	Y	FACU
2. Cinna arundinacea	5	Y	FACW
3. Toxicodendron radicans	5	Y	FAC
4. Maianthemum racemosum	5	Y	FACU
5. Viola sp.	4	N	
6. Dryopteris intermedia	3	N	FAC
7. Onoclea sensibilis	3	N	FACW
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 29 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	8	x 3 =	24
FACU species	110	x 4 =	440
UPL species	0	x 5 =	0
Column Totals:	126 (A)		480 (B)

Prevalence Index = B/A = 3.81

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

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

Approx 70% bare ground. Does not meet hydrophytic vegetation indicators.

SOIL

Sampling Point: U-T51-21003

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 12". Dry.
Does not meet hydric soil indicators.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, Fallow Field Distance to nearest roadway or other development 150ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T51-21003

Latitude 41.67571 Longitude -75.74239

Prepared by: ZJF Date 7/22/2015

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,4,5,6,7,13,15	X	Seepage out of R stream bank
Floodflow Alteration	X		5,13,14,16,18		minor effect
Fish and Shellfish Habitat	X		1,4,7,8,10,11,14,15,16,17		
Sediment/Toxicant Retention		X	4,10,11,16		fringe along stream within TOB
Nutrient Removal		X	3,4,5,8,9,12		
Production Export		X	1,4,6,10,12		
Sediment/Shoreline Stabilization		X	1,2,6,8,9,12,13,15		
Wildlife Habitat	X		3,4,5,6,7,8,13,17,19		
Recreation	X		3,4,6,11		Part of a hunt club
Educational/Scientific Value		X	2,4,8,11,14		
Uniqueness/Heritage		X	7,9,11,14,16,17,18,22,23		
Visual Quality/Aesthetics		X	6,7,9,10,11,12		
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 07/22/2015 **Direction:** S **Position:** Overview



Date Collected: 07/22/2015 **Direction:** N **Position:** Wetland



Date Collected: 07/22/2015 **Direction:** N **Position:** Upland

WETLAND ID: W- T64-21001

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

adjacent or abutting pond outside the SA

Associated Stream:

☐ **yes**

☑ **no**

If yes, list ID: ² ² -_____

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet):_____

Wetland Association to Stream

Is the wetland:

☐ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☐ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**

☐ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 11/05/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T64-21001

Investigator(s): Evan Sheppard, Pat Sharpe Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2-3

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.678988 Long: -75.738812 Datum: D_North_American_1983

Soil Map Unit Name: Wellsboro channery silt loam, 3 to 8 percent slopes, moderately eroded NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland located in a maintained field on a hillslope. Two polygons of this wetland are divided by a tree line / rock wall. Hydrology source appears to be from groundwater discharge on a perched system. Flows outside study area towards a large pond.

Photos: img109-0325.jpg / down (SE), overview img109-0324.jpg / SE

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 ✔	Depth (inches): ____
Water Table Present?	Yes ____	No ✔	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✔	Depth (inches): ____

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No water at time of survey. Meets primary and secondary indicators of hydrology. Does not meet shallow aquitard due to depth of restrictive layer greater than 12 inches.

VEGETATION – Use scientific names of plants. Sampling Point: W-T64-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Phalaris arundinacea	60	Y	FACW
2. Trifolium repens	5	N	FACU
3. Ranunculus arvensis	15	N	FAC
4. Carex vulpinoidea	35	Y	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets vegetation indicators.

SOIL

Sampling Point: W-T64-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 3/2	90	7.5 YR 4/6	10	C	M/PL	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: bedrock

Depth (inches): 14

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

shallow bedrock observed at 14". Meet soil wetland indicators F3 and F6.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 11/05/2015

Applicant/Owner: Transco State: PA Sampling Point: U-T64-21001

Investigator(s): Evan Sheppard, Pat Sharpe Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2-3

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.678996 Long: -75.738946 Datum: D_North_American_1983

Soil Map Unit Name: Wellsboro channery silt loam, 3 to 8 percent slopes, moderately eroded NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Upland pit located 30 feet NW of wetland pit, 1.5 feet upslope in a field. Delineation completed outside of growing season.

Photo: IMG109_0326.jpg SE

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 ✔	Depth (inches): ____
Water Table Present?	Yes ____	No ✔	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✔	Depth (inches): ____

Wetland Hydrology Present? Yes ____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Does not meet hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: U-T64-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	25	Y	FAC
2. Pinus strobus	15	Y	FACU
3.			
4.			
5.			
6.			
7.			
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Poa pratensis	80	Y	FACU
2. Trifolium repens	35	Y	FACU
3. Plantago lanceolata	10	N	FACU
4. Galium triflorum	10	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	135	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	150	x 4 =	600
UPL species	0	x 5 =	0
Column Totals:	175 (A)		675 (B)

Prevalence Index = B/A = 3.86

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✔

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

Does not meet vegetation indicators.

SOIL

Sampling Point: U-T64-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5YR 3/2	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 16"

Wetland Function-Value Evaluation Form

Total area of wetland 0.24ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Field Distance to nearest roadway or other development 403ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

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

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

Wetland I.D. W-T64-21001

Latitude 41.67917 Longitude -75.73892

Prepared by: ECS Date 11/6/2015

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

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

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 11/05/2015 **Direction:** SE **Position:** Overview



Date Collected: 11/05/2015 **Direction:** Down **Position:** Wetland



Date Collected: 11/05/2015 **Direction:** Down **Position:** Upland

WETLAND ID: W- T50-21001

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

abutting stream WW-T50-21002, Millard Creek

Associated Stream:

☑ **yes**

☐ **no**

If yes, list ID: ² ² - T50-21002

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

☑ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☑ **intermittent surface** ☐ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☑ **overland sheet flow**

☐ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/01/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T50-21001

Investigator(s): Paul Fisher, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.681337 Long: -75.732866 Datum: D_North_American_1983

Soil Map Unit Name: Mixed alluvial land NWI classification: PFO

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Abuts Millard Creek. PFO, depressional.
Photos:
pit- DSCN-0530 (W)
overall- DSCN-0531 (NE)

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 ✔	Depth (inches): ____
Water Table Present?	Yes ✔	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water filled the test pit. Saturated to the soil surface.
Meets hydrology indicator.

VEGETATION – Use scientific names of plants. Sampling Point: W-T50-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	100	Y	FAC
2. Acer rubrum	20	N	FAC
3.			
4.			
5.			
6.			
7.			
	120	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Laportea canadensis	60	Y	FACW
2. Impatiens capensis	40	Y	FACW
3. Carex stricta	10	N	OBL
4. Carex lurida	5	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	115	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Eastern hemlock indicator status was changed to FAC for presence of buttressed roots as morphological adaptations. Meets vegetation indicator.

SOIL

Sampling Point: W-T50-21001

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10 YR 4/1	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✔ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

Saturated soil.
Meets soil indicator.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/01/2015

Applicant/Owner: Transco State: PA Sampling Point: U-T50-21001

Investigator(s): Paul Fisher, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10-15

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.681329 Long: -75.73296 Datum: D_North_American_1983

Soil Map Unit Name: Mixed alluvial land NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No _____	**Is the Sampled Area within a Wetland?** **Yes ✔** **No _____**
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Upland data point for W_T50-21001. Pit dug near an old fence line.
Photos:
overall- DSCN-0537 (E)
pit- DSCN-0535 (N)

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 ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dry soil. Does not meet hydrology indicator.

VEGETATION – Use scientific names of plants. Sampling Point: U-T50-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	100	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. Fagus grandifolia	20	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	20	= Total Cover	
Herb Stratum (Plot size: 5)			
1. Dennstaedtia punctilobula	60	Y	UPL
2. Trifolium repens	15	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

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 (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	135	x 4 =	540
UPL species	60	x 5 =	300
Column Totals:	195 (A)		840 (B)

Prevalence Index = B/A = 4.31

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Does not meet vegetation indicator.

SOIL

Sampling Point: U-T50-21001

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10 YR 2/1	100					organic d	
2-10	10 YR 4/3	100					SIL	
10-18	10 YR 5/3	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Does not meet soil indicator.
Lots of roots in the soil, very dry, even with rain events.

Wetland Function-Value Evaluation Form

Total area of wetland 0.06ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 250ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T50-21001

Latitude 41.686146 Longitude -75.73277

Prepared by: PF Date 6/30/2015

Wetland Impact:
Type PFO Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		1,2,5,7,9		wetland abuts Millard Creek
Floodflow Alteration	X		9,10,13		wetland receives seasonal flow from Millard Creek
Fish and Shellfish Habitat	X		1,7,11		Millard Creek abuts wetland has potential for fish
Sediment/Toxicant Retention	X		6,9,10,13		
Nutrient Removal		X	5,14		
Production Export		X	1,4		
Sediment/Shoreline Stabilization		X	2		
Wildlife Habitat	X		1,3,4,5,7,8,16,17,18	X	Wetland is good for a variety of wildlife habitat
Recreation	X		4,6,8,10,12		Wetland is suitable for recreation
Educational/Scientific Value	X		2,4,11,13,14		Wetland has educational / scientific value
Uniqueness/Heritage	X		8,16,17,19,22,23	X	stone walls absent form wetland
Visual Quality/Aesthetics		X	5,7,9		
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 07/01/2015 **Direction:** NE **Position:** Overview



Date Collected: 07/01/2015 **Direction:** N **Position:** Wetland



Date Collected: 07/01/2015 **Direction:** N **Position:** Upland

WETLAND ID: W- T50-21002

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

- ☐ **yes**
- ☑ **no**
- ☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Adjacent to WW-T50-12002 and WW-T50-21003

Associated Stream:

- ☑ **yes**
- ☐ **no**

If yes, list ID: ² ² - T50-21002

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 30

Wetland Association to Stream

Is the wetland:

- ☐ **directly abutting**
- ☑ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

- ☐ **Discrete wetland hydrologic connection**
- ☑ **Ecological connection**
- ☑ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

- ☐ **intermittent surface** ☐ **ephemeral surface**
- ☐ **perennial surface** ☑ **no surface flow**

Surface flow characteristic from wetland to associated stream:

- ☐ **discrete** ☐ **overland sheet flow**
- ☑ **confined**
- ☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/01/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T50-21002

Investigator(s): Paul Fisher, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.681781 Long: -75.732922 Datum: D_North_American_1983

Soil Map Unit Name: Mixed alluvial land NWI classification: PFO

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Floodplain wetland, no surface connection to adjacent stream channel.
Photos:
overall- DSCN-0539 (S)
pit- DSCN-0538 (S)

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 ____	Depth (inches): +3
Water Table Present?	Yes ✔	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Oxidized rhizosphere present throughout soil profile.
Meets hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: W-T50-21002

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Impatiens capensis	60	Y	FACW
2. Pilea pumila	30	Y	FACW
3. Dennstaedtia punctilobula	15	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Hay-scented fern located at the edge of the wetland area. Indicator status for hemlock changed to FAC due to presence of morphological adaptations.
30% cover Sphagnum sp.
Meets vegetation indicator.

SOIL

Sampling Point: W-T50-21002

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/1	98	10 YR 4/6	2	C	M	SIL	redox also in PL
3-16	10 YR 3/1	95	10 YR 5/8	5	C	M	SaL	redox also in PL

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

Meets soil indicator.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/01/2015

Applicant/Owner: Transco State: PA Sampling Point: U-T50-21002

Investigator(s): Paul Fisher, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.681763 Long: -75.732887 Datum: D_North_American_1983

Soil Map Unit Name: Mixed alluvial land NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Upland point for W-T50-21002.
Pit photo: DSCN-0540 (W)

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 ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Does not meet hydrology indicator.

VEGETATION – Use scientific names of plants. Sampling Point: U-T50-21002

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	100	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	100 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5)			
1. Dennstaedtia punctilobula	60	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

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 (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	100	x 4 =	400
UPL species	60	x 5 =	300
Column Totals:	160 (A)		700 (B)

Prevalence Index = B/A = 4.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

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

Does not meet vegetation indicator.

SOIL

Sampling Point: U-T50-21002

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10 YR 2/1	100					organic d	
2-4	10 YR 3/2	100					SaL	
4-10	10 YR 4/3	100					SaL	
10-16	10 YR 4/6	100					SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Does not meet soil indicator.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 250ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? N/A

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

Wetland I.D. W-T50-21002

Latitude 41.68177 Longitude -7573294

Prepared by: PF Date 6/30/2015

Wetland Impact:
Type PFO Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		1,2,5		
Floodflow Alteration	X		9,10,13		adjacent but not abutting stream channel
Fish and Shellfish Habitat		X	1,11		intermittent channel adjacent to wetland
Sediment/Toxicant Retention	X		6,9,10,13		wetland is isolated, may receive flow during flooding events
Nutrient Removal		X	5,14		
Production Export		X	1,4		Animal tracks observed
Sediment/Shoreline Stabilization		X	4		Relatively flat wetland gradient
Wildlife Habitat	X		1,3,4,5,7,8,16,17,18	X	good wildlife habitat exists in wetland area
Recreation	X		4,6,10,12		wetland is suitable for recreation
Educational/Scientific Value	X		2,4,11,13,14		wetland has educational / scientific value
Uniqueness/Heritage	X		16,17,19,22		Millard Creek approx 50 yards away
Visual Quality/Aesthetics		X	5,7,9		
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 07/01/2015 **Direction:** E **Position:** Overview



Date Collected: 07/01/2015 **Direction:** N **Position:** Wetland



Date Collected: 07/01/2015 **Direction:** W **Position:** Upland

WETLAND ID: W- T50-21003

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

- ☐ **yes**
- ☑ **no**
- ☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Abuts streams WW-T50-21003 and WW-T50-21003A

Associated Stream:

- ☑ **yes**
- ☐ **no**

If yes, list ID: ² ² - T50-21002

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 50

Wetland Association to Stream

Is the wetland:

- ☐ **directly abutting**
- ☑ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

- ☐ **Discrete wetland hydrologic connection**
- ☐ **Ecological connection**
- ☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

- ☑ **intermittent surface**
- ☐ **ephemeral surface**
- ☐ **perennial surface**
- ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

- ☐ **discrete**
- ☑ **overland sheet flow**
- ☐ **confined**
- ☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/01/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T50-21003

Investigator(s): Paul Fisher, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.6821 Long: -75.732995 Datum: D_North_American_1983

Soil Map Unit Name: Mixed alluvial land NWI classification: PFO

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland contains streams WW-T50-21003 and WW-T50-21003A.
Photos:
overall- 012.jpg (NE)
pit- 011.jpg (NE)

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 ✔	Depth (inches): ____
Water Table Present?	Yes ____	No ✔	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 2

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets hydrology indicator.

VEGETATION – Use scientific names of plants. Sampling Point: W-T50-21003

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	70	Y	FACU
2. Betula alleghaniensis	30	Y	FAC
3.			
4.			
5.			
6.			
7.			
	100	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Impatiens capensis	40	Y	FACW
2. Laportea canadensis	25	Y	FACW
3. Carex striata	15	N	OBL
4. Pilea pumila	15	N	FACW
5. Onoclea sensibilis	5	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets vegetation indicator.

SOIL

Sampling Point: W-T50-21003

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 4/2	95	10 YR 5/8	5	C	M	SiL	redox also in PL

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Meets soil indicator.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/01/2015

Applicant/Owner: Transco State: PA Sampling Point: U-T50-21003

Investigator(s): Paul Fisher, Jordan Skrzynski Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.682168 Long: -75.733062 Datum: D_North_American_1983

Soil Map Unit Name: Mixed alluvial land NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

On berm in floodplain. Paired with W-T50-21003.
Pit photo- 010.jpg (N)

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 ✔	Depth (inches): ____
Water Table Present?	Yes ____	No ✔	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✔	Depth (inches): ____

Wetland Hydrology Present? Yes ____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Does not meet hydrology indicator.

VEGETATION – Use scientific names of plants. Sampling Point: U-T50-21003

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	100	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	100 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5)			
1. Dennstaedtia punctilobula	40	Y	UPL
2. Trifolium repens	5	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

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 (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	105	x 4 =	420
UPL species	40	x 5 =	200
Column Totals:	145 (A)		620 (B)

Prevalence Index = B/A = 4.28

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

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

Does not meet vegetation indicator.

SOIL

Sampling Point: U-T50-21003

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10 YR 2/1	100					SL	
2-16	10 YR 4/6	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Very rooted, dry soil.
Does not meet soil indicator.

Wetland Function-Value Evaluation Form

Total area of wetland 0.10ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 250ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T50-21003

Latitude 41.68213 Longitude -75.73300

Prepared by: PF Date 7/1/2015

Wetland Impact:
Type PFO Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		1,2,5,7		
Floodflow Alteration	X		9,13,16		abuts intermittent channel
Fish and Shellfish Habitat		X	1,11		abuts intermittent channel no fish
Sediment/Toxicant Retention	X		6,9,10,13		wetland abuts intermittent channel
Nutrient Removal		X	5,14		
Production Export		X	1,4		
Sediment/Shoreline Stabilization		X	2,4		wetland abuts intermittent stream channel
Wildlife Habitat	X		1,3,4,5,7,8,16,17,18	X	wildlife inhabit existing wetland
Recreation		X	4,6,12		
Educational/Scientific Value		X	2,4,13		
Uniqueness/Heritage	X		16,17,19,22		
Visual Quality/Aesthetics		X	5,7,9		
ES Endangered Species Habitat					
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 07/01/2015 **Direction:** NE **Position:** Overview



Date Collected: 07/01/2015 **Direction:** N **Position:** Wetland



Date Collected: 07/01/2015 **Direction:** N **Position:** Upland

WETLAND ID: W- T12-21007A

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Connects to WW-T12-21006 and WW-T12-21006A.

Associated Stream:

☑ **yes**

☐ **no**

If yes, list ID: WW- T12-21006A

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

☑ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☐ **ephemeral surface**

☑ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☑ **discrete** ☐ **overland sheet flow**

☐ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND ID: W- T12-21007C

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

- ☐ **yes**
- ☑ **no**
- ☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Connects to WW-T12-21006A.

Associated Stream:

- ☑ **yes**
- ☐ **no**

If yes, list ID: WW- T12-21006A

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

- ☑ **directly abutting**
- ☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

- ☐ **Discrete wetland hydrologic connection**
- ☐ **Ecological connection**
- ☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

- ☐ **intermittent surface**
- ☐ **ephemeral surface**
- ☑ **perennial surface**
- ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

- ☑ **discrete**
- ☐ **overland sheet flow**
- ☐ **confined**
- ☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/25/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21007A

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.684949 Long: -75.730404 Datum: D_North_American_1983

Soil Map Unit Name: Mardin very stony silt loam, 8 to 25 percent slopes NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No ____	**Is the Sampled Area within a Wetland?** **Yes ✓ No ____**
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ____	Depth (inches): 0.5	
Water Table Present?	Yes ✓	No ____	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0	**Wetland Hydrology Present? Yes ✓ No ____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21007A

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Carex stricta	70	Y	OBL
2. Osmundastrum cinnamomeum	5	N	FACW
3. Rosa multiflora	5	N	FACU
4. Athyrium angustum	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

SOIL

Sampling Point: W-T12-21007

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	90	10YR 4/3	10	C	M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Rock refusal at 10 inches.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/25/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21007C

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10

Subregion (LRR or MLRA): LRR R (Excluding MLRA 4 Lat: 41.685766 Long: -75.728678 Datum: D_North_American_1983

Soil Map Unit Name: Volusia flaggy silt loam, 3 to 8 percent slopes NWI classification: PFO

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No ____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** ____
Hydric Soil Present?	Yes ✓	No ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21007C

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus nigra	35	Y	FACW
2. Tsuga canadensis	25	Y	FAC
3.			
4.			
5.			
6.			
7.			
	60	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Symphyotrichum novae-angliae	60	Y	FACW
2. Onoclea sensibilis	20	Y	FACW
3. Carex lurida	5	N	OBL
4. Impatiens capensis	5	N	FACW
5. Osmundastrum cinnamomeum	5	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

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

Tsuga canadensis morphologically adapted with shallow root systems.

SOIL

Sampling Point: W-T12-210076

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/1	92	7.5YR 4/6	8	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Rock refusal at 6 inches.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/25/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T12-21007

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.685894 Long: -75.728719 Datum: D_North_American_1983

Soil Map Unit Name: Volusia flaggy silt loam, 3 to 8 percent slopes NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Rock encountered at 4 inches. Saturation and water table not present in pit.

VEGETATION – Use scientific names of plants. Sampling Point: U-T12-21007

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	90	Y	FACU
2. Acer saccharum	25	Y	FACU
3. Acer rubrum	10	N	FAC
4.			
5.			
6.			
7.			
	125	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. Acer saccharum	10	Y	FACU
2. Rosa multiflora	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
	15	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Impatiens capensis	40	Y	FACW
2. Athyrium angustum	30	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	40	x 3 =	120
FACU species	130	x 4 =	520
UPL species	0	x 5 =	0
Column Totals:	210 (A)		720 (B)

Prevalence Index = B/A = 3.43

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

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

SOIL

Sampling Point: U-T12-21007

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2		100					Organic	
2-4	7.5YR 2.5/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 4 inches.

Wetland Function-Value Evaluation Form

Total area of wetland 1.10ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture, Forest Distance to nearest roadway or other development 550ft

Dominant wetland systems present PEM, PFO Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T12-21007

Latitude 41.68313 Longitude -75.73079

Prepared by: DH Date 6/28/2014

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,6,7		wetland follows stream course downhill
Floodflow Alteration	X		3,5,8,9,10,13,14	X	wetland contains hydric soils because it's a wetland, follows stream course downhill
Fish and Shellfish Habitat	X		1,4,14,17		Watershed above wetland is forested, stream course has defined channel
Sediment/Toxicant Retention	X		1,2,4,9,10,14		wetland follows stream course downhill
Nutrient Removal	X		3,4,7,12		potential to trap sediment exists, farmland and mowed fields above wetland
Production Export	X		4,12		animal signs / tracks present in wetland
Sediment/Shoreline Stabilization	X		2,3,4,9		wetland on slope following stream, streams contain defined channel
Wildlife Habitat	X		4,5,7,8,17,19,20,21	X	wetland area contained numerous insects, various animal tracks and signs present
Recreation	X		3,4		hunting permitted on private lands
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics	X		11		No unpleasant odors present
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/25/2014 **Direction:** S **Position:** Wetland (PFO)



Date Collected: 06/25/2014 **Direction:** W **Position:** Upland



Date Collected: 06/25/2014 **Direction:** E **Position:** Wetland (PEM)

WETLAND ID: W- T12-21008

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Connects to WW-T12-21007 through DD-T12-004.

Associated Stream:

☑ **yes**

☐ **no**

If yes, list ID: WW- T12-21007

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 110

Wetland Association to Stream

Is the wetland:

☐ **directly abutting**

☑ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☑ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Connected through DD-T12-004.

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☑ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**

☑ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/26/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21008

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2-4

Subregion (LRR or MLRA): LRR R (Excluding MLRA 143) Lat: 41.690954 Long: -75.720632 Datum: D_North_American_1983

Soil Map Unit Name: Lordstown and Oquaga very stony silt loams, 12 to 30 percent slopes NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔ No ____ Hydric Soil Present? Yes ✔ No ____ Wetland Hydrology Present? Yes ✔ No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____** If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✔ Depth (inches): ____

Water Table Present? Yes ____ No ✔ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ✔ No ____ Depth (inches): 8

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21008

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Lindera benzoin	7	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	7 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Symphyotrichum novae-angliae	70	Y	FACW
2. Impatiens capensis	40	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Fraxinus nigra and Crataegus crus-galli are present along the margins of the wetland and are rooted outside the wetland boundary.

SOIL

Sampling Point: W-T12-21008

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/2	100					L	
4-12	7.5YR 4/1	70	7.5YR 3/2	30	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/26/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T12-21008

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.690931 Long: -75.720455 Datum: D_North_American_1983

Soil Map Unit Name: Lordstown and Oquaga very stony silt loams, 12 to 30 percent slo NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Rock encountered at 4 inches. No saturation or water table in pit.

VEGETATION – Use scientific names of plants. Sampling Point: U-T12-21008

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Y	FAC
2. Ulmus rubra	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. Fraxinus americana	30	Y	FACU
2. Ulmus rubra	15	Y	FAC
3. Carya ovalis	8	N	FACU
4.			
5.			
6.			
7.			
	53	= Total Cover	
Herb Stratum (Plot size: 5)			
1. Athyrium angustum	20	Y	FAC
2. Ulmus rubra	5	N	FAC
3. Symphyotrichum laeve	3	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	28	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

SOIL

Sampling Point: U-T12-21008

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/4	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 4 inches.

Wetland Function-Value Evaluation Form

Total area of wetland 0.10ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 740ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T12-21008

Latitude 41.69094 Longitude -75.72062

Prepared by: DH Date 6/28/2014

Wetland Impact:
Type PFO Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

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

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/26/2014 **Direction:** NW **Position:** Wetland



Date Collected: 06/26/2014 **Direction:** E **Position:** Upland

WETLAND ID: W- T12-21009A

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

- ☐ **yes**
- ☑ **no**
- ☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Connects to WW-T12-21008, WW-T12-21009, and WW-T12-21009A.

Associated Stream:

- ☑ **yes**
- ☐ **no**

If yes, list ID: WW- T12-21009A

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

- ☑ **directly abutting**
- ☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

- ☐ **Discrete wetland hydrologic connection**
- ☐ **Ecological connection**
- ☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

- ☑ **intermittent surface**
- ☐ **ephemeral surface**
- ☐ **perennial surface**
- ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

- ☐ **discrete**
- ☐ **overland sheet flow**
- ☑ **confined**
- ☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/26/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21009A

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.694842 Long: -75.718849 Datum: D_North_American_1983

Soil Map Unit Name: Volusia channery silt loam, 3 to 8 percent slopes, eroded NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No ____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** ____
Hydric Soil Present?	Yes ✓	No ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21009A

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus rubra	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Populus tremuloides	3	N	FACU
2. Crataegus crus-galli	3	N	FAC
3.			
4.			
5.			
6.			
7.			
	6 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Symphyotrichum novae-angliae	60	Y	FACW
2. Rubus pubescens	20	Y	FACW
3. Onoclea sensibilis	5	N	FACW
4. Rosa multiflora	5	N	FACU
5. Populus tremuloides	3	N	FACU
6. Toxicodendron radicans	3	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	96 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

SOIL

Sampling Point: W-T12-21009A

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	98	7.5YR 4/6	2	C	M	SiL	
6-14	10YR 4/2	85	7.5YR 4/6	15	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/05/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21009B

Investigator(s): Zack Fink, Sarah Craig Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): LRR R (MLRA 140) Lat: 41.695662 Long: -75.718095 Datum: D_North_American_1983

Soil Map Unit Name: Volusia flaggy silt loam, 8-15% slopes NWI classification: PSS

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Plot is located in the center portion of the wetland on a terrace above stream WW-T12-21009A. The majority of the PSS area of this wetland complex is marginal, but wetland, and this plot is representative.

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 ✔	Depth (inches): ____
Water Table Present?	Yes ✔	No ____	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 8-14

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The PSS portion of this wetland receives hydrology inputs from the west through small streams, swales and drainages. Most of these follow/cross the perimeter of the boundary on route to WW-T12-21009A, leaving the interior and majority fo the PSS fairly well drained and marginal. This true for all three wetland criteria.

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21009B

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Spiraea alba	70	Y	FACW
2. Rosa multiflora	10	N	FACU
3.			
4.			
5.			
6.			
7.			
	80 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Solidago gigantea	60	Y	FACW
2. Carex vulpinoidea	10	N	OBL
3. Scirpus atrovirens	5	N	OBL
4. Carex blanda	5	N	FAC
5. Anthoxanthum odoratum	5	N	FACU
6. Asclepias syriaca	5	N	UPL
7. Solidago rugosa	5	N	FAC
8.			
9.			
10.			
11.			
12.			
	93 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	130	x 2 =	260
FAC species	10	x 3 =	30
FACU species	15	x 4 =	60
UPL species	5	x 5 =	25
Column Totals:	175 (A)		390 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

The prevalence index is more representative of the community in this case.

SOIL

Sampling Point: W-T12-21009B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 3/3	100					SIL	
8-14	7.5YR 4/2	80	7.5YR 4/6	8	C	M	CL	
			7.5YR 4/4	7	C	M		
			N 2.5/	5	C	M		manganese

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

meets soil indicators

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/26/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T12-21009C

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.69495 Long: -75.71838 Datum: D_North_American_1983

Soil Map Unit Name: Volusia flaggy silt loam, 8 to 15 percent slopes NWI classification: PFO

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No ____	**Is the Sampled Area within a Wetland?** **Yes ✓ No ____**
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-T12-21009C

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	90	Y	FACU
2. Carpinus caroliniana	25	Y	FAC
3. Acer rubrum	15	N	FAC
4.			
5.			
6.			
7.			
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. Crataegus crus-galli	10	Y	FAC
2. Ulmus rubra	5	Y	FAC
3. Acer rubrum	2	N	FAC
4.			
5.			
6.			
7.			
	17	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Impatiens capensis	60	Y	FACW
2. Symphyotrichum novae-angliae	15	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

SOIL

Sampling Point: W-T12-210096

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/2	98	7.5YR 4/4	2	C	M	SiL	
6-14	7.5YR 4/6	75	7.5YR 4/2	25	D	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/26/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T12-21009

Investigator(s): Ethan Virts, Dan Herrera Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR or MLRA): LRR R (Excluding MLRA Lat: 41.695007 Long: -75.718609 Datum: D_North_American_1983

Soil Map Unit Name: Volusia channery silt loam, 3 to 8 percent slopes, eroded NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

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 ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: U-T12-21009

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	70	Y	FACU
2. Acer saccharum	20	Y	FACU
3.			
4.			
5.			
6.			
7.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. Acer saccharum	15	Y	FACU
2. Carya ovalis	5	N	FACU
3. Tilia americana	3	N	FACU
4. Ulmus rubra	3	N	FAC
5.			
6.			
7.			
	26	= Total Cover	
Herb Stratum (Plot size: 5)			
1. Smilax rotundifolia	3	N	FAC
2. Ulmus rubra	3	N	FAC
3. Parthenocissus quinquefolia	3	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	9	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	9	x 3 =	27
FACU species	116	x 4 =	464
UPL species	0	x 5 =	0
Column Totals:	125 (A)		491 (B)

Prevalence Index = B/A = 3.93

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✓

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

SOIL

Sampling Point: U-T12-21009

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					L	
4-12	7.5YR 4/3	95	7.5YR 4/6	5	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 3.4ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, field Distance to nearest roadway or other development 600ft

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

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

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

Wetland I.D. W-T12-21009

Latitude 41.69417 Longitude -75.71943

Prepared by: DH Date 6/28/2014

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,7		Potential exists for private wells downstream, wetland flows into stream
Floodflow Alteration	X		5,6,8,9,10	X	wetland can retain excess water during flood
Fish and Shellfish Habitat	X		1,2,7,8,9,10,11,14,16,17		Area above watercourse forested
Sediment/Toxicant Retention	X		1,2,3,4,10,14		wetland down slope from agriculture fields, wetland associated with stream course
Nutrient Removal	X		3,4,7,12		wetland down slope from agriculture fields, overall potential for sediment trapping in wetland
Production Export	X		1,3,4,12		Cattle pasture present in wetland, wildlife food sources exist in wetland
Sediment/Shoreline Stabilization	X		2,3,4,9		Agriculture fields exist upslope of wetland, wetland in sloped area along stream
Wildlife Habitat	X		1,3,5,6,7,8,17,19,20,21	X	numerous birds present in wetland, wetland is contiguous with other wetlands along watercourse
Recreation	X		2,3,4,5		hunting permitted on private land
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/26/2014 **Direction:** NE **Position:** Wetland



Date Collected: 06/26/2014 **Direction:** E **Position:** Wetland



Date Collected: 06/26/2014 **Direction:** E **Position:** Upland

WETLAND ID: W- T48-21002

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

abutting stream outside survey corridor

Associated Stream:

☐ **yes**

☑ **no**

If yes, list ID: ² ² -_____

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet):_____

Wetland Association to Stream

Is the wetland:

☐ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☐ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**

☐ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/29/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T48-21002A

Investigator(s): Evan Sheppard, Jacob Gromiller Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 4

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.702544 Long: -75.714879 Datum: D_North_American_1983

Soil Map Unit Name: Wellsboro flaggy silt loam, 8 to 15 percent slopes, moderately eroc NWI classification: PEM

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

Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Seep/spring-fed wetland throughout active pasture. Vegetation and soil disturbed by grazing.
Photos:
overall- 103-0153 (NW)
pit- 103-0152 (NW)

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 ____	Depth (inches): +2
Water Table Present?	Yes ✔	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: W-T48-21002A

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Rosa multiflora	6	Y	FACU
2. Cornus racemosa	2	N	FAC
3.			
4.			
5.			
6.			
7.			
	8 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Carex tribuloides	30	Y	FACW
2. Impatiens capensis	15	Y	FACW
3. Juncus effusus	15	Y	OBL
4. Scirpus atrovirens	15	Y	OBL
5. Carex lurida	10	N	OBL
6. Persicaria sagittata	10	N	OBL
7. Onoclea sensibilis	5	N	FACW
8. Persicaria hydropiper	5	N	OBL
9. Carex vulpinoidea	5	N	OBL
10. Eleocharis tenuis	5	N	FACW
11.			
12.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets vegetation indicator.

SOIL

Sampling Point: W-T48-21002A

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 4/1	95	10 YR 5/8	5	C	PL	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Rock refusal at 6". This is consistent throughout the PEM pasture area. Many pits were attempted to get deeper than 6". No deeper pit possible in the vicinity due to consistent rock refusal.
Meets soil indicator.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/29/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T48-21002C

Investigator(s): Evan Sheppard, Jacob Gromiller Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.702408 Long: -75.714952 Datum: D_North_American_1983

Soil Map Unit Name: Wellsboro flaggy silt loam, 8 to 15 percent slopes, moderately eroc NWI classification: PFO

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

Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

PFO pit also within active pasture with significant disturbance from grazing.
Photos:
overall- 103-0156 (S)
pit- 103-0155 (S)

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 ✔	Depth (inches): ____
Water Table Present?	Yes ✔	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: W-T48-21002C

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Acer rubrum	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Carex lurida	25	Y	OBL
2. Glyceria striata	15	Y	OBL
3. Carex tribuloides	15	Y	FACW
4. Persicaria sagittata	15	Y	OBL
5. Juncus effusus	5	N	OBL
6. Carex vulpinoidea	10	N	OBL
7. Persicaria hydropiper	5	N	OBL
8. Impatiens capensis	10	N	FACW
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets vegetation indicator.

SOIL

Sampling Point: W-T48-21002C

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 4/1	95	10 YR 5/8	5	C	PL	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Rock refusal at 6", consistent throughout entire PFO area. No deeper pit possible within vicinity due to consistent rock refusal.
Meets soil indicator.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/29/2015

Applicant/Owner: Transco State: PA Sampling Point: U-T48-21002

Investigator(s): Evan Sheppard, Jacob Gromiller Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.702415 Long: -75.714723 Datum: D_North_American_1983

Soil Map Unit Name: Wellsboro flaggy silt loam, 8 to 15 percent slopes, moderately eroc NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Upland pit is adjacent to pasture. Located approx. 25ft SE of wetland pit.
Pit photo: 103-0156 (SE)

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 ✔	Depth (inches): ____
Water Table Present?	Yes ____	No ✔	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✔	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Does not meet hydrology indicator.

VEGETATION – Use scientific names of plants. Sampling Point: U-T48-21002

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	100	Y	FAC
2. Populus deltoides	20	N	FAC
3.			
4.			
5.			
6.			
7.			
	120	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. Populus deltoides	10	Y	FAC
2. Vaccinium simulatum	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	
Herb Stratum (Plot size: 5)			
1. Dennstaedtia punctilobula	5	N	UPL
2. Maianthemum canadense	5	N	FACU
3. Solidago rugosa	10	Y	FAC
4. Parthenocissus quinquefolia	30	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets vegetation indicator.

SOIL

Sampling Point: U-T48-21002

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 3/3	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Rock refusal at 10". Roots and rock fragments present throughout area. No deeper pit possible in vicinity due to consistent rock refusal.
Does not meet soil indicator.

Wetland Function-Value Evaluation Form

Total area of wetland 1.81ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, Agriculture Distance to nearest roadway or other development 100ft

Dominant wetland systems present PEM / PFO Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T48-21002

Latitude 41.70226 Longitude -75.71521

Prepared by: JG Date 6/24/2015

Wetland Impact:
Type PEM/PFO Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		1,2,7,13,5	X	seeps / springs observed
Floodflow Alteration		X	6,8,10,14,18		
Fish and Shellfish Habitat		X	1,15		
Sediment/Toxicant Retention	X		6,9,10,13,19,16	X	
Nutrient Removal	X		3,8,9,11,12,14		
Production Export	X		1,2,3,4,7,8,9		
Sediment/Shoreline Stabilization		X	2,5,15,9		
Wildlife Habitat	X		1,4,5,8,9,13,14,15,17		
Recreation		X	4,6,10,11		
Educational/Scientific Value		X	2,8,13,14		
Uniqueness/Heritage		X	6,8,9,10,12,15,16		
Visual Quality/Aesthetics		X	1,3,5,7,9,10,12		
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/29/2015 **Direction:** NW **Position:** Overview



Date Collected: 06/29/2015 **Direction:** S **Position:** Overview



Date Collected: 06/29/2015 **Direction:** NW **Position:** Wetland (PEM)



Date Collected: 06/29/2015 **Direction:** S **Position:** Wetland (PFO)



Date Collected: 06/29/2015 **Direction:** SE **Position:** Upland

WETLAND ID: W- T48-21001

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

- ☐ **yes**
- ☑ **no**
- ☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

abutting WW-T48-21001A

Associated Stream:

- ☑ **yes**
- ☐ **no**

If yes, list ID: ² ² - T48-21001A

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

- ☑ **directly abutting**
- ☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

- ☐ **Discrete wetland hydrologic connection**
- ☐ **Ecological connection**
- ☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

- ☐ **intermittent surface** ☐ **ephemeral surface**
- ☑ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

- ☑ **discrete** ☐ **overland sheet flow**
- ☐ **confined**
- ☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/29/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T48-21001

Investigator(s): Evan Sheppard, Jacob Gromiller Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.708721 Long: -75.707993 Datum: D_North_American_1983

Soil Map Unit Name: Mardin very stony silt loam, 25 to 50 percent slopes NWI classification: PEM

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

Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No _____	**Is the Sampled Area within a Wetland?** **Yes ✔ No _____**
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Hillslope, fallow pasture. Vegetation and soil disturbed by historic heavy grazing. Characteristic churned soil surface observed throughout.
Photos:
overall- 103-0146.jpg SE
pit- 103-0147.jpg SE

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 ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: W-T48-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5)			
1. Phalaris arundinacea	100	Y	FACW
2. Persicaria sagittata	10	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets vegetation indicator.

SOIL

Sampling Point: W-T48-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12-16	10 YR 5/2	95	10 YR 4/6	5	C	M	SIL	
0-12	10 YR 3/2	98	10 YR 5/8	2	C	M	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Meets soil indicator.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/29/2015

Applicant/Owner: Transco State: PA Sampling Point: U-T48-21001

Investigator(s): Evan Sheppard, Jacob Gromiller Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.708766 Long: -75.708175 Datum: D_North_American_1983

Soil Map Unit Name: Mardin flaggy silt loam, 8 to 15 percent slopes, moderately eroded NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Upland pit located 20ft NW of wetland point.
Pit photo: 103-0148 (SE)

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 ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Does not meet hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: U-T48-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Acer rubrum	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Solidago canadensis	40	Y	FACU
2. Solidago rugosa	35	Y	FAC
3. Fragaria vesca	15	N	UPL
4. Onoclea sensibilis	5	N	FACW
5. Goodyera pubescens	5	N	FACU
6. Solidago altissima	5	N	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets vegetation indicators.

SOIL

Sampling Point: U-T48-21001

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10 YR 3/3	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Does not meet soil indicators.

Wetland Function-Value Evaluation Form

Total area of wetland 0.94ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture, forest Distance to nearest roadway or other development 100ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

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

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T48-21001

Latitude 41.70887 Longitude -75.70790

Prepared by: PF Date 6/29/15

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		1,2,5,10,13		
Floodflow Alteration		X	6,8,13		
Fish and Shellfish Habitat		X	1,15		
Sediment/Toxicant Retention	X		6,9,10,13,15		
Nutrient Removal	X		3,5,8,9,14		
Production Export		X	1,2,3,7		
Sediment/Shoreline Stabilization	X		2,4,5,7,9,15		
Wildlife Habitat	X		1,3,4,5,7,8,9,17,18	X	Wetland is located in a reverting old cow pasture
Recreation		X	3,4,10		
Educational/Scientific Value		X	2,8,13		
Uniqueness/Heritage	X		10,16,17,19,22		
Visual Quality/Aesthetics		X	5,7,9,12		
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/29/2015 **Direction:** SE **Position:** Overview



Date Collected: 06/29/2015 **Direction:** SE **Position:** Wetland

WETLAND ID: W- T48-21003

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**

☑ **no**

☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

abutting ww-t48-21001

Associated Stream:

☑ **yes**

☐ **no**

If yes, list ID: ² ² - T48-21001

(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet): 0

Wetland Association to Stream

Is the wetland:

☑ **directly abutting**

☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**

☐ **Ecological connection**

☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☑ **intermittent surface** ☐ **ephemeral surface**

☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☑ **overland sheet flow**

☐ **confined**

☐ **other, explain:**_____

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/30/2015

Applicant/Owner: Transco State: PA Sampling Point: W-T48-21003

Investigator(s): Evan Sheppard, Jacob Gromiller Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.710475 Long: -75.707643 Datum: D_North_American_1983

Soil Map Unit Name: Wyalusing silt loam NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation N, Soil N, or Hydrology N 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 ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes ✔ No ____**
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Floodplain PEM wetland with hillside seep area included. Straddles WW-T48-21001.
Photos:
overall- IMG_0171 (E)
pit- IMG_0170 (E)

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 ____	Depth (inches): +2
Water Table Present?	Yes ✔	No ____	Depth (inches): +2
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent/current heavy rains.
Meets hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: W-T48-21003

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5)			
1. Onoclea sensibilis	30	Y	FACW
2. Phalaris arundinacea	30	Y	FACW
3. Galium asprellum	5	N	OBL
4. Solidago rugosa	10	N	FAC
5. Euthamia graminifolia	40	Y	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	115 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	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	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

Meets hydrophytic vegetation indicator

SOIL

Sampling Point: W-T48-21003

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 5/1	90	10 YR 4/3	10	C	M	SI	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Meets soil indicator.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 06/30/2015

Applicant/Owner: Transco State: PA Sampling Point: U-T48-21003

Investigator(s): Evan Sheppard, Jacob Gromiller Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.710569 Long: -75.707753 Datum: D_North_American_1983

Soil Map Unit Name: Wyalusing silt loam NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Upland pit 20ft away from PEM pit. Current heavy rain.
Pit photo- IMG_0169 (N)

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 ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent/current heavy rains.
Does not meet hydrology indicators.

VEGETATION – Use scientific names of plants. Sampling Point: U-T48-21003

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	100	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	100 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

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 (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	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

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

Does not meet vegetation indicators.

SOIL

Sampling Point: U-T48-21003

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4							organic d	
4-12	10 YR 5/4	95	10 YR 6/1	5	D	M	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Does not meet soil indicator.

Wetland Function-Value Evaluation Form

Total area of wetland 0.40ac Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture, Forest Distance to nearest roadway or other development 300ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

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

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

Wetland I.D. W-T48-21003

Latitude 41.71042 Longitude -75.70895

Prepared by: JG Date 6/30/15

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		1,2,7,13,5		
Floodflow Alteration	X		5,6,9,13,18	X	
Fish and Shellfish Habitat		X	1,15,4,14,17		
Sediment/Toxicant Retention	X		6,10,9,15		
Nutrient Removal	X		3,5,8,9,11		
Production Export		X	4,7,8,9,10		
Sediment/Shoreline Stabilization		X	3,6,8,15		
Wildlife Habitat	X		1,3,4,5,6,7,8,9,13,17	X	
Recreation		X	3,4,10,11		
Educational/Scientific Value		X	2,8,10,13		
Uniqueness/Heritage		X	6,9,10,11,16,17,22		
Visual Quality/Aesthetics		X	3,5,7,9,10		
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 06/30/2015 **Direction:** E **Position:** Overview



Date Collected: 06/30/2015 **Direction:** N **Position:** Wetland



Date Collected: 06/30/2015 **Direction:** N **Position:** Upland

WETLAND ID: W- T17-21001

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?

☐ **yes**
☑ **no**
☐ **could not be determined because wetland extends beyond the ROW**

If no, explain hydrologic connection:

Discrete flow off ROW to S.

Associated Stream:

☐ **yes**
☑ **no**

If yes, list ID: WW-_____
(Use separate datasheet for each associated stream)

Approximate distance of wetland to stream (straight aerial feet):_____

Wetland Association to Stream

Is the wetland:

☐ **directly abutting**
☐ **adjacent (not directly but hydrologically connected)**

Wetland adjacency determination (if not directly abutting):

☐ **Discrete wetland hydrologic connection**
☐ **Ecological connection**
☐ **Separated by berm/barrier**

Explain:

Surface flow type from wetland to associated stream:

☐ **intermittent surface** ☐ **ephemeral surface**
☐ **perennial surface** ☐ **no surface flow**

Surface flow characteristic from wetland to associated stream:

☐ **discrete** ☐ **overland sheet flow**
☐ **confined**
☐ **other, explain:_____**

Definitions

Abutting: Wetlands that provide a continuous surface connection to relatively permanent waters that flow directly or indirectly into TNWs are abutting. The wetland boundary must interface with the OHWM of the tributary. If the wetland boundary does not abut the OHWM of the tributary, the wetland is adjacent. Abutting wetlands are not separated from tributaries by uplands, berms, dikes, or similar features. It is important to note, a continuous surface connection does not require surface water to be continuously present between the wetland and tributary.

Adjacent: bordering, contiguous, or neighboring. Adjacent wetlands may have a continuous surface connection to TNWs, but may also be separated from these waters by man-made dikes or barriers, natural river berms, beach dunes, or similar features. By definition, a continuous surface water connection is not required to establish adjacency.

Hydrologically Isolated: no surface water connections to other aquatic features exist.

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Discrete: not defined bed and banks, slight depression where water runs.

Confined: defined bed and banks.

Overland Sheet Flow: no defined channel, comprised of runoff.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/01/2014

Applicant/Owner: Transco State: PA Sampling Point: W-T17-21001

Investigator(s): Ben Virts, Travis Whitney Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave linear Slope (%): 6

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.711809 Long: -75.708968 Datum: D_North_American_1983

Soil Map Unit Name: Wyalusing silt loam NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

PEM pit in W-T17-21001
Photo 006.jpg (MW)

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 ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-T17-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Rosa multiflora	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Onoclea sensibilis	90	Y	FACW
2. Typha latifolia	5	N	OBL
3. Rubus idaeus	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	95	x 1 =	95
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	105 (A)		135 (B)

Prevalence Index = B/A = 1.29

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

SOIL

Sampling Point: W-T17-21001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
-1-0	organic							Organic
0-8	10YR3/1	100					SiL	
8-16	10YR3/1	70	10YR2/1	30	D	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: ASR - CPL North City/County: Lenox/Susquehanna Sampling Date: 07/01/2014

Applicant/Owner: Transco State: PA Sampling Point: U-T17-21001

Investigator(s): Ben Virts, Travis Whitney Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex convex Slope (%): 6

Subregion (LRR or MLRA): LRR R (Excluding MLRA 1 Lat: 41.711865 Long: -75.708932 Datum: D_North_American_1983

Soil Map Unit Name: Wyalusing silt loam NWI classification: UPL

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N 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 _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

upland plot approximately 12 feet east of wetland pit
photo 007 (SE)

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 ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: U-T17-21001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Betula alleghaniensis	2	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	2 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Solidago canadensis	100	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	102 (A)		406 (B)

Prevalence Index = B/A = 3.98

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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. 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 vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

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

SOIL

Sampling Point: U-T17-21001

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/3	100					SiL	
2-10	10YR3/3	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ 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 for Problematic Hydric Soils[3]:

- ___ 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**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

rock refusal at 10"

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, pipeline ROW Distance to nearest roadway or other development 215ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? N/A

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

Wetland I.D. W-T17-21001

Latitude 41.71180 Longitude -75.70895

Prepared by: BV Date 7/1/2014

Wetland Impact:
Type PEM Area **

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

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

Notes:

* Refer to backup list of numbered considerations.
**Refer to impact table provided under a separate cover for impact acreage.



Date Collected: 07/01/2014 **Direction:** NW **Position:** Wetland



Date Collected: 07/01/2014 **Direction:** SE **Position:** Upland

5 Waterbody Data Package

5A Waterbody Table

Waterbodies Delineated within the Atlantic Sunrise Project Study Area in Susquehanna County : CPL North

Waterbody ID	Waterbody Name	Milepost	Latitude Longitude	Township County	USGS Quad	Type	State Water Quality Use Classification – Designated Use	State Water Quality Use Classification – Existing Use	State Fishery Classification	Waterbody Descriptions
WW-T30-21001	UNT to Willow Brook	51.35	41.65396 -75.76153	Lenox Susquehanna	Hop Bottom	Perennial	CWF, MF	None	Wild Trout Waters	Intermediate perennial stream with a cobble and mixed bed containing high amount of leaf debris. Stream flows south through forested area. Associated with W-T30-21001.
WW-T12-21004A	UNT to Willow Brook	51.68	41.65789 -75.75877	Lenox Susquehanna	Hop Bottom	Intermittent	CWF, MF	None	Wild Trout Waters	Minor intermittent branch that flows into stream WW-T12-21004, with cobble bed, flowing east. Stream is fed by runoff from surrounding upland field.
WW-T12-21004	UNT to Willow Brook	51.69	41.65897 -75.75855	Lenox Susquehanna	Hop Bottom	Perennial	CWF, MF	None	Wild Trout Waters	Intermediate perennial stream with cobble bed, flowing southeast through newly constructed ROW and surrounding forested areas. Fed by surrounding hillslope run off and stream WW-T12-21004A.
WB-T95-21002	Unnamed Pond	51.92	41.65952 -75.75504	Lenox Susquehanna	Lenoxville	Pond	None	None	None	Newly constructed retention pond, which banks of large stones, abutting oil pad
WW-T12-21001	Willow Brook	52.37	41.66188 -75.74885	Lenox Susquehanna	Lenoxville	Perennial	CWF, MF	None	Wild Trout Waters	Intermediate perennial stream with gravel and cobble bed, flowing northwest through forested area. Associated with wetland W-T12-21001A.
WW-T19-21001	UNT to Willow Brook	52.53	41.66334 -75.74685	Lenox Susquehanna	Lenoxville	Ephemeral	CWF, MF	None	Wild Trout Waters	Minor ephemeral stream with a silty vegetated bed, flowing south along hedgerow on the eastern section of the survey corridor.
WW-T50-21001A	UNT to Utley Brook	53.39	41.67489 -75.74214	Lenox Susquehanna	Lenoxville	Ephemeral	CWF, MF	None	Wild Trout Waters	Minor ephemeral branch of stream WW-T50-21001, with gravely bed, flowing southeast, and fed by runoff from drive way and its surrounding hillslopes.
WW-T50-21001	Utley Brook	53.40	41.67530 -75.74237	Lenox Susquehanna	Lenoxville	Perennial	CWF, MF	None	Wild Trout Waters	Intermediate perennial stream with a cobble and gravel bed, flowing south across forested area, and fed by hillslope runoff and stream WW-T50-21001A.
WW-T50-21002	Millard Creek	54.11	41.68169 -75.73309	Lenox Susquehanna	Lenoxville	Perennial	CWF, MF	None	Wild Trout Waters	Intermediate Perennial section of Millard creek, with cobble and gravel bed, flowing southeast through downslope section of forest. Associated with wetland W-T50-21001.High water level at time of survey due to recent heavy rains.
WW-T50-21003	UNT to Millard Creek	54.13	41.68188 -75.73285	Lenox Susquehanna	Lenoxville	Intermittent	CWF, MF	None	Wild Trout Waters	Minor intermittent stream with a mixed bed, flowing south through downslope section of forest. Associated with stream WW-T50-21003A and wetlands W-T50-21002 and W-T50-21003.
WW-T50-21003A	UNT to Millard Creek	54.15	41.68218 -75.73296	Lenox Susquehanna	Lenoxville	Intermittent	CWF, MF	None	Wild Trout Waters	Minor intermittent branch of stream WW-T50-21003 flowing south through downslope section of forest. Associated with stream WW-T50-21003A and wetlands W-T50-21002 and W-T50-21003.
WW-T12-21006	UNT to Millard Creek	54.34	41.68433 -75.73041	Lenox Susquehanna	Lenoxville	Perennial	CWF, MF	None	Wild Trout Waters	Intermediate perennial stream with cobble bed, flowing south through forested area. Associated with wetland W-T12-21007A and stream WW-T12-21006A.
WW-T12-21007	UNT to Millard Creek	55.10	41.69057 -75.72050	Lenox Susquehanna	Lenoxville	Intermittent	CWF, MF	None	Wild Trout Waters	Minor Intermittent stream with mixed bed, flowing south across forested section of survey corridor. Associated with wetland W-T12-21008 and stream WW-T12-21007A.
WW-T12-21007A	UNT to Millard Creek	55.11	41.69044 -75.72029	Lenox Susquehanna	Lenoxville	Ephemeral	CWF, MF	None	Wild Trout Waters	Minor ephemeral stream with mixed bed flowing south into stream WW-T12-21007 through shrubby area of forest. Also associated with wetland W-T12-21007.
WW-T12-21008	UNT to Tower Branch	M-0061 0.02	41.69527 -75.71842	Lenox Susquehanna	Lenoxville	Intermittent	CWF, MF	None	Wild Trout Waters	Minor intermittent stream with cobble bed, flowing east through shrubby area. Associated with wetland W-T12-21009C and W-T12-21009B.

Waterbodies Delineated within the Atlantic Sunrise Project Study Area in Susquehanna County : CPL North

Waterbody ID	Waterbody Name	Milepost	Latitude Longitude	Township County	USGS Quad	Type	State Water Quality Use Classification – Designated Use	State Water Quality Use Classification – Existing Use	State Fishery Classification	Waterbody Descriptions
WW-T12-21009	UNT to Tower Branch	M-0061 0.07	41.69599 -75.71799	Lenox Susquehanna	Lenoxville	Intermittent	CWF, MF	None	Wild Trout Waters	Minor intermittent stream with cobble and gravel bed, flowing northwest through hemlock forest area. Associated with wetland W-T12-21009C, WW-T12-21009A, and WW-T12-21009B.
WW-T92-21002	UNT to Tower Branch	M-0061 0.08	41.69595 -75.71777	Lenox Susquehanna	Lenoxville	Ephemeral	CWF, MF	None	Wild Trout Waters	Minor ephemeral branch of WW-T12-21009A with mixed bed, flowing north through open and shrubby areas. Stream associated with wetland W-T12-21009C.
WW-T12-21009A	UNT to Tower Branch	M-0061 0.08	41.69576 -75.71746	Lenox Susquehanna	Lenoxville	Perennial	CWF, MF	None	Wild Trout Waters	Minor perennial stream with a clay bed, flowing south east through open, shrubby, and forested areas. Associated with wetland W-T12-21009C, streams WW-T92-21002, WW-T12-21009, and WW-T12-21009B.
WW-T12-21009B	UNT to Tower Branch	M-0061 0.11	41.69634 -75.71737	Lenox Susquehanna	Lenoxville	Perennial	CWF, MF	None	Wild Trout Waters	Minor perennial stream with cobble and silt bed, flowing north through forested area. Associated with wetland W-T12-21009C, streams WW-T12-21009 and WW-T12-21009A.
WW-T48-21001A	UNT to Tower Branch	56.77	41.70990 -75.70709	Lenox Susquehanna	Lenoxville	Intermittent	CWF, MF	None	Wild Trout Waters	Minor intermittent branch of stream WW-T48-21001 with mixed bed, flowing north through forested area. Associated with wetland W-T48-21001.
WW-T48-21001	Tower Branch	56.80	41.71033 -75.70762	Lenox Susquehanna	Lenoxville	Perennial	CWF, MF	None	Wild Trout Waters	Intermediate perennial stream with cobble and gravel bed, flowing east through forested and open herbaceous area. Associated with streams WW-T48-21001A and WW-T48-21001B, and wetland W-T48-21003.
WW-T48-21001B	UNT to Tower Branch	56.82	41.71042 -75.70819	Lenox Susquehanna	Lenoxville	Intermittent	CWF, MF	None	Wild Trout Waters	Minor intermittent branch of stream WW-T48-21001 with cobble and sandy bed, flowing west through forested area. Associated with stream WW-T48-21001 and wetland W-T48-21003.
WW-T17-21001	UNT to Tower Branch	57.16	41.71502 -75.70916	Lenox Susquehanna	Lenoxville	Ephemeral	CWF, MF	None	Wild Trout Waters	Minor ephemeral stream with cobble and gravel bed, flowing west along hedgerow and through open herbaceous area surrounded by patches of forest.
WB-T87-21001	***Unnamed Pond***	***57.21***	***41.71579 -75.70880***	***Lenox Susquehanna***	***Lennoxville***	***Pond***	***None***	***None***	***None***	***Newly constructed retention pond, just south of the Zick Compressor Station. Over flow from the pond drains to WW-T87-21001.***

5B. Waterbody Documentation

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 10/23/2014 12:45:20 PM	**Stream ID:** WW-T30-21001
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Willow Brook
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 30	**Observers:** Katherine Perry, Sarah Craig	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☐1-5 ☐5-10 ☑10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW	☐TNW ☑P-RPW ☐S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☑Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☑10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☑Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☑Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☑Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Number:_____	Max Depth (ft)_____
☑ Gravel	Percent: 20	☑ Runs	Number: 4	
☑ Sand	Percent: 20	☑ Riffles	Number: 4	
☑ Silt	Percent: 20			
☑ Cobbles	Percent: 40	**Woody Debris and Root Masses**		
☐ Clay	Percent:_____	Number of Woody Debris >6" diameter within OHWM	0	
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank	30	
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank	30	

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☑ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Species beech, eastern hemlock, white pine

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T30-21001
Other Streams:	
Seeps/Springs:	
Drainages:	

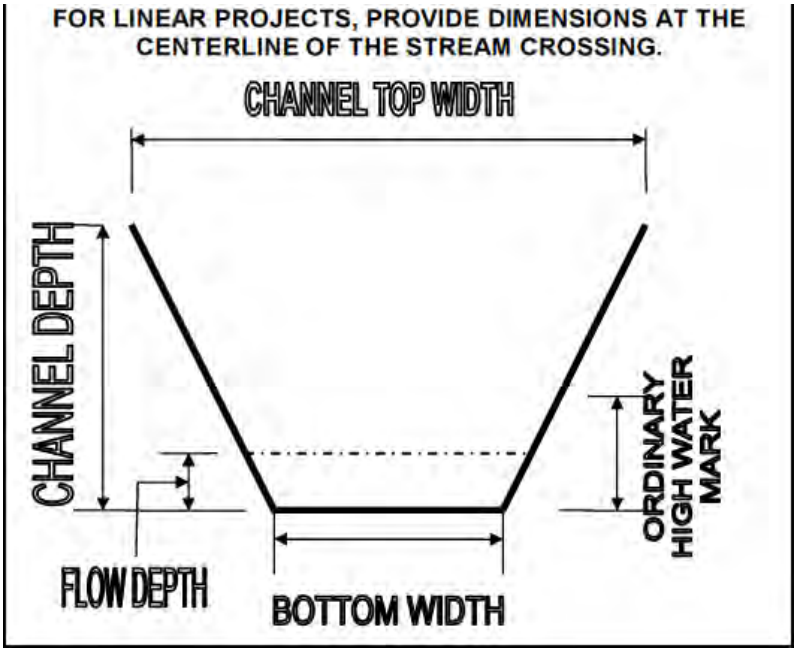
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other_____

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 10/23/2014 **Direction:** N **Position:** Upstream



Date Collected: 10/23/2014 **Direction:** S **Position:** Downstream



Date Collected: 10/23/2014 **Direction:** W **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/24/2014 9:10:07 AM	**Stream ID:** WW-T12-21004A
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Willow Brook
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 12	**Observers:** Ethan Virts, Dan Herrera	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☐Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☑Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☑E ☐SE ☐S ☐SW ☐W ☐NW	☐TNW ☐P-RPW ☑S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☑Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☑Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☑Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☑Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☑Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☑ Bedrock	Percent: 20	☐ Pools	Number:	Max Depth (ft)
☐ Gravel	Percent:	☑ Runs	Number: 1	
☐ Sand	Percent:	☑ Riffles	Number: 1	
☑ Silt	Percent: 30			
☑ Cobbles	Percent: 50	**Woody Debris and Root Masses**		
☐ Clay	Percent:	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank 20		
☐ Other	Percent:	Linear feet of overhanging root masses along R bank 20		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☐ No ☑ Yes

Explain: insufficent flow

Canopy Cover

☐ Open, full sun ☑ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Species slippery elm, Red maple, sugar maple

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	WW-T12-21004
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

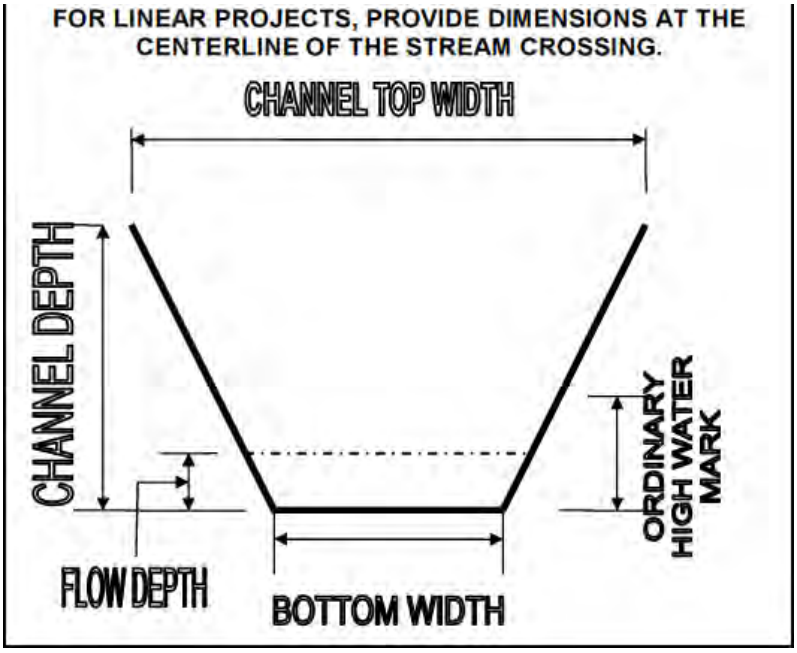
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/24/2014 **Direction:** W **Position:** Upstream



Date Collected: 06/24/2014 **Direction:** E **Position:** Downstream



Date Collected: 06/24/2014 **Direction:** N **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/24/2014 8:24:16 AM	**Stream ID:** WW-T12-21004
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Willow Brook
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 12	**Observers:** Ethan Virts, Dan Herrera	**HUC:** 020501061208

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☐1-5 ☐5-10 ☑10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☐0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☑2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☑SE ☐S ☐SW ☐W ☐NW	☐TNW ☑P-RPW ☐S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☑Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☑10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☐1-3 ☑3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☑Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☑Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☑Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☑ Bedrock	Percent: 60	☑ Pools	Number: 10	Max Depth (ft) 0
☑ Gravel	Percent: 20	☑ Runs	Number: 15	
☐ Sand	Percent:	☑ Riffles	Number: 15	
☑ Silt	Percent: 10			
☑ Cobbles	Percent: 10	**Woody Debris and Root Masses**		
☐ Clay	Percent:	Number of Woody Debris >6" diameter within OHWM 4		
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank 200		
☐ Other	Percent:	Linear feet of overhanging root masses along R bank 150		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☑ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank
☐ 10-25 ☑ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species sugar maple, black ash, black cherry, slippery elm

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	WW-T12-21004A
Seeps/Springs:	
Drainages:	

Anthropogenic Effects

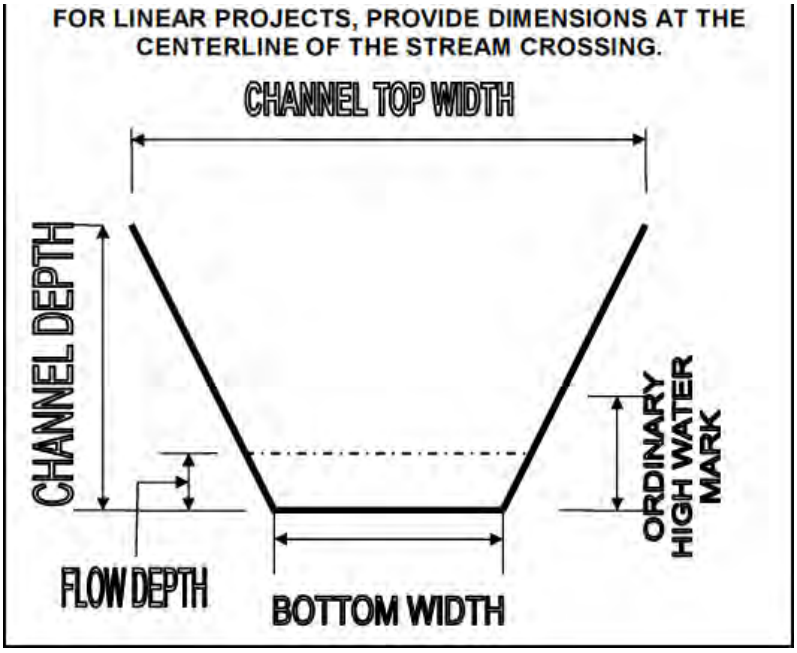
☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

birds

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/24/2014 **Direction:** NW **Position:** Upstream



Date Collected: 06/24/2014 **Direction:** SE **Position:** Downstream



Date Collected: 06/24/2014 **Direction:** E **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/23/2014 8:24:39 AM	**Stream ID:** WW-T12-21001
State: PA	**County:** Susquehanna	**Stream Name:** Willow Brook
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 12	**Observers:** Ethan Virts, Dan Herrera	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☐1-5 ☐5-10 ☑10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☐0-0.5 ☐0.5-1 ☑1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☐SE ☐S ☐SW ☐W ☑NW	☐TNW ☑P-RPW ☐S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☑Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☐10-15 ☐15-20 ☑20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☐1-3 ☑3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☐1-3 ☑3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☑Destruction of terrestrial vegetation
☐Presence of wrack Line	☑Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☑Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☑ Bedrock	Percent: 10	☑ Pools	Number: 15	Max Depth (ft) 0
☑ Gravel	Percent: 70	☑ Runs	Number: 20	
☐ Sand	Percent:	☑ Riffles	Number: 22	
☐ Silt	Percent:			
☑ Cobbles	Percent: 20	**Woody Debris and Root Masses**		
☐ Clay	Percent:	Number of Woody Debris >6" diameter within OHWM 4		
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank 50		
☐ Other	Percent:	Linear feet of overhanging root masses along R bank 200		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☑ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank
☐ 10-25 ☑ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species Eastern hemlock, red maple

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T12-21001
Other Streams:	
Seeps/Springs:	
Drainages:	DD-T12-003

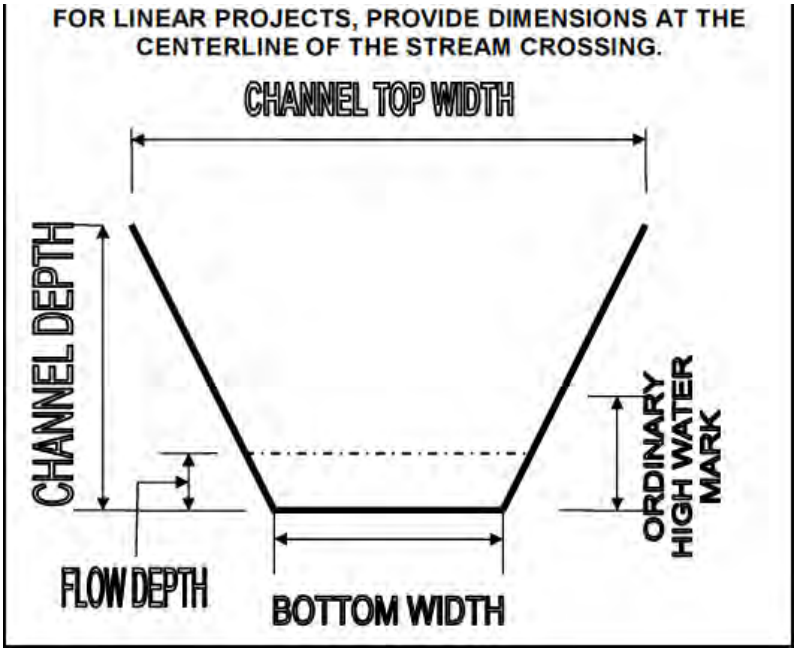
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/23/2014 **Direction:** NW **Position:** Downstream



Date Collected: 06/23/2014 **Direction:** SE **Position:** Upstream



Date Collected: 06/23/2014 **Direction:** W **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 07/07/2014 9:45:46 AM	**Stream ID:** WW-T19-21001
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Willow Brook
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 19	**Observers:** Brian Stoos, Travis Whitney	**HUC:** 020501061208

Current Hydrologic Conditions:

Water Quality ☐Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☑Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW	☐TNW ☐P-RPW ☐S-RPW ☑non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☑Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☑Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☑Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Number:_____	Max Depth (ft)_____
☑ Gravel	Percent: 15	☐ Runs	Number:_____	
☐ Sand	Percent:_____	☐ Riffles	Number:_____	
☑ Silt	Percent: 80			
☑ Cobbles	Percent: 5	**Woody Debris and Root Masses**		
☐ Clay	Percent:_____	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank 0		
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☑ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☑ Sapling/shrub ☐ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species Maple, Apple, dogwood, day lily

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	
Seeps/Springs:	
Drainages:	

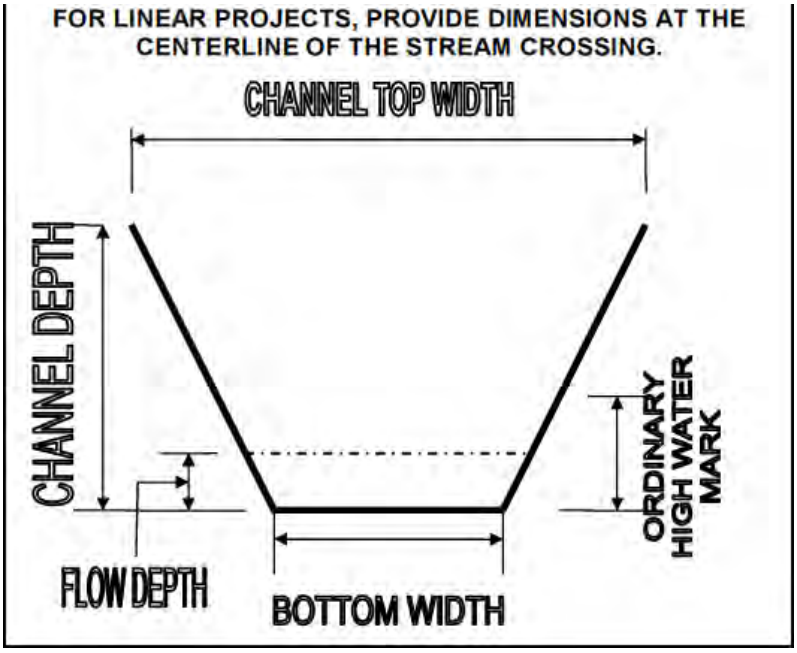
Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☑ Other stone wall on either side for

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 07/07/2014 **Direction:** S **Position:** Downstream



Date Collected: 07/07/2014 **Direction:** W **Position:** Across



Date Collected: 07/07/2014 **Direction:** N **Position:** Upstream

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/30/2015 7:10:10 AM	**Stream ID:** WW-T50-21001A
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Utley Brook
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 50	**Observers:** Paul Fisher Jordan Skrzynski	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☐Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☑Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments: Dry	**OHWM Depth (ft)** ☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☑SE ☐S ☐SW ☐W ☐NW	☐TNW ☐P-RPW ☐S-RPW ☑non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☑Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+	**Height (ft):** ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope: ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:	
☑ Gravel	Percent:	40
☑ Sand	Percent:	10
☑ Silt	Percent:	10
☑ Cobbles	Percent:	40
☐ Clay	Percent:	
☐ Concrete	Percent:	
☐ Other_____	Percent:	

Pools, Runs, Riffles

☐ Pools	Number:	Max Depth (ft)_____
☐ Runs	Number:	
☐ Riffles	Number:	

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM: 0

Linear feet of overhanging root masses along L bank: 0

Linear feet of overhanging root masses along R bank: 0

Aquatic Vegetation

Type

☑ None	☐ Rooted Floating
☐ Rooted Emergent	☐ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☐ Free Floating	% of reach with aquatics: 0

Species

Barriers To Fish Passage? ☐ No ☑ Yes

Explain: ephemeral

Canopy Cover

☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	WW-T50-21001
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

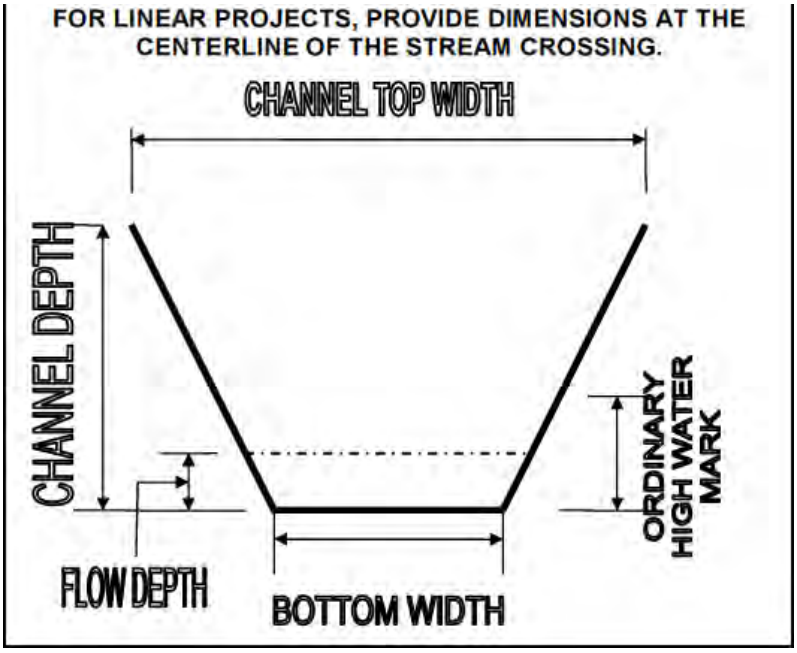
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other_____

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 07/01/2015 **Direction:** NW **Position:** Upstream



Date Collected: 07/01/2015 **Direction:** SE **Position:** Downstream



Date Collected: 07/01/2015 **Direction:** E **Position:** Across

STREAM DATASHEET

Project: ASR- CPLN	**Date:** 06/30/2015 6:43:13 AM	**Stream ID:** WW-T50-21001
State: PA	**County:** Susquehanna	**Stream Name:** Utley Brook

Survey Area:
☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area

Stream Type:
☑ **Natural Feature** ☐ **Ditch/Canal/Other**

Team No. 50	**Observers:** Paul Fisher Jordan Skrzynski	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality
☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:

OHWM Width (ft)
☐1-5 ☑5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☐0-0.5 ☑0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW

Flow Type
☐TNW ☑P-RPW ☐S-RPW ☐non-RPW

Sinuosity (bends per 200' of stream reach)
☐0 ☑1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☐Flat(0.5'/100') ☑Flat-Moderate ☐Moderate (2'/100')
☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Right Bank
Height (ft):
☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Number:_____	Max Depth (ft)_____
☑ Gravel	Percent: 40	☑ Runs	Number: 2	
☑ Sand	Percent: 10	☑ Riffles	Number: 1	
☑ Silt	Percent: 10			
☑ Cobbles	Percent: 40	**Woody Debris and Root Masses**		
☐ Clay	Percent:_____	Number of Woody Debris >6" diameter within OHWM	0	
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank	200	
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank	200	

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Species Red maple, American beech

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	
Seeps/Springs:	
Drainages:	

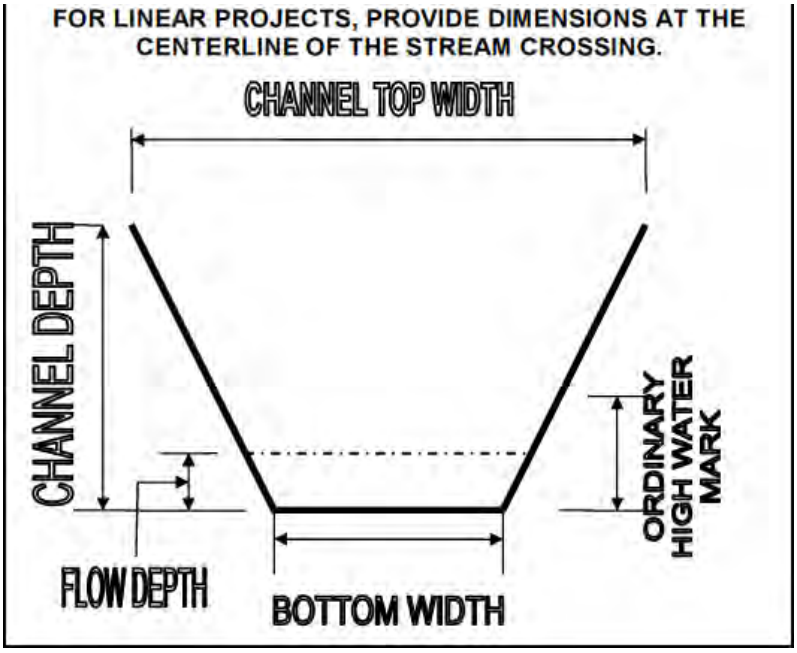
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other_____

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 07/01/2015 **Direction:** N **Position:** Upstream



Date Collected: 07/01/2015 **Direction:** S **Position:** Downstream



Date Collected: 07/01/2015 **Direction:** W **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 07/01/2015 6:58:11 AM	**Stream ID:** WW-T50-21002
State: PA	**County:** Susquehanna	**Stream Name:** Millard Creek
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 50	**Observers:** Paul Fisher, Jordan Skrzynski	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☐1-5 ☐5-10 ☑10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☐0-0.5 ☑0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☑SE ☐S ☐SW ☐W ☐NW	☐TNW ☑P-RPW ☐S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☑1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☑Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☑10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+	**Height (ft):** ☐1-3 ☑4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope: ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Number:_____	Max Depth (ft)_____
☑ Gravel	Percent: 40	☑ Runs	Number: 1	
☑ Sand	Percent: 10	☑ Riffles	Number: 2	
☑ Silt	Percent: 10			
☑ Cobbles	Percent: 40	**Woody Debris and Root Masses**		
☐ Clay	Percent:_____	Number of Woody Debris >6" diameter within OHWM	0	
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank	200	
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank	200	

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☑ 100-150 ☐ 150+

Species Eastern hemlock

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	WW-T50-21001
Seeps/Springs:	
Drainages:	

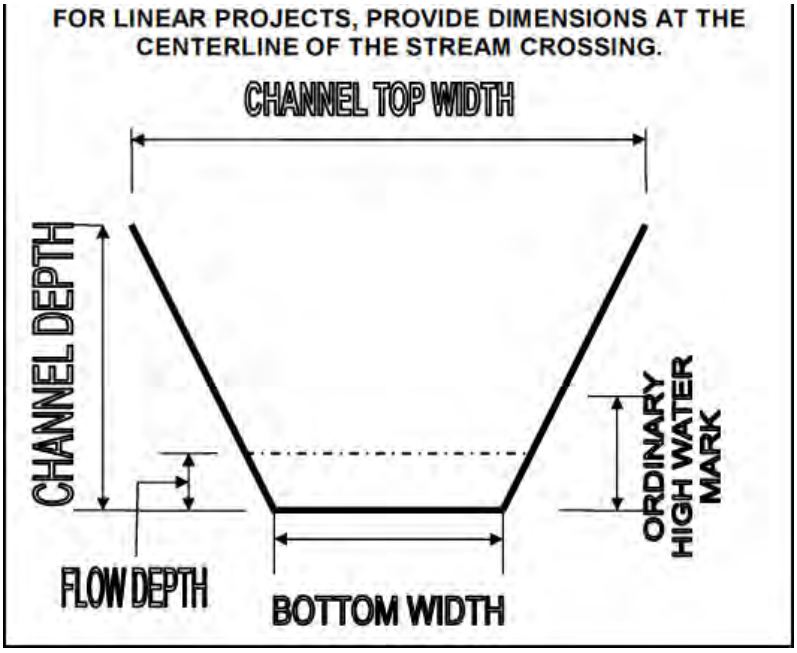
Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other_____

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 07/01/2015 **Direction:** NW **Position:** Upstream



Date Collected: 07/01/2015 **Direction:** SE **Position:** Downstream



Date Collected: 07/01/2015 **Direction:** SW **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 07/01/2015 9:22:59 AM	**Stream ID:** WW-T50-21003
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Millard Creek

Survey Area:
☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area

Stream Type:
☑ **Natural Feature** ☐ **Ditch/Canal/Other**

Team No. 50	**Observers:** Paul Fisher Jordan Skrzynski	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality
☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:

OHWM Width (ft)
☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW

Flow Type
☐TNW ☐P-RPW ☐S-RPW ☑non-RPW

Sinuosity (bends per 200' of stream reach)
☐0 ☐1 ☐1.5 ☑2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100')
☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Right Bank
Height (ft):
☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☑Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☑Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☑Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☑Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☑Presence of litter and debris	☐Destruction of terrestrial vegetation
☑Presence of wrack Line	☐Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Number:_____	Max Depth (ft)_____
☑ Gravel	Percent: 30	☐ Runs	Number:_____	
☑ Sand	Percent: 30	☐ Riffles	Number:_____	
☐ Silt	Percent:_____			
☑ Cobbles	Percent: 40	**Woody Debris and Root Masses**		
☐ Clay	Percent:_____	Number of Woody Debris >6" diameter within OHWM	3	
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank	20	
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank	20	

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☐ No ☑ Yes

Explain: shallow

Canopy Cover

☐ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☑ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species Tsuga canadensis, Impatiens capensis, Betula alleghaniensis, Dennstaedtia punctiloba, Laportea canadensis

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T50-21003
Other Streams:	
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

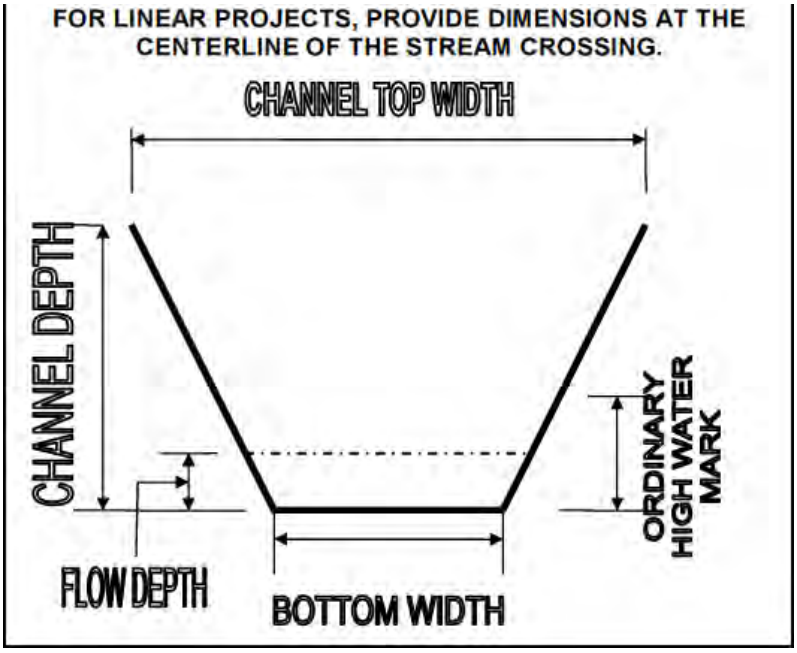
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other_____

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 07/01/2015 **Direction:** N **Position:** Upstream



Date Collected: 07/01/2015 **Direction:** S **Position:** Downstream



Date Collected: 07/01/2015 **Direction:** E **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 07/01/2015 10:15:17 AM	**Stream ID:** WW-T50-21003A
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Millard Creek
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 50	**Observers:** Paul Fisher Jordan Skrzynski	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW	☐TNW ☐P-RPW ☐S-RPW ☑non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+	**Height (ft):** ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope: ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☑Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☑Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☑Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Number:_____	Max Depth (ft)_____
☑ Gravel	Percent: 20	☐ Runs	Number:_____	
☑ Sand	Percent: 30	☐ Riffles	Number:_____	
☑ Silt	Percent: 25			
☑ Cobbles	Percent: 25	**Woody Debris and Root Masses**		
☐ Clay	Percent:_____	Number of Woody Debris >6" diameter within OHWM 3		
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank 0		
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☐ No ☑ Yes

Explain: shallow flow

Canopy Cover

☐ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☑ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species Tsuga canadensis, Impatiens capensis, Dennstaedtia punctiloba, Laportea canadensis, Nasturtium officinale

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T50-21003
Other Streams:	WW-T50-21003
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

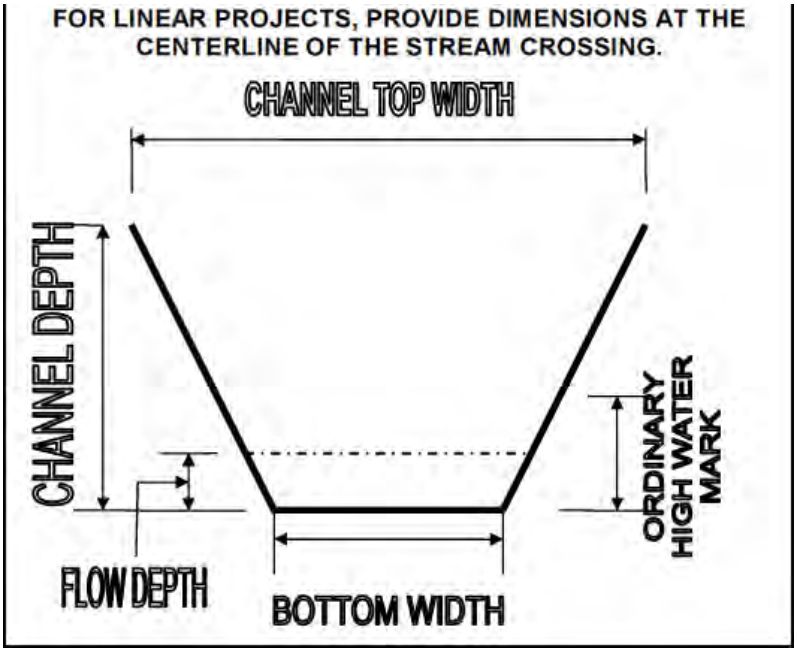
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other_____

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 07/01/2015 **Direction:** N **Position:** Upstream



Date Collected: 07/01/2015 **Direction:** S **Position:** Downstream



Date Collected: 07/01/2015 **Direction:** E **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/25/2014 8:18:58 AM	**Stream ID:** WW-T12-21006
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Millard Creek
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 12	**Observers:** Ethan Virts, Dan Herrera	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☐1-5 ☑5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☐0-0.5 ☑0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW	☐TNW ☑P-RPW ☐S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☑Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☑5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☑Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☑Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:	☑ Pools	Number: 1	Max Depth (ft) 0.5
☑ Gravel	Percent: 10	☑ Runs	Number: 2	
☐ Sand	Percent:	☑ Riffles	Number: 3	
☑ Silt	Percent: 15			
☑ Cobbles	Percent: 75	**Woody Debris and Root Masses**		
☐ Clay	Percent:	Number of Woody Debris >6" diameter within OHWM 2		
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank 0		
☐ Other	Percent:	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☑ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Species Eastern hemlock, birch

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T12-21007, W-T12-21007A
Other Streams:	WW-T12-21006A
Seeps/Springs:	
Drainages:	

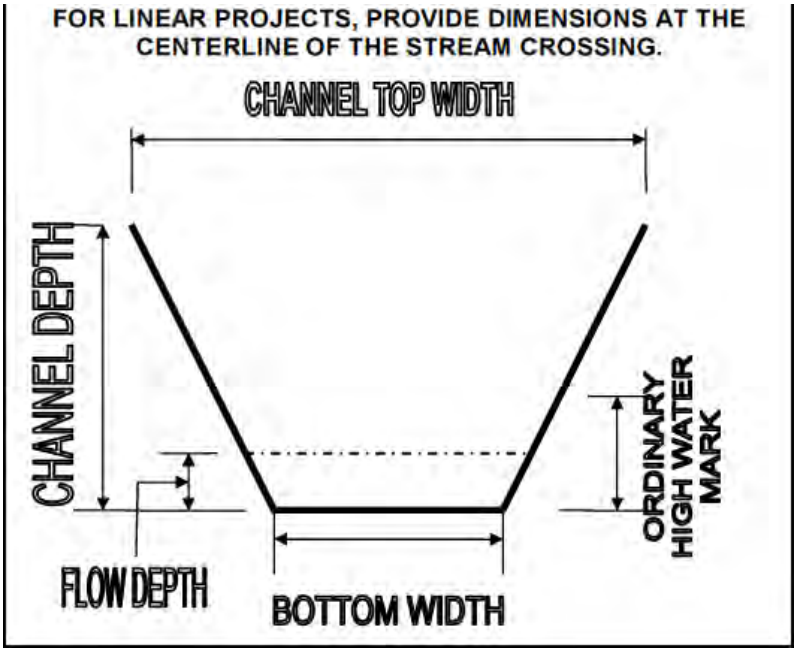
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/25/2014 **Direction:** N **Position:** Upstream



Date Collected: 06/25/2014 **Direction:** S **Position:** Downstream



Date Collected: 06/25/2014 **Direction:** E **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/26/2014 7:42:02 AM	**Stream ID:** WW-T12-21007
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Millard Creek
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 12	**Observers:** Ethan Virts, Dan Herrera	**HUC:** 020501061208

Current Hydrologic Conditions:

Water Quality
☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:

OHWM Width (ft)
☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW

Flow Type
☐TNW ☐P-RPW ☑S-RPW ☐non-RPW

Sinuosity (bends per 200' of stream reach)
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☐Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100')
☑Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Right Bank
Height (ft):
☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☑Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☑Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☑ Bedrock	Percent: 25	☑ Pools	Number: 2	Max Depth (ft) 0.5
☑ Gravel	Percent: 35	☑ Runs	Number: 2	
☐ Sand	Percent:	☑ Riffles	Number: 2	
☑ Silt	Percent: 10			
☑ Cobbles	Percent: 30	**Woody Debris and Root Masses**		
☐ Clay	Percent:	Number of Woody Debris >6" diameter within OHWM 10		
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank 10		
☐ Other	Percent:	Linear feet of overhanging root masses along R bank 10		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☑ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Species Eastern hemlock

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	
Seeps/Springs:	
Drainages:	

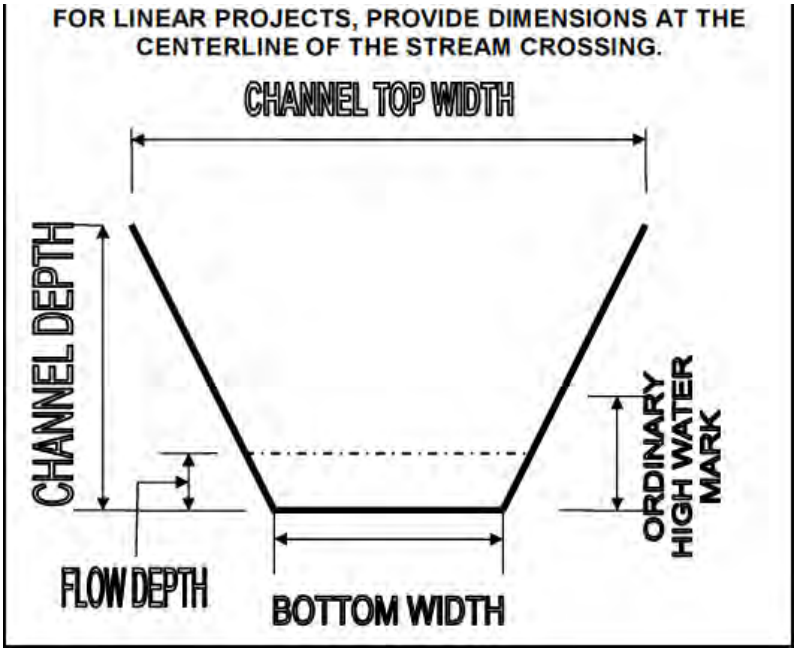
Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/26/2014 **Direction:** N **Position:** Upstream



Date Collected: 06/26/2014 **Direction:** S **Position:** Downstream



Date Collected: 06/26/2014 **Direction:** E **Position:** Across

STREAM DATASHEET

Project: ASR - CPLS	**Date:** 06/05/2015 3:55:43 PM	**Stream ID:** WW-T12-21007A
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Millard Creek
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 92	**Observers:** Zack Fink, Sarah Craig	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality
☐Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments: n/a

OHWM Width (ft)
☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☐0-0.5 ☑0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW

Flow Type
☐TNW ☐P-RPW ☐S-RPW ☑non-RPW

Sinuosity (bends per 200' of stream reach)
☐0 ☑1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☐Flat(0.5'/100') ☐Flat-Moderate ☑Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☑5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Right Bank
Height (ft):
☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100
Erosion Types ☑Undercutting ☑Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☑Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:	
☑ Gravel	Percent:	20
☑ Sand	Percent:	20
☑ Silt	Percent:	20
☐ Cobbles	Percent:	
☑ Clay	Percent:	20
☐ Concrete	Percent:	
☑ Other Rocks	Percent:	20

Pools, Runs, Riffles

☐ Pools	Number:	Max Depth (ft)
☐ Runs	Number:	
☐ Riffles	Number:	

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM	0
Linear feet of overhanging root masses along L bank	15
Linear feet of overhanging root masses along R bank	13

Aquatic Vegetation

Type

☑ None	☐ Rooted Floating
☐ Rooted Emergent	☐ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☐ Free Floating	% of reach with aquatics 0

Species

Barriers To Fish Passage? ☐ No ☑ Yes

Explain: Not fish bearing

Canopy Cover

☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

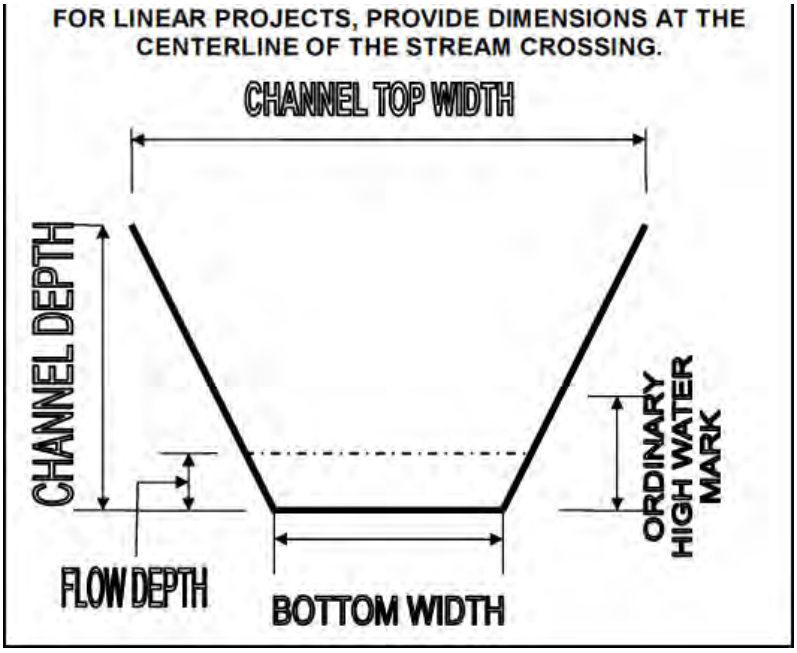
☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☑ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other

COMMENTS

Flows to WW-T12-21007. Heavily eroded flashy regime. Only has stream characteristics for a short reach.



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/07/2015 **Direction:** N **Position:** Upstream



Date Collected: 06/07/2015 **Direction:** S **Position:** Downstream



Date Collected: 06/07/2015 **Direction:** E **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/26/2014 10:53:08 AM	**Stream ID:** WW-T12-21008
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Tower Branch
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 12	**Observers:** Ethan Virts, Dan Herrera	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☐0-0.5 ☑0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☑E ☐SE ☐S ☐SW ☐W ☐NW	☐TNW ☐P-RPW ☑S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☑Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☑Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:	
☑ Gravel	Percent:	10
☐ Sand	Percent:	
☑ Silt	Percent:	5
☑ Cobbles	Percent:	85
☐ Clay	Percent:	
☐ Concrete	Percent:	
☐ Other	Percent:	

Pools, Runs, Riffles

☐ Pools	Number:	Max Depth (ft)
☐ Runs	Number:	
☑ Riffles	Number:	1

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM	3
Linear feet of overhanging root masses along L bank	0
Linear feet of overhanging root masses along R bank	0

Aquatic Vegetation

Type

☑ None	☐ Rooted Floating
☐ Rooted Emergent	☐ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☐ Free Floating	% of reach with aquatics 0

Species

Barriers To Fish Passage? ☑ No ☐ Yes

Explain:

Canopy Cover

☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Species eastern hemlock, white ash

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T12-21009, W-T12-21009A
Other Streams:	
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

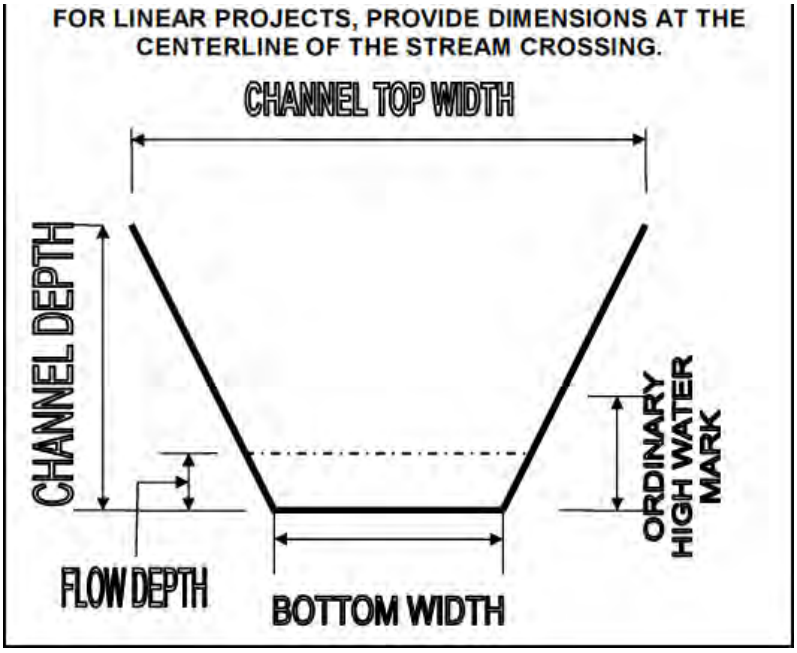
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/26/2014 **Direction:** W **Position:** Upstream



Date Collected: 06/26/2014 **Direction:** E **Position:** Downstream



Date Collected: 06/26/2014 **Direction:** N **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/26/2014 1:08:06 PM	**Stream ID:** WW-T12-21009
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Tower Branch
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 12	**Observers:** Ethan Virts, Dan Herrera	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☐SE ☐S ☐SW ☐W ☑NW	☐TNW ☐P-RPW ☑S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☑Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☐1-3 ☑3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☐1-3 ☑3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☑Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☑Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☑Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☑Destruction of terrestrial vegetation
☐Presence of wrack Line	☑Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:	☑ Pools	Number: 1	Max Depth (ft) 0.5
☑ Gravel	Percent: 40	☑ Runs	Number: 2	
☐ Sand	Percent:	☑ Riffles	Number: 2	
☑ Silt	Percent: 10			
☑ Cobbles	Percent: 50	**Woody Debris and Root Masses**		
☐ Clay	Percent:	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank 40		
☐ Other	Percent:	Linear feet of overhanging root masses along R bank 50		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Species pine, hemlock, red maple

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T12-21009A
Other Streams:	WW-T12-21009A, WW-T12-21009B
Seeps/Springs:	
Drainages:	

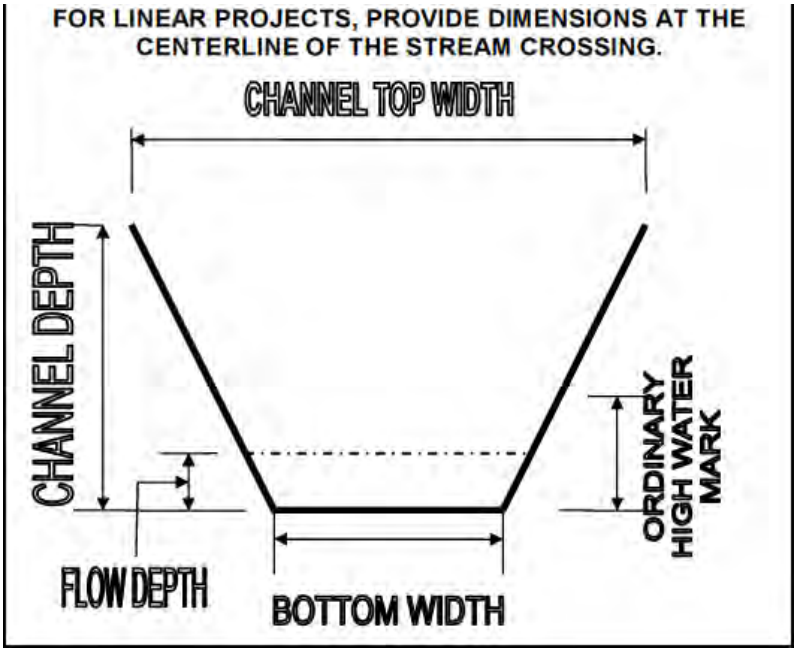
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

COMMENTS



Definitions:

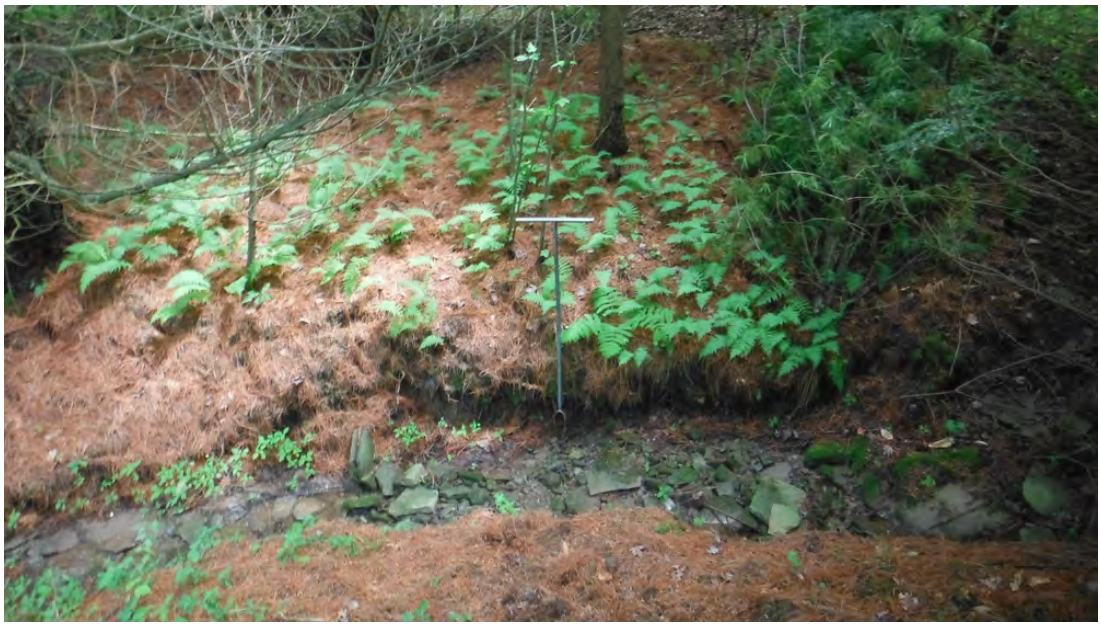
Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/26/2014 **Direction:** SE **Position:** Upstream



Date Collected: 06/26/2014 **Direction:** NW **Position:** Downstream



Date Collected: 06/26/2014 **Direction:** W **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/05/2015 2:02:43 PM	**Stream ID:** WW-T92-21002
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Tower Branch

Survey Area:
☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area

Stream Type:
☑ **Natural Feature** ☐ **Ditch/Canal/Other**

Team No. 92	**Observers:** Zack Fink Sarah Craig	**HUC:** 020502061208

Current Hydrologic Conditions:

Water Quality
☐Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:
n/a

OHWM Width (ft)
☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☑N ☐NE ☐E ☐SE ☐S ☐SW ☐W ☐NW

Flow Type
☐TNW ☐P-RPW ☐S-RPW ☑non-RPW

Sinuosity (bends per 200' of stream reach)
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☐Flat(0.5'/100') ☐Flat-Moderate ☑Moderate (2'/100')
☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope:
☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Right Bank
Height (ft):
☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope:
☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☑11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Number:_____	Max Depth (ft)_____
☑ Gravel	Percent: 20	☐ Runs	Number:_____	
☑ Sand	Percent: 20	☐ Riffles	Number:_____	
☑ Silt	Percent: 20			
☐ Cobbles	Percent:_____	**Woody Debris and Root Masses**		
☑ Clay	Percent: 20	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank 0		
☑ Other Rocks	Percent: 20	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	n/a
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☐ No ☑ Yes

Explain: Not fish bearing

Canopy Cover

☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	WW-T12-21009A
Seeps/Springs:	
Drainages:	

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

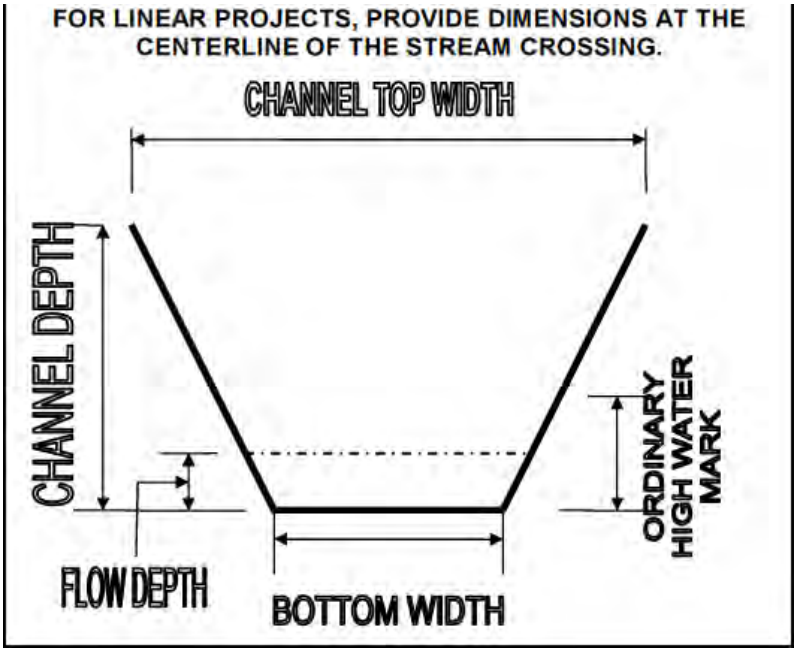
☐ Weir or Check-Dam ☐ Other_____

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

None

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/07/2015 **Direction:** S **Position:** Upstream



Date Collected: 06/07/2015 **Direction:** N **Position:** Downstream



Date Collected: 06/07/2015 **Direction:** E **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/26/2014 1:26:55 PM	**Stream ID:** WW-T12-21009A
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Tower Branch

Survey Area:
☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area

Stream Type:
☑ **Natural Feature** ☐ **Ditch/Canal/Other**

Team No. 12	**Observers:** Ethan Virts Dan Herrera	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality
☐Clear ☑Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:
due to high organic in adjacent wetlands

OHWM Width (ft)
☐1-5 ☑5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☐0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☑2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☑SE ☐S ☐SW ☐W ☐NW

Flow Type
☐TNW ☑P-RPW ☐S-RPW ☐non-RPW

Sinuosity (bends per 200' of stream reach)
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☐Flat(0.5'/100') ☐Flat-Moderate ☑Moderate (2'/100')
☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☑5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope:
☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Right Bank
Height (ft):
☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope:
☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☑Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☑ Pools	Number: 5	Max Depth (ft) 0
☐ Gravel	Percent:_____	☑ Runs	Number: 5	
☐ Sand	Percent:_____	☑ Riffles	Number: 5	
☐ Silt	Percent:_____			
☑ Cobbles	Percent: 10	**Woody Debris and Root Masses**		
☑ Clay	Percent: 90	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank 0		
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☑ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Species reed canary grass, hawthorn, eastern hemlock

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T12-21009A
Other Streams:	WW-T12-21009, WW-T12-21009B
Seeps/Springs:	
Drainages:	

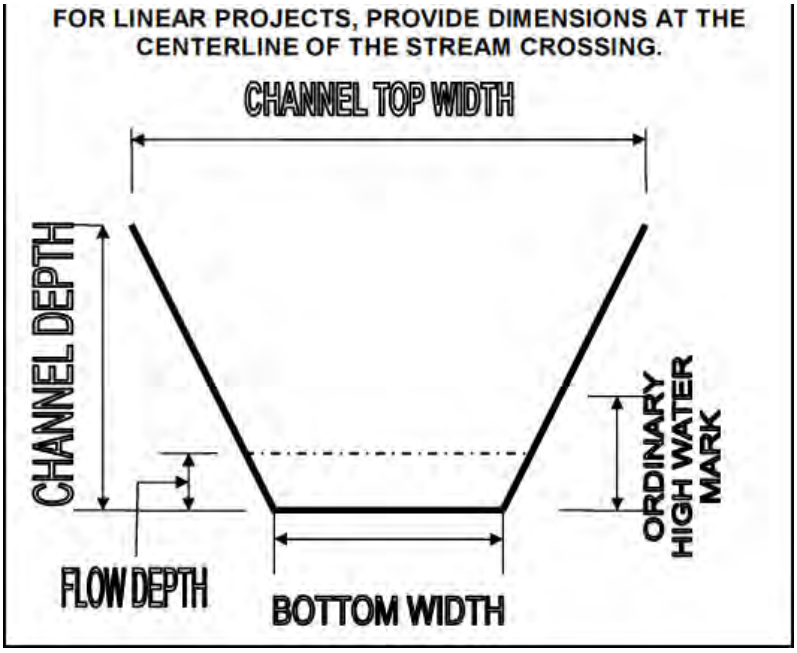
Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other_____

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/26/2014 **Direction:** NW **Position:** Upstream



Date Collected: 06/26/2014 **Direction:** SE **Position:** Downstream



Date Collected: 06/26/2014 **Direction:** E **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/27/2014 7:48:46 AM	**Stream ID:** WW-T12-21009B
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Tower Branch
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 12	**Observers:** Ethan Virts, Dan Herrera	**HUC:** 020501061208

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☑N ☐NE ☐E ☐SE ☐S ☐SW ☐W ☐NW	☐TNW ☑P-RPW ☐S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☑Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☐1-3 ☑3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☐1-3 ☑3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☑51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☑Sediment sorting	☑Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:	☑ Pools	Number: 1	Max Depth (ft) 0
☑ Gravel	Percent: 25	☑ Runs	Number: 2	
☐ Sand	Percent:	☑ Riffles	Number: 2	
☑ Silt	Percent: 35			
☑ Cobbles	Percent: 40	**Woody Debris and Root Masses**		
☐ Clay	Percent:	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank 0		
☐ Other	Percent:	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☑ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T12-21009B
Other Streams:	WW-T12-21009, WW-T12-21009A
Seeps/Springs:	
Drainages:	

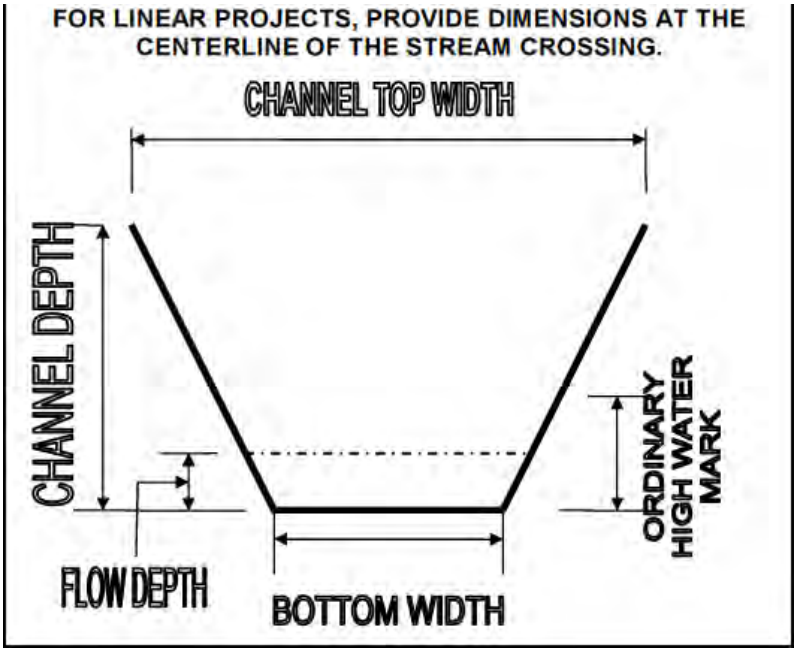
Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/27/2014 **Direction:** S **Position:** Upstream



Date Collected: 06/27/2014 **Direction:** N **Position:** Downstream



Date Collected: 06/27/2014 **Direction:** W **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/30/2015 9:43:04 AM	**Stream ID:** WW-T48-21001A
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Tower Branch
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 48	**Observers:** Evan Sheppard, Jacob Gromiller	**HUC:** 02050106000586

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☑N ☐NE ☐E ☐SE ☐S ☐SW ☐W ☐NW	☐TNW ☐P-RPW ☑S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☑2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☑Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+	**Height (ft):** ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope: ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☑0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☐Herbaceous ☐Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☑Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☑Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Number:_____	Max Depth (ft)_____
☑ Gravel	Percent: 30	☑ Runs	Number: 0	
☑ Sand	Percent: 10	☑ Riffles	Number: 1	
☑ Silt	Percent: 30			
☑ Cobbles	Percent: 30	**Woody Debris and Root Masses**		
☐ Clay	Percent:_____	Number of Woody Debris >6" diameter within OHWM 4		
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank 0		
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☐ No ☑ Yes

Explain: headwater

Canopy Cover

☐ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☑ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	WW-T48-21001
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

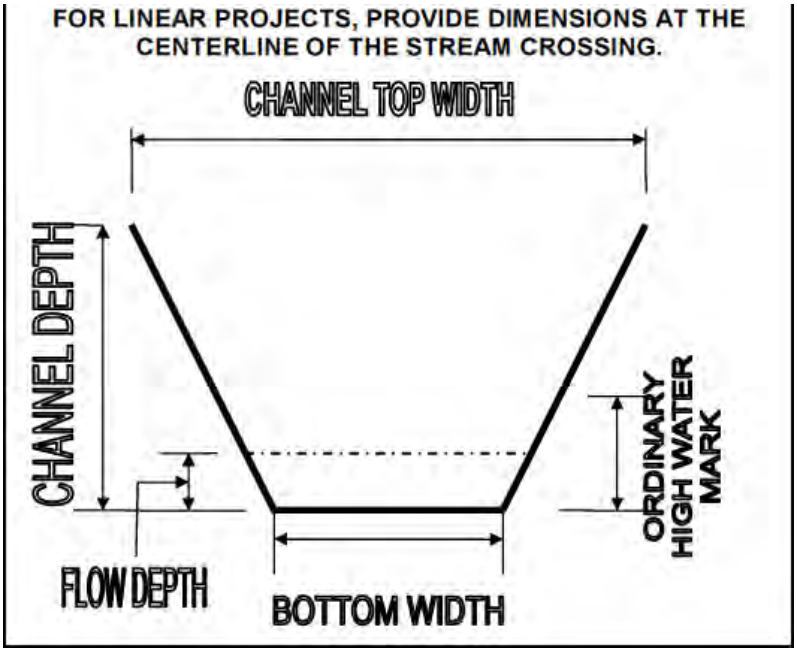
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other_____

COMMENTS



Definitions:

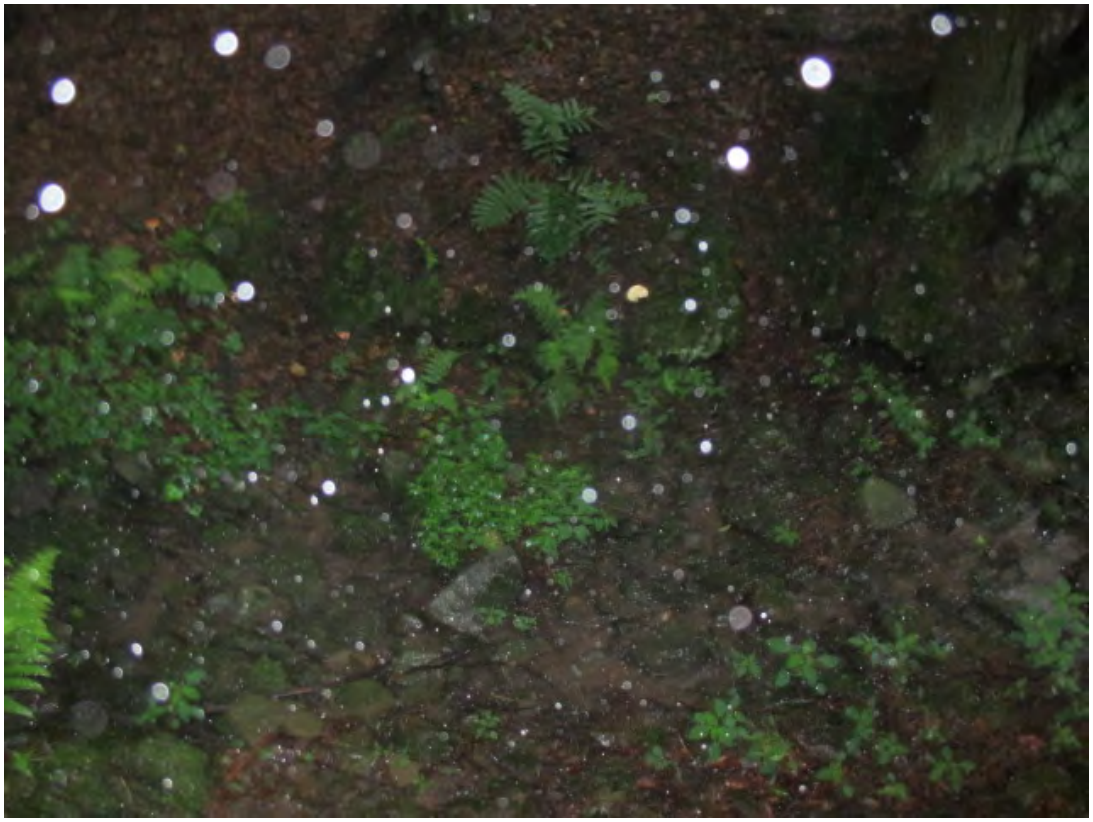
Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/30/2015 **Direction:** S **Position:** Upstream



Date Collected: 06/30/2015 **Direction:** N **Position:** Across



Date Collected: 06/30/2015 **Direction:** W **Position:** Downstream

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/29/2015 3:35:56 PM	**Stream ID:** WW-T48-21001
State: PA	**County:** Susquehanna	**Stream Name:** Tower Branch
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 48	**Observers:** Evan Sheppard, Jacob Gromiller	**HUC:** 02050106000586

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☐1-5 ☑5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☐0-0.5 ☑0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☑E ☐SE ☐S ☐SW ☐W ☐NW	☐TNW ☑P-RPW ☐S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☑2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☑Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☑10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+	**Height (ft):** ☐1-3 ☑4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope: ☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☑26-50 ☐51-75 ☐76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☑Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☑Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:	☑ Pools	Number: 2	Max Depth (ft) 1.5
☑ Gravel	Percent: 40	☑ Runs	Number: 4	
☑ Sand	Percent: 20	☑ Riffles	Number: 4	
☐ Silt	Percent:			
☑ Cobbles	Percent: 40	**Woody Debris and Root Masses**		
☐ Clay	Percent:	Number of Woody Debris >6" diameter within OHWM	0	
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank	0	
☐ Other	Percent:	Linear feet of overhanging root masses along R bank	0	

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T48-21003
Other Streams:	WW-T48-21001A, WW-T48-21001B
Seeps/Springs:	
Drainages:	

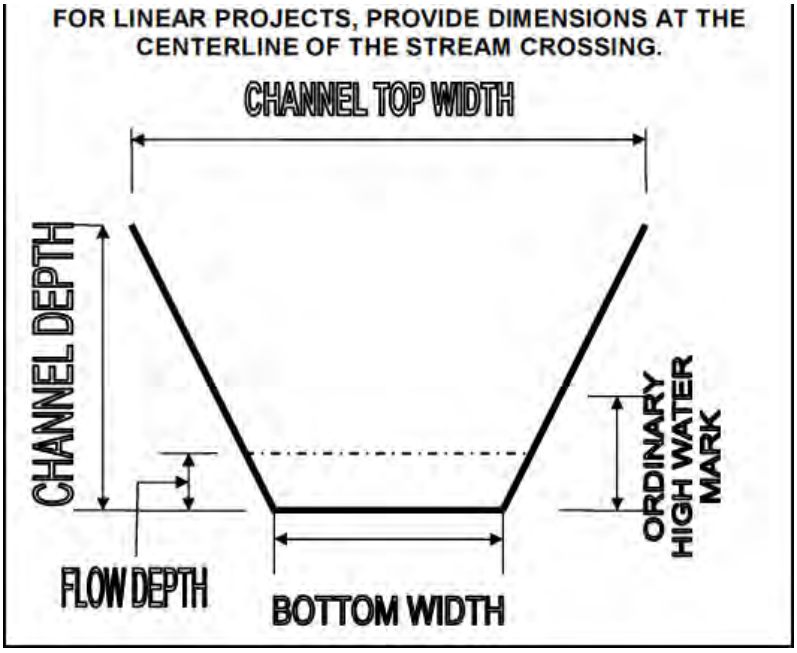
Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/29/2015 **Direction:** W **Position:** Upstream



Date Collected: 06/29/2015 **Direction:** E **Position:** Downstream



Date Collected: 06/29/2015 **Direction:** N **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 06/30/2015 10:07:46 AM	**Stream ID:** WW-T48-21001B
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Tower Branch
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 48	**Observers:** Evan Sheppard, Jacob Gromiller	**HUC:** 02050106000586

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☐SE ☐S ☐SW ☑W ☐NW	☐TNW ☐P-RPW ☑S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☑Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☑5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+	**Height (ft):** ☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope: ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☐Herbaceous ☐Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☑Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☑Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☑Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Number:_____	Max Depth (ft)_____
☑ Gravel	Percent: 20	☐ Runs	Number:_____	
☑ Sand	Percent: 40	☑ Riffles	Number: 1	
☐ Silt	Percent:_____			
☑ Cobbles	Percent: 40	**Woody Debris and Root Masses**		
☐ Clay	Percent:_____	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank 0		
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☐ No ☑ Yes

Explain: headwater

Canopy Cover

☐ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☑ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	WW-T48-21001
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

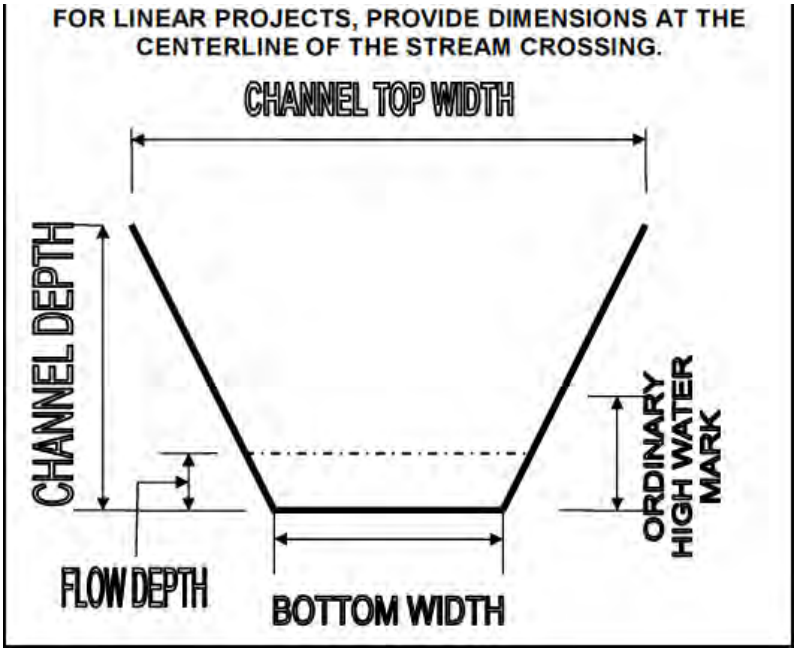
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other_____

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 06/30/2015 **Direction:** E **Position:** Upstream



Date Collected: 06/30/2015 **Direction:** W **Position:** Downstream



Date Collected: 06/30/2015 **Direction:** N **Position:** Across

STREAM DATASHEET

Project: ASR-CPLN	**Date:** 07/01/2014 10:41:06 AM	**Stream ID:** WW-T17-21001
State: PA	**County:** Susquehanna	**Stream Name:** UNT to Tower Branch
Survey Area: ☑ROW ☐Access Road ☐Facility ☐ATWS/Staging area		**Stream Type:** ☑ **Natural Feature** ☐ **Ditch/Canal/Other**
Team No. 17	**Observers:** Ben Virts, Travis Whitney	**HUC:** 020501061204

Current Hydrologic Conditions:

Water Quality ☐Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☑Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☐0-0.5 ☑0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☐SE ☐S ☐SW ☑W ☐NW	☐TNW ☐P-RPW ☐S-RPW ☑non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☐0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☐Flat(0.5'/100') ☐Flat-Moderate ☑Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+	**Height (ft):** ☑1-3 ☐3-5 ☐5-7 ☐7-10 ☐10-15 ☐15-20 ☐20-30 ☐30+
Slope: ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☑31-45° (3:1) ☐46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☐Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☑Vegetation matted down, bent, absent	☑Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☑Presence of wrack Line	☑Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:	☑ Pools	Number: 2	Max Depth (ft) 1
☑ Gravel	Percent: 40	☐ Runs	Number:	
☑ Sand	Percent: 10	☑ Riffles	Number: 3	
☑ Silt	Percent: 5			
☑ Cobbles	Percent: 40	**Woody Debris and Root Masses**		
☑ Clay	Percent: 5	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank 10		
☐ Other	Percent:	Linear feet of overhanging root masses along R bank 10		

Aquatic Vegetation

Type		Species
☑ None	☐ Rooted Floating	
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☐ No ☑ Yes

Explain: insufficent flow

Canopy Cover

☐ Open, full sun ☐ Partially shaded ☑ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☑ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☑ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☑ 75-100 ☐ 100-150 ☐ 150+

Species Acer rubrum, Rich species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

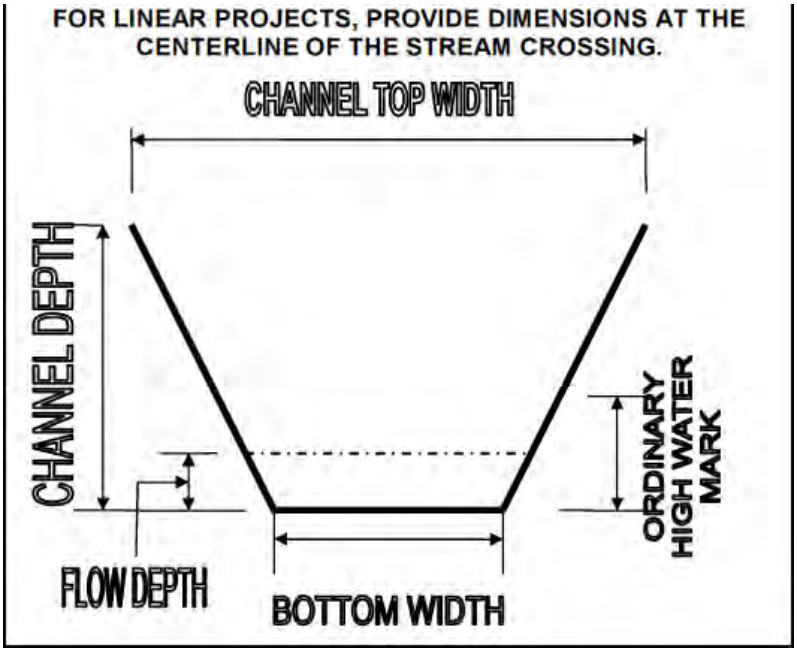
☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☑ Other existing pipeline

COMMENTS

portion of riparian corridor is within an existing N.G. pipeline ROW. The ROW portion is herbaceous dominated by Solidago canadensis. Beyond the exisiting ROW, the corridor is forested.



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.



Date Collected: 07/01/2014 **Direction:** E **Position:** Upstream



Date Collected: 07/01/2014 **Direction:** W **Position:** Downstream



Date Collected: 07/01/2014 **Direction:** N **Position:** Across