WETLAND AND WATERS OF THE UNITED STATES FINDINGS REPORT

For the proposed:

Allegheny Tunnel Transportation Improvement Project
Allegheny and Stonycreek Townships
Somerset County, Pennsylvania

Prepared for:

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

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1.0 INTRODUCTION

This report presents the findings of a wetlands and surface waters investigation performed by environmental staff at L.R. Kimball – A CDI Company (L.R. Kimball) on behalf of the Pennsylvania Turnpike Commission (PTC) for the Allegheny Tunnel Transportation Improvement Project (Project) in Allegheny and Stonycreek Townships, Somerset County, Pennsylvania (PA).

The PTC's proposed Project was initiated in 1996 as a result of increasing concerns regarding: traffic congestion, frequency and severity of accidents in the vicinity of the tunnel, and physical and structural conditions of the existing Allegheny Mountain Tunnel. The existing tunnel is located approximately 13 miles east of Interchange 110 (Somerset, PA) and 23 miles west of Interchange 146 (Bedford, PA).

The study area associated with the proposed Project is shown on the Project Overview Maps, Figures 1 and 2, which are presented on United States Geological Survey (USGS) topographic and aerial backgrounds, respectively. The USGS quadrangle coverage for the proposed Project consists of the New Baltimore and Berlin, PA USGS Quadrangles. The approximate center of the Project study area is located at Latitude 39° 57' 47.3" North and Longitude -78° 51' 02.8" West.

Field investigations were conducted by L.R. Kimball during May through August 2012 and April 2013 to identify and delineate wetlands and regulated surface water resources. In summary, 71 wetlands and 134 streams were identified within the Project study area. A summary of wetland types is provided in Table 2, and details on individual wetland resources are provided in Table 3. The summary of stream types identified within the Project study area and details on individual stream resources are provided in Tables 4 and 5, respectively. The following sections provide the methodology, findings, and conclusions of the above-referenced wetland and surface water resources investigations.

1.1 Site Location

The Project study area is shown on the Project Overview Maps (Figures 1 and 2), which are presented on USGS topographic and aerial backgrounds.

Driving Directions

- From Pittsburgh, PA, head southeast on Interstate 376 East toward Exit 71A (14.4 miles);
- Take exit 85 for Interstate 76 (I-76) toll road (0.4 – mile);
- Take exit 359-67 for I-76 East toll road toward Harrisburg (0.2 – mile);
- Merge onto I-76 East Toll road (53.6 miles);
- Take exit 110 toward Somerset, PA Toll road (0.2 – mile);
- Continue onto North Pleasant Avenue (0.6 – mile);
- Turn left onto PA State Route (SR) 31 East (10.1 miles);
- Turn left onto PA SR 60 North/Huckleberry Highway (2.4 miles);
- Turn right onto Big Rock Road (0.6 – mile); and,
- Continue onto Bluebird Lane (1.2 miles).

1.2 Site Description

The Project study area consists of approximately 1,200 acres (Ac.), which is bisected from east to

westby the PTC's existing east- and west-bound lanes of I-76. The Allegheny Mountain ridgeline bisects the Project study area from south to north. SR 160 cuts through the western portion of the study area from south to north. Deeter's Gap Road (SR 1013) nears the south-central boundary of the Project study area, but does not enter the boundary before it turns eastward. An aerial background location map is referenced on Figure 2.

Two electrical power line right-of-ways (ROWs) exist within the Project study area on the western side of the Allegheny Mountain. A cellular tower facility is located on the Allegheny Mountain ridge top, centered approximately overtop the existing PTC Allegheny Mountain Tunnel. A maintained gravel road provides access to the cellular tower, where it proceeds down the western face of Allegheny Mountain to the PTC's existing western portal of the Allegheny Tunnel. Several dirt and gravel roads exist within the Project study area, most of which are maintained by the Mountain Field and Stream Sportsmans Club – the property owner holding the majority of the acreage within the study area.

The majority of the Project study area remains as upland, deciduous forest, with minimal coniferous interspersions that are contained within the Raystown Branch Juniata River valley bottom. Modest interspersion of scrub-shrub and herbaceous cover can be seen within areas that experience routine maintenance (i.e., power line ROWs, previous and active agriculture, gravel/dirt trails, wildlife food plots, etc.). Surface rock is prevalent, especially near the ridge top of the Allegheny Mountain, with extensive rock outcrops/ledges noted on the eastern face of the Allegheny Mountain. As identified in PA Department of Conservation and Natural Resources Atlas of Preliminary Geologic Quadrangle Maps of PA (Map 61), the Allegheny Mountain ridge consists of Pottsville Group (Pp) and side slopes consist primarily of Mauch Chunk Formation (Mmc) on the eastern face and Allegheny Group (Pa) on the western face. The ridge top and slopes of the Allegheny Mountain appear to have minimal human- induced modification, other than intermittent logging activities which resulted in forest composition alteration and logging/access road installation.

2.0 WETLANDS AND SURFACE WATERS DELINEATION METHODOLOGY

2.1 Background Data Collection

L.R. Kimball environmental staff gathered and conducted a desktop review of available topographic, aerial, soils, and wetland mapping to determine the presence of potential wetland areas and surface water resources. Following completion of the background analysis, a field investigation was conducted to determine the occurrence of wetland habitats and surface waters within the Project study area. Approximate location data was collected for wetlands and linear location data was collected for streams during a field investigation in the fall season of 2011.

2.2 Wetland Assessment and Delineation Procedures

During the May through August 2012 and April 2013 field investigation, determinations were made regarding the presence or absence of jurisdictional and non-jurisdictional wetland resources in accordance with the criteria established in the United States Army, Corps of Engineers (USACE), Technical Report Y-87-1, USACE *Wetland Delineation Manual*, 1987 and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, Version 2.0* (USACE, April 2012). As established by the manual and supplemental guidance, the site was assessed for the presence of the following three wetland criteria:

1. Hydrophytic vegetation;

2. Hydric soils; and,

3. Wetland hydrology.

In areas where one or more of these criteria are disturbed due to man-made, seasonal, or other conditions, a determination was made as to whether or not the missing criteria would be present under normal circumstances.

Identification of Hydrophytic Vegetation

The wetland indicator status of the dominant species comprising each stratum was identified in order to determine hydrophytic plant community composition. Wetland indicator status types and frequency of plant occurrence within wetland communities, as defined by *The National Wetland Plant List* (USACE, October 2012) are described below:

- Obligate Wetland (OBL) – Almost always occur in wetlands;

- Facultative Wetland (FACW) – Usually occur in wetlands, but may occur in non-wetlands;

- Facultative (FAC) – Occur in wetlands or non-wetlands;

- Facultative Upland (FACU) – Usually occur in non-wetlands, but may occur in wetlands;

- Obligate Upland (UPL) – Almost never occur in wetlands.

Plant communities containing a population greater than 50% of OBL, FACW, and/or FAC species (dominance test) or meeting one of the other indicators set forth in the Regional Supplement to the USACE Manual are considered hydrophytic for the purposes of the wetland classification criteria. In areas where the vegetation was disturbed or not identifiable due to seasonal conditions, soil and hydrology characteristics, and professional judgment/experience were utilized in assessing the primary determining factors for classification as wetlands.

Identification of Hydric Soils

The Pennsylvania State University College of Agricultural Sciences Cooperative Extension's SoilMap, Version 2 was reviewed to determine the soil series occurring within the project area. Hydric soils and soils with hydric inclusions were also identified through the use of the Web Soil Survey and a field assessment of the Project study area soils.

Non-hydric soil mapping units were also assessed to determine if they contained hydric soil inclusions. The soils were evaluated based on the mandatory technical criteria for hydric soils, as set forth by the National Technical Committee for Hydric Soils of the NRCS. Additionally, field indicators for determining whether a given soil meets the hydric soil criteria and definition were evaluated by assessing soil samples taken throughout the study area with a shovel to a depth of up to 18 inches, depending on the soil drainage class. The soil samples retrieved were visually analyzed for evidence of organic material, mottling, gleying, low *Munsell* chromas, reduction-oxidation concentrations, saturation, histic epipedons, sulfidic odors, and iron and manganese concretions.

Identification of Wetland Hydrology

The field identification of wetland hydrology included the visual observation of permanent or periodic inundation, soil saturation in the upper 12 inches, oxidized root zones, and any other related features specified in the USACE *Wetland Delineation Manual* and supplemental guidance indicating that hydrology occurs for at least seven consecutive days during the growing season. Where surface indicators were not evident, soil samples were analyzed to determine hydrologic permanence and influences within the sample location.

Wetland Determination, Survey, and Mapping

A wetland determination was made where criteria for all three (3) wetland parameters were met, unless one of the parameters was absent due to seasonal or physical alterations. In cases where one or more of these parameters were absent due to natural, seasonal, or man-made disturbances, a determination was made as to whether the missing parameter(s) would occur under normal circumstances based on other data, field indicators, and best professional judgment.

The boundaries of the delineated wetlands were identified in the field with surveyor's flagging labeled with an alpha-numeric code. The code identified the resource as a wetland, with the surveyor's initials, and specific resource number (e.g. W-SRC-01). Following the boundary flagging, wetland boundary flags were global position system (GPS) surveyed with a *Trimble Geo XH Explorer* that used *TerraSync* version 5.02 software. The wetland survey data was post-processed differentially corrected with a fixed National Geodetic Survey (NGS), National Oceanic and Atmospheric Administration (NOAA), Continuously Operating Reference Station or a NGS NOAA Cooperative Station using *Trimble Pathfinder Office* version 5.10. The typical precision of differentially corrected GPS survey data is

within one foot. Differentially-corrected wetland survey data was digitally incorporated into the Project study area mapping and reviewed by the wetland delineators to identify compromised survey data and/or flag labeling inconsistencies. If warranted, compromised survey data was resurveyed and differentially corrected.

2.3 Surface Waters Assessment and Delineation Procedures

Surface Water Classification

Surface waters identified during the course of the investigation were classified as perennial, intermittent, or ephemeral waterways in accordance with the rationale defined by the USACE Pittsburgh District and the PA Department of Environmental Protection (PADEP). The stream classifications are defined as follows:

- Perennial stream – A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

- Intermittent Stream – An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

- Ephemeral stream – An ephemeral stream has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Surface waters were also investigated to classify the streams as per the December 2, 2008, *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* guidance memorandum, which defines each waterway type in the following manner:

- Traditional Navigable Waters (TNW) – A TNW refers to all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

- Relatively Permanent Waters (RPW) – An RPW refers to a non-navigable water body whose waters flow into a TNW either directly or indirectly by means of other tributaries. These are waters that are "relatively permanent" – meaning waters that typically flow year-round or waters that have a continuous flow at least seasonally (e.g., typically three months).

- Not Relatively Permanent Waters (NRPW) – A NRPW refers to a non-navigable water body whose waters are not relatively permanent. This would include ephemeral tributaries which flow only in response to precipitation and intermittent streams which do not typically flow year-round or lack continuous flow, even seasonally.

Surface Water Identification, Survey, and Mapping

During the initial survey, surface water resources were mapped or rendered by hand in the field onto project mapping using stereo-plotted contour features and known reference points or landmarks. L.R. Kimball staff then proceeded to known reference points and/or landmarks where the location of surface water resources was flagged in the field.

The linear features of the identified streams were identified in the field with surveyor's flagging labeled with an alpha-numeric code. The code identified the resource as a stream, with the surveyor's initials, and specific resource number (e.g. S-SRC-01). Following the channel centerline flagging/identification, the length of the resource within the Project study area was GPS-surveyed with a *Trimble Geo XH Explorer* that used *TerraSync* version 5.02 software. The stream survey data was post-processed differentially corrected with a fixed NGS, NOAA, Continuously Operating Reference Station or a NGS NOAA Cooperative Station using *Trimble Pathfinder Office* version 5.10. The typical precision of differentially corrected GPS survey data is within one foot. Differentially corrected stream survey data was digitally incorporated into the Project study area mapping and reviewed by the stream delineators to identify compromised survey data and/or flag labeling inconsistencies. If warranted, compromised survey data was resurveyed and differentially corrected.

2.4 PADEP Draft Level I Rapid Assessment Protocol

Prior to initiating the field investigation, coordination with the PADEP and the USACOE occurred to identify an appropriate functional assessment methodology (May 11, 2012). The PADEP was in the process of developing a Rapid Assessment Protocol (RAP) for both wetlands and streams. They provided a draft of the Level 2 PA Riverine and Wetland Condition Level 2 RAPs for review. Upon review of these RAPs and further discussion with the PADEP, it was agreed that the Level 2 assessments were too detailed for this large of a study area and the PADEP agreed to produce a Level 1 RAP for each wetland and stream habitats for use on this Project. The PADEP indicated that the Level 2 RAPs should be utilized in assessing the preferred alternative, once selected.

Both the Level 1 wetland and stream RAPs consisted of a single page assessment, relating primarily to the condition of the vegetation within the Zone of Influence (ZOI) of each resource. The ZOI for wetlands is considered to extend 300 feet outside of the delineated boundaries of the resource, while the ZOI for streams is assessed based upon as the vegetative condition within the resource's floodplain, as well as the condition of the vegetative cover extending 100 feet beyond the floodplain.

The resulting Condition Index (CI) score for each assessed resource is not intended to represent a detailed vegetative cover survey, but instead is a qualitative evaluation of the cover types that constitute the area immediately surrounding the resource. The evaluation and scoring of the ZOI condition(s) are based upon visual observations of the assessment area. For heterogeneous ZOIs, each cover type is assigned a percentage of cover, which provides the means of weighting the land cover types associated with the overall ZOI. The Draft Level 1 RAP is intended to provide information on the condition of the contributing area surrounding each resource, with the assumption that lower quality resources will have a higher interspersion of poor condition habitat (i.e., mowed-maintained lawns, pasture land, impervious sources, roads, etc.), while higher-quality resources will be surrounded by contributing habitats exhibiting non-maintained tree and/or scrub-shrub canopy. The resulting CI for each resource provides a brief overview of the quality of each assessed resource.

Wetland Condition Assessment Form

In order to complete the PADEP Draft Level 1 Wetland Condition Assessment Form the following procedure was utilized. First, the observed vegetative condition types within the wetland's ZOI were assigned approximate percentages, all of which would add to 100 percent. Second, each vegetative condition type was assigned a score of one (1) through 20, with 1 being "low poor" and 20 being "optimal". Once these scores were assigned to each vegetative condition type, each ZOI percentage (in decimal form) and the associated score were multiplied, and then summed to provide an overall score. The overall score was then divided by the "optimal" score of 20, in order to obtain the CI for the resource. The maximum CI for a wetland is 1.00, representing a natural assessment area with no man-made alterations or influence (i.e., land cover areas comprised of hardwood/conifer trees, wetlands, and/or waterways).

Riverine Assessment Form

A PADEP Draft Level 1 River Assessment Form was completed for each identified surface water resource. Much like the Wetland Condition Assessment Form, the observed vegetative condition types on the surface water's right and left banks ZOIs (Floodplain ZOI and Riparian ZOI) were assigned approximate percentages, all of which would add to 100 percent. Then, each vegetative condition type was assigned a score of one (1) through 20, with 1 being "low poor" and 20 being "optimal". Once these scores were assigned to each vegetative condition type, each ZOI percentage (in decimal form) and the associated score were multiplied, and then summed to provide an overall score for each bank. The overall score for each bank was then divided by 20, which represents the "optimal" condition, in order to obtain the Condition Index for each bank. To obtain the CI for the floodplain and riparian corridors, the average of the left and right bank CIs was calculated. Once the CIs for the floodplain and riparian conditions were calculated, those scores were then averaged to obtain the overall CI for the resource. The maximum CI for a resource is 1.00, representing a natural surface water that does not exhibit man-made alterations or influence.

The Wetland Condition Indices and Riparian Ecotune Condition Indices for each wetland and stream resource are provided within Tables 3 and 5, respectively. Copies of the Draft Level 1 Wetland Condition Assessment Forms and Draft Level 1 Riverine Assessment Forms are provided within the Wetland Resource Data Packages and Stream Resource Data Packages, located within Appendices A and B, respectively.

3.0 WETLAND AND SURFACE WATERS ASSESSMENT AND DELINEATION FINDINGS

3.1 Soils Description

According to the *Somerset County Soil Survey*, 24 soil map units were identified to occur within the Project study area. These soil map units are listed in Table 1 – Project Study Area Soils. Fourteen of the 24 soil map units are identified as meeting hydric soil requirements, which includes the soil map units of Atkins (At), Brinkerton (BrA and BtB), Cavode (CaB, CaC, and CbB), Ernest (ErB, ErC, EsB, and EsD), Fluvaquents (FV), Nolo (NsB), Udorthents (UDD), and Wharton (WhB). Figure 3 – Project Study Area Soils, illustrates the locations of the soil types associated with the proposed Project.

Table 1
Project Study Area Soils [1]

Soil Symbol [1]	Soil Series Name [1]	General Characteristics [1]	Hydric [2]
AgB	Albrights	Very stony slit loam, 3 to 8 percent slopes	Not hydric
AgD	Albrights	Very stony silt loam, 8 to 25 percent slopes	Not Hydric
At	Atkins	Silt loam	Hydric
BkC	Berks-Weikert	Channery silt loams, 8 to 15 percent slopes	Not Hydric
BkD	Berks-Weikert	Channery silt loam, 15 to 25 percent slopes	Not Hydric
BrA	Brinkerton	Silt loam, 0 to 3 percent slopes	Hydric
BtB	Brinkerton	Very stony silt loam, 0 to 8 percent slopes	Hydric
CaB	Cavode	Silt loam, 3 to 8 percent slopes	Hydric
CaC	Cavode	Silt loam, 8 to 15 percent slopes	Hydric
CbB	Cavode	Very stony silt loam, 0 to 8 percent slopes	Hydric
ErB	Ernest	Silt loam, 3 to 8 percent slopes	Hydric
ErC	Ernest	Silt loam, 8 to 15 percent slopes	Hydric
EsB	Ernest	Very stony silt loam, 3 to 8 percent slopes	Hydric
EsD	Ernest	Very stony silt loam, 8 to 25 percent slopes	Hydric
FV	Fluvaquents	Fluvaquents	Hydric
HbB	Hazelton	Very stony sandy loam, 3 to 8 percent slopes	Not Hydric
HbD	Hazelton	Very stony sandy loam, 8 to 25 percent slopes	Not Hydric
HzB	Hazleton	Very stony bouldery sandy loam, 0 to 8 percent slopes	Not Hydric
HzF	Hazelton	Very stony boulder sandy loam, 25 to 60 percent slopes	Not Hydric

Table 1
Project Study Area Soils [1]

Soil Symbol [1]	Soil Series Name [1]	General Characteristics [1]	Hydric [2]
LeB	Leck Kill	Channery silt loam, 3 to 8 percent slopes	Not Hydric
LeC	Leck Kill	Channery silt loam, 8 to 15 percent slopes	Not Hydric
LkB	Leck Kill	Very stony silt loam, 3 to 8 percent slopes	Not Hydric
LkD	Leck Kill	Very stony silt loam, 8 to 25 percent slopes	Not Hydric
LmF	Leck	Kill soils, 25 to 70 percent slopes	Not Hydric
NsB	Nolo	Very stony loam, 0 to 8 percent slopes	Hydric
RgB	Rayne-Gilpin	Channery silt loams, 3 to 8 percent slopes	Not Hydric
RgC	Rayne-Gilpin	Channery silt loams, 8 to 15 percent slopes	Not Hydric
RgD	Rayne-Gilpin	Channery silt loam, 15 to 25 percent slopes	Not Hydric
RgF	Rayne-Gilpin	Channery silt loam, 25 to 65 percent slopes	Not Hydric
RpB	Rayne-Gilpin	Very stony silt loams, 3 to 8 percent slopes	Not Hydric
RpD	Rayne-Gilpin	Very stony silt loams, 8 to 25 percent slopes	Not Hydric
UDD	Udorthents	Mine spoil, 8 to 25 percent slopes	Hydric
UDF	Udorthents	Mine spoil, 25 to 70 percent slopes	Not Hydric
WhB	Wharton	Silt loam, 3 to 8 percent slopes	Hydric

Note:

1. Information obtained from the Pennsylvania State University, College of Agricultural Sciences Cooperative Extension Soil Map online database, http://soilmap.psu.edu/code/mapindex.asp (accessed on October 8, 2012, March 6, 2013, and March 22, 2013).
2. Hydric soil classifications obtained from United States Department of Agriculture, Natural Resource Conservation Service Hydric Soils List, http://soils.usda.gov/use/hydric (Accessed on March 6 and 22, 2013).

3.2 National Wetlands Inventory Mapping

A review of the United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) on-line Wetlands Mapper was also conducted in order to determine if mapped NWI resources exist on site. Figure 4 provides the location of the three (3) NWI resources within the Project study area.

- One (1) palustrine emergent wetland, consisting of two NWI emergent wetland classifications (PEM5A/PEM5E), located south of the east-bound lane of I-76 and east of SR 160. This resource consists predominately of tussock sedge (Carex aquatilis) and exhibits temporary flooding.
- One (1) man-made, freshwater pond described as a palustrine, unconsolidated bottom

resource that is permanently flooded (PUBHh), is identified within the western portion of the Project study area, located north of the existing west-bound lane of I-76 and east of SR 160; and,

- One (1) man-made, freshwater pond described as a palustrine, unconsolidated bottom resource exhibiting semi-permanent flooding (PUBFh) is identified within the western portion of the Project study area, located immediately south of the western portal, in a mixed deciduous/coniferous forest.

3.3 Wetland and Surface Waters Findings

The wetland and surface water delineation was conducted from May through August 2012 and April 2013. Local rainfall recorded for the Somerset, PA was documented by NOAA at 0.12-inch for May through August 2012 and 2.60-inches for April 2013. In general, the weather during the months of the field investigation consisted of above-average temperatures and below average precipitation. In summary, 71 wetlands and 134 streams were identified within the Project study area, all of which are shown on Figure 5.

Wetland Descriptions

A summary of the Cowardin classification and associated acreage of the wetlands types identified within the Project study area are provided in Table 2. Detailed hydrology, vegetation, and soils information was individually documented for each identified wetland resource via USACE Wetland Determination Data Forms, which combine the 1987 USACE Manual and the USACE Regional Supplement. In addition, an upland data form, PADEP Wetland Condition Level 1 Rapid Assessment Form (Version 1.0), and photographs are included for each identified wetland resource in Appendix A. These individual resource packets are provided in the order of occurrence by alignment, as shown in Table 3, which also provides details on the classification, jurisdictional status, size, etc. of each identified wetland resource. The locations of the identified wetland resource within the Project study area are provided on Figure 5.

The dominant species common to several of the larger wetland systems were observed to consist of: tussocks sedge (*Carex aquatilis*) skunk cabbage (*Symplocarpus foetidus*), goldenrod (*Solidago rugosa*), soft rush (*Juncus effusus*), meadowsweet (*Spirea alba*), arrowwood (*Viburnum dentatum*), and swamp Juneberry (*Amalanchier canadensis*). The majority of the smaller wetland systems exhibited herbaceous vegetation cover consisting of: various sedge species (*Carex* spp.), spotted jewelweed (*Impatiens capensis*), sensitive fern (*Onoclea sensibilis*), and cinnamon fern (*Osumunda cinnamomea*). Specific information on vegetative species type and cover for each wetland resource is provided in Appendix A.

In general, the wetland soils range from a clay loam to silt loam and were found to have low chromas (1 or 2) with redox concentrations. Specific soils information was collected for each identified wetland resource, which is provided on the individual USACE Wetland Determination Data Forms that are provided in Appendix A.

In summary, a total of 54 of the 71 identified wetland resources are considered to be jurisdictional based on their nexus to either Stonycreek River or Raystown Branch Juniata River. None of the identified wetlands are considered Exceptional Value (EV) as per PADEP Chapter 93. The section of Stonycreek River to which the UNTs within the Project study area discharge to is identified as Cold Water Fishes (CWF), while the Raystown Branch Juniata River and its UNTs are classified as Cold Water Fishes –

Migratory Fishes (CWF, MF). The majority of the jurisdictional wetland features within the Project study area are located within floodplains of streams, while the majority of the identified isolated wetland resources are depressional features that receive hydrologic input via overland flow or groundwater. The USACE jurisdictional status for each identified wetland resource is provided in Table 3.

Table 2
Wetland Summary

Cowardin Wetland Classification [1]	# of Identified Resources Within Study Area	Acreage Identified Within Study Limits (Ac.) [2]
PEM	30	4.98
PSS	3	0.72
PFO	30	1.58
POW	1	0.11
PEM/PSS	1	0.06
PSS/PEM	1	13.33
PEM/PFO	1	0.21
PFO/PEM	1	0.14
PEM/PSS/PFO	1	0.66
PEM/PFO/PSS	1	1.48
PEM/PSS/MMP-DH [3]/PFO	1	13.61
TOTAL	71	36.88

Notes:

1. Cowardin Wetland Classification:
    - PEM – Palustrine Emergent
    - PSS – Palustrine Scrub Shrub
    - PFO – Palustrine Forested
    - POW – Palustrine Open Water
2. Wetland acreage is provided to the nearest 0.01-Ac.
3. MMP-DH – Man-Made Pond – Deepwater Habitat

Table 3
Wetland Details

	Wetland ID [1]	Classification (%) [2, 3]	Geomorphic Orientation [4]	Hydrology Source [5]	Jurisdiction [6]	Acreage Within Project Study Area (Ac.) [7]	PADEP Level 1 RAP Score [8]
1	W-01	PSS/PEM (72/28)	Floodplain	Stream	Jurisdictional	13.33	0.45
2	W-02	PEM (100)	Floodplain	Stream	Jurisdictional	<0.01	0.25
3	W-JHS-01	PEM/PSS/MMP-DH [8]/PFO (53/36/6/5)	Floodplain	Stream	Jurisdictional	13.61	0.22
4	W-JHS-02	PEM (100)	Seep	Groundwater	Jurisdictional	3.84	0.21
5	W-JHS-03	POW (100)	Floodplain	Stream	Jurisdictional	0.11	0.65
6	W-JHS-04	PEM (100)	Floodplain	Stream	Jurisdictional	0.04	0.34
7	W-JHS-05	PEM (100)	Floodplain	Stream	Jurisdictional	0.06	0.31
8	W-JHS-06	PEM (100)	Floodplain	Stream	Jurisdictional	0.04	0.31
9	W-JHS-08	PEM (100)	Floodplain	Stream	Jurisdictional	0.01	0.18
10	W-JHS-09	PEM (100)	Depression	Overland Flow	Jurisdictional	0.02	0.38
11	W-JHS-10	PEM (100)	Seep	Groundwater	Jurisdictional	<0.01	0.17
12	W-JHS-11	PEM (100)	Seep	Groundwater	Jurisdictional	0.03	0.20
13	W-JHS-12	PFO (100)	Seep	Groundwater	Jurisdictional	0.07	0.69
14	W-JHS-13	PFO (100)	Depression	Overland Flow	Isolated	0.03	0.80
15	W-SRC-01	PFO (100)	Depression	Groundwater	Jurisdictional	0.05	0.53
16	W-SRC-02	PEM (100)	Floodplain	Stream	Jurisdictional	0.07	0.26
17	W-SRC-03	PEM (100)	Floodplain	Stream	Jurisdictional	0.10	0.28
18	W-SRC-04	PFO (100)	Depression	Overland Flow	Isolated	0.01	0.65
19	W-SRC-05	PFO (100)	Floodplain	Stream	Jurisdictional	0.03	0.63
20	W-SRC-06	PFO (100)	Floodplain	Stream	Jurisdictional	0.09	0.61
21	W-SRC-08	PFO (100)	Floodplain	Stream	Jurisdictional	0.05	0.80
22	W-SRC-09	PFO (100)	Floodplain	Stream	Jurisdictional	0.28	0.90
23	W-SRC-10	PFO (100)	Floodplain	Stream	Jurisdictional	0.12	0.90
24	W-SRC-11	PEM (100)	Seep	Groundwater	Isolated	0.04	0.34
25	W-SRC-12	PSS (100)	Seep	Groundwater	Isolated	0.59	0.47
26	W-SRC-13	PSS (100)	Depression	Groundwater	Isolated	0.11	0.45
27	W-SRC-14	PEM (100)	Seep	Groundwater	Isolated	0.09	0.28
28	W-SRC-15	PEM (100)	Depression	Groundwater	Isolated	0.03	0.35
29	W-SRC-16	PSS (100)	Seep	Groundwater	Isolated	0.02	0.50
30	W-SRC-17	PEM (100)	Seep	Overland Flow	Jurisdictional	0.12	0.27
31	W-SRC-18	PEM (100)	Seep	Groundwater	Jurisdictional	<0.01	0.38
32	W-SRC-19	PEM (100)	Seep	Groundwater	Jurisdictional	0.02	0.39
33	W-SRC-20	PEM (100)	Seep	Groundwater	Jurisdictional	0.05	0.38
34	W-SRC-21	PEM (100)	Seep	Groundwater	Jurisdictional	0.10	0.39
35	W-SRC-22	PFO (100)	Depression	Overland Flow	Isolated	<0.01	0.80
36	W-SRC-23	PFO (100)	Depression	Overland Flow	Jurisdictional	0.24	0.90
37	W-SRC-24	PEM (100)	Depression	Overland Flow	Isolated	<0.01	0.45
38	W-SRC-25	PEM/PSS (50/50)	Floodplain	Stream	Jurisdictional	0.06	0.43
39	W-SRC-26	PEM (100)	Depression	Overland Flow	Isolated	0.03	0.45
40	W-SRC-27	PEM (100)	Depression	Overland Flow	Isolated	<0.01	0.45
41	W-SRC-28	PEM/PFO/PSS (50/39/11)	Depression	Overland Flow	Isolated	1.48	0.44
42	W-SRC-29	PEM/PSS/PFO (58/39/3)	Depression	Overland Flow	Isolated	0.66	0.42
43	W-SRC-30	PEM (100)	Depression	Stream	Jurisdictional	<0.01	0.55
44	W-SRC-31	PEM (100)	Seep	Groundwater	Jurisdictional	0.01	0.72
45	W-SRC-32	PFO (100)	Floodplain	Stream	Jurisdictional	0.04	0.80
46	W-SRC-33	PFO (100)	Floodplain	Stream	Jurisdictional	0.04	0.60
47	W-SRC-34	PFO (100)	Floodplain	Stream	Jurisdictional	0.02	0.60
48	W-SRC-35	PFO/PEM (64/36)	Floodplain	Stream	Jurisdictional	0.14	0.68

Table 3
Wetland Details

	Wetland ID [1]	Classification (%) [2, 3]	Geomorphic Orientation [4]	Hydrology Source [5]	Jurisdiction [6]	Acreage Within Project Study Area (Ac.) [7]	PADEP Level 1 RAP Score [8]
49	W-SRC-36	PFO (100)	Floodplain	Stream	Jurisdictional	0.11	0.80
50	W-SRC-37	PFO (100)	Floodplain	Stream	Jurisdictional	0.02	0.80
51	W-SRC-38	PFO (100)	Floodplain	Stream	Jurisdictional	0.06	0.80
52	W-SRC-39	PFO (100)	Floodplain	Stream	Jurisdictional	<0.01	0.80
53	W-SRC-40	PFO (100)	Floodplain	Stream	Jurisdictional	0.04	0.75
54	W-SRC-41	PFO (100)	Depression	Overland Flow	Isolated	<0.01	0.64
55	W-SRC-42	PFO (100)	Floodplain	Stream	Jurisdictional	<0.01	0.57
56	W-SRC-43	PEM (100)	Floodplain	Stream	Jurisdictional	0.01	0.34
57	W-SRC-44	PEM (100)	Floodplain	Stream	Jurisdictional	0.01	0.34
58	W-SRC-45	PEM (100)	Floodplain	Stream	Jurisdictional	0.02	0.23
59	W-SRC-46	PFO (100)	Floodplain	Stream	Jurisdictional	0.03	0.72
60	W-SRC-47	PFO (100)	Floodplain	Stream	Jurisdictional	0.03	0.25
61	W-SRC-48	PFO (100)	Floodplain	Stream	Jurisdictional	0.02	0.63
62	W-SRC-49	PFO (100)	Floodplain	Stream	Jurisdictional	<0.01	0.70
63	W-SRC-50	PFO (100)	Floodplain	Stream	Jurisdictional	<0.01	0.75
64	W-SRC-51	PFO (100)	Floodplain	Stream	Jurisdictional	<0.01	0.80
65	W-SRC-52	PEM (100)	Depression	Overland Flow	Isolated	<0.01	0.25
66	W-SRC-53	PFO (100)	Depression	Overland Flow	Isolated	0.11	0.63
67	W-SRC-54	PEM(100)	Floodplain	Stream	Jurisdictional	0.01	0.25
68	W-SRC-55	PFO (100)	Floodplain	Stream	Jurisdictional	<0.01	0.80
69	W-SRC-56	PFO (100)	Floodplain	Stream	Jurisdictional	<0.01	0.80
70	W-SRC-57	PEM/PFO (67/33)	Depression	Overland Flow	Jurisdictional	0.21	0.33
71	W-SRC-58	PEM (100)	Depression	Overland Flow	Jurisdictional	0.16	0.30
TOTAL WETLAND ACREAGE WITHIN PROJECT STUDY AREA						36.88	

Notes:

1. L.R. Kimball resource identification.
2. Cowardin Wetland Classification:
   - PEM – Palustrine Emergent
   - PSS – Palustrine Scrub Shrub
   - PFO – Palustrine Forested
   - POW – Palustrine Open Water
3. PFO designations for certain resources w based upon the USACE Regional Supplement guidance, which does not require tree species to be located within the resource boundaries (i.e., 70 percent canopy cover provided by trees that are immediately outside of the wetland boundary, located within the same soil type are considered as PFO).
4. Wetland geomorphic positions, based upon field observations, consist of the following:
   - Depression;
   - Floodplain;
   - Fringe; or,
   - Seep.
5. Wetland hydrology sources, based upon field observations, consist of the following:
   - Groundwater;
   - Surface water;
   - Overland flow;

- Direct precipitation;
- Stream; or,
- Floodflow.

6. Jurisdiction status is based upon field observations and mapping review of apparent connectivity or adjacency of the resource to Waters of the U.S.
7. Area is rounded to nearest 0.01-Ac., based upon GPS data. Resources comprising < 0.01-Ac. are tabulated within the total as 0.01-Ac.
8. PADEP Pennsylvania Wetland Condition Level 1 Rapid Assessment Version 1.0 – draft date May 23, 2012.
9. MMP-DH – Man-Made Pond – Deepwater Habitat.

Surface Waters Description

A total of 134 streams, consisting of 58 perennial, 32 intermittent, and 44 ephemeral resources were identified at the time of the investigation. As previously discussed, all of the streams identified within the Project study area are tributaries to either the Stonycreek River (CWF) or Raystown Branch Juniata River (CWF-MF); therefore, all of these resources are considered as Waters of the United States (U.S.). Stonycreek River is not identified by the PA Fish and Boat Commission (PFBC) as an Approved Trout Water (ATW); however, the Raystown Branch Juniata River is classified as a PFBC ATW as per the 2013 Southwest Region Regulated Trout Waters Overview. Neither the Raystown Branch Juniata River nor the Stonycreek River are classified as Class A Wild Trout Streams or Stream Sections that Support Natural Reproduction of Trout by the PFBC. A summary of the stream classification and associated linear footage of the stream types identified within the Project study area are provided in Table 4 and the locations of the identified streams within the Project study area are provided on Figure 5.

Most of the UNTs to the Stonycreek River and Raystown Branch Juniata River exhibited substrate consisting of cobble, gravel, sand, and silt. In-depth macro-invertebrate sampling was not conducted; however, an overview of qualitative biodiversity was noted by the overturning of larger in-stream substrate. The most commonly observed taxa included: caddis flies (Trichoptera), midges (Diptera), stoneflies (Plecoptera), and Mayflies (Ephemeroptera). Those resources with consistent, year-round flow and the presence of two (2) or more taxa of macroinvertebrates were identified as perennial streams. Detailed information on the substrate type and observed macroinvertebrates is provided for each identified resource in Appendix B.

Detailed information was documented for each stream resource via the modified physical characterization form, PADEP Riverine Condition Level 1 Rapid Assessment Form (Version 1.0), and photographs, all of which are included for each identified stream resource in Appendix B. These individual resource packets are provided in the order of occurrence by alignment, as shown in Table 5, which provides details on each stream resource with respect to its USACE classification, PADEP Chapter 93 Classification, length within the Project study area, etc.

Table 4
Stream Summary

Stream Type [1]	# of Identified Resources Within Study Area	Linear Footage Within Project Study Area (Feet)
Perennial	58	52,115
Intermittent	32	10,400
Ephemeral	44	22,480
TOTAL	134	84,995

Notes:

1. Perennial, Intermittent, or Ephemeral based upon PADEP and USACE criteria.

Table 5
Stream Details

	Stream ID [1]	Stream Name	Classification [2]	USACE Designation [3]	Chapter 93 Designation [4]	PFBC Approved Trout Water (Yes / No) [5]	PFBC Class A Wild Trout (Yes / No) [6]	PFBC Stream Supporting Natural Trout Reproduction (Yes / No) [7]	PFBC Wilderness Trout Stream (Yes/No) [8]	Linear Footage Within Project Study Area (Feet) [9]	PADEP Level 1 RAP Score [9]
1	S-JHS-01	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	1,820	0.18
2	S-JHS-02	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	366	0.90
3	S-JHS-03	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	127	0.49
4	S-JHS-04	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	969	0.55
5	S-JHS-05	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	64	0.70
6	S-JHS-06	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	946	0.70
7	S-JHS-07	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	381	0.70
8	S-JHS-08	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	70	0.35
9	S-JHS-09	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	792	0.58
10	S-JHS-10	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	165	0.80
11	S-JHS-11	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	342	0.80
12	S-JHS-12	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	108	0.80
13	S-JHS-13	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	90	0.80
14	S-JHS-14	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	220	0.80
15	S-JHS-15	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	911	0.82
16	S-JHS-16	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	269	0.90
17	S-JHS-17	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	352	0.85
18	S-JHS-18	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	293	0.85
19	S-JHS-19	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	672	0.15
20	S-JHS-20	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	335	0.46
21	S-JHS-21	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	150	0.15
22	S-JHS-22	Raystown Branch Juniata River	Perennial	TNW	CWF, MF	Yes	No	No	No	1,475	0.85
23	S-JHS-23	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	620	0.42
24	S-JHS-24	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	189	0.68
25	S-JHS-25	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	133	0.41
26	S-JHS-26	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	688	0.59
27	S-JHS-27	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	152	0.25
28	S-JHS-28	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	241	0.50
29	S-JHS-29	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	140	0.61
30	S-JHS-30	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	19	0.55
31	S-JHS-31	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	409	0.70
32	S-JHS-32	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	213	0.70
33	S-SRC-01	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	687	0.40
34	S-SRC-02	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	275	0.90
35	S-SRC-03	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	206	0.20
36	S-SRC-04	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	147	0.45
37	S-SRC-05	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	1,369	0.49
38	S-SRC-06	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	3,327	0.55
39	S-SRC-07	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	444	0.09
40	S-SRC-08	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	1,398	0.53

Table 5
Stream Details

	Stream ID [1]	Stream Name	Classification [2]	USACE Designation [3]	Chapter 93 Designation [4]	PFBC Approved Trout Water (Yes / No) [5]	PFBC Class A Wild Trout (Yes / No) [6]	PFBC Stream Supporting Natural Trout Reproduction (Yes / No) [7]	PFBC Wilderness Trout Stream (Yes/No) [8]	Linear Footage Within Project Study Area (Feet) [9]	PADEP Level 1 RAP Score [9]
41	S-SRC-09	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	640	0.50
42	S-SRC-10	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	163	0.48
43	S-SRC-11	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	703	0.32
44	S-SRC-12	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	314	0.70
45	S-SRC-13	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	119	0.63
46	S-SRC-14	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	259	0.58
47	S-SRC-15	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	275	0.68
48	S-SRC-16	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	1,084	0.68
49	S-SRC-17	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	721	0.66
50	S-SRC-18	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	126	0.68
51	S-SRC-19	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	703	0.75
52	S-SRC-20	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	3,231	0.70
53	S-SRC-21-1	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	541	0.80
54	S-SRC-21-2	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	N0	No	1,640	0.80
55	S-SRC-22	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	290	0.85
56	S-SRC-23	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	607	0.80
57	S-SRC-24	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	3,015	0.80
58	S-SRC-25	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	254	0.80
59	S-SRC-26	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	459	0.80
60	S-SRC-27	UNT to Stonycreek River	Ephemeral	NRPW	CWF	No	No	No	No	99	0.80
61	S-SRC-28	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	69	0.77
62	S-SRC-29	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	752	0.40
63	S-SRC-30	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	847	0.33
64	S-SRC-31	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	277	0.40
65	S-SRC-32	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	472	0.40
66	S-SRC-33	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	833	0.83
67	S-SRC-34	UNT to Stonycreek River	Perennial	RPW	CWF	No	No	No	No	233	0.40
68	S-SRC-35	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	773	0.40
69	S-SRC-36	UNT to Stonycreek River	Intermittent	NRPW	CWF	No	No	No	No	176	0.60
70	S-SRC-37	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	1,251	0.70
71	S-SRC-38	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	752	0.85
72	S-SRC-39	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	525	0.90
73	S-SRC-40	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	394	0.90
74	S-SRC-41	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	455	0.90
75	S-SRC-42	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	469	0.90
76	S-SRC-43	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	85	0.90
77	S-SRC-44	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	3,513	0.90
78	S-SRC-45	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	225	0.90
79	S-SRC-46	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	701	0.90
80	S-SRC-47	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	142	0.90

Table 5
Stream Details

	Stream ID [1]	Stream Name	Classification [2]	USACE Designation [3]	Chapter 93 Designation [4]	PFBC Approved Trout Water (Yes / No) [5]	PFBC Class A Wild Trout (Yes / No) [6]	PFBC Stream Supporting Natural Trout Reproduction (Yes / No) [7]	PFBC Wilderness Trout Stream (Yes/No) [8]	Linear Footage Within Project Study Area (Feet) [9]	PADEP Level 1 RAP Score [9]
81	S-SRC-48	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	799	0.90
82	S-SRC-49	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	618	0.90
83	S-SRC-50	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	845	0.90
84	S-SRC-51	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	350	0.90
85	S-SRC-52	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	132	0.85
86	S-SRC-53	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	110	0.85
87	S-SRC-54	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	51	0.85
88	S-SRC-55	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	79	0.90
89	S-SRC-56	Raystown Branch Juniata River	Perennial	TNW	CWF, MF	Yes	No	No	No	15,225	0.81
90	S-SRC-57	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	99	0.85
91	S-SRC-58	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	263	0.85
92	S-SRC-59	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	694	0.90
93	S-SRC-60	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	100	0.65
94	S-SRC-61	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	90	0.65
95	S-SRC-62	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	208	0.76
96	S-SRC-63	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	684	0.79
97	S-SRC-64	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	876	0.79
98	S-SRC-65	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	551	0.79
99	S-SRC-66	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	1,212	0.80
100	S-SRC-67	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	176	0.45
101	S-SRC-68	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	119	0.65
102	S-SRC-69	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	185	0.45
103	S-SRC-70	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	120	0.55
104	S-SRC-71	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	274	0.64
105	S-SRC-72	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	379	0.73
106	S-SRC-73	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	421	0.70
107	S-SRC-74	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	729	0.65
108	S-SRC-75	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	1,162	0.65
109	S-SRC-76	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	235	0.65
110	S-SRC-77	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	492	0.65
111	S-SRC-78	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	896	0.65
112	S-SRC-79	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	403	0.65
113	S-SRC-80	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	51	0.75
114	S-SRC-81	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	129	0.80
115	S-SRC-82	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	179	0.85
116	S-SRC-83	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	168	0.83
117	S-SRC-84	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	138	0.74
118	S-SRC-85	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	632	0.76
119	S-SRC-86	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	482	0.70
120	S-SRC-87	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	195	0.80

Table 5
Stream Details

	Stream ID [1]	Stream Name	Classification [2]	USACE Designation [3]	Chapter 93 Designation [4]	PFBC Approved Trout Water (Yes / No) [5]	PFBC Class A Wild Trout (Yes / No) [6]	PFBC Stream Supporting Natural Trout Reproduction (Yes / No) [7]	PFBC Wilderness Trout Stream (Yes/No) [8]	Linear Footage Within Project Study Area (Feet) [9]	PADEP Level 1 RAP Score [9]
121	S-SRC-88	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	158	0.82
122	S-SRC-89	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	170	0.85
123	S-SRC-90	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	231	0.74
124	S-SRC-91	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	553	0.56
125	S-SRC-92	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	158	0.30
126	S-SRC-93	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	192	0.70
127	S-SRC-94	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	170	0.70
128	S-SRC-95	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	388	0.85
129	S-SRC-96	UNT to Raystown Branch Juniata River	Perennial	RPW	CWF, MF	Yes	No	No	No	46	0,85
130	S-SRC-97	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	532	0.57
131	S-SRC-98	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	459	0.46
132	S-SRC-99	UNT to Raystown Branch Juniata River	Intermittent	NRPW	CWF, MF	Yes	No	No	No	674	0.65
133	S-SRC-100	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	477	0.46
134	S-SRC-101	UNT to Raystown Branch Juniata River	Ephemeral	NRPW	CWF, MF	Yes	No	No	No	475	0.28
TOTAL STREAM LINEAR FOOTAGE WITHIN THE PROJECT STUDY AREA										84,995	

Notes:

1. L.R. Kimball identification.
2. Perennial, Intermittent, or Ephemeral based upon PADEP and USACE criteria.
3. USACE classifications:
   - TNW – Traditionally Navigable Water, all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
   - RPW – Relatively Permanent Water, a non-navigable water body whose waters flow into a TNW either directly or indirectly by means of other tributaries. These are waters that are "relatively permanent" – meaning waters that typically flow year-round or waters that have a continuous flow at least seasonally (e.g., typically three months); and,
   - NRPW – Not Relatively Permanent Water, a non-navigable water body whose waters are not relatively permanent. This would include ephemeral tributaries which flow only in response to precipitation and intermittent streams which do not typically flow year-round or lack continuous flow, even seasonally.
4. PADEP Chapter 93 designation, per information provided at: http://www.pacode.com/secure/data/025/chapter93/chap93toc.html (accessed on February 19. 2013). Relevant Project designations are as follows:
   - CWF – Cold Water Fishery; and,
   - MF – Migratory Fishery.
5. Approved Trout Water, per information provided at: http://fishandboat.com/fishpub/summary/troutregs_sw.htm (accessed on February 19, 2013).
6. Class A Wild Trout Stream, per information provided at: http://fishandboat.com/classa.pdf (accessed on February 19, 2013).
7. Stream Supporting Natural Trout Reproduction, per information provided at: http://fishandboat.com/trout_repro.pdf (accessed on February 19, 2013).
8. Length of stream resource within the Project study area is measured to the nearest foot, based upon GPS data.
9. PADEP Pennsylvania Riverine Condition Level 1 Rapid Assessment Version 1.0 – draft date May 23, 2012.
10. Resources are provided in order of occurrence from west to east in relation to proposed alignment centerline(s).

4.0 CONCLUSIONS

Seventy-one wetlands were identified by L.R. Kimball within the Project study area during the 2012 field investigation. .Fifty-four of the 71 identified wetlands and all of the identified stream channels have a significant nexus to either the Stonycreek River or Raystown Branch Juniata River; therefore, the respective resources are to be considered connected to Waters of the U.S. and under the jurisdiction of the USACE. Seventeen of the 71 identified wetlands appear to be isolated resources, with no apparent connection to Waters of the U.S. Although the isolated resources do not fall under the jurisdiction of the USACE, the PADEP typically assumes jurisdiction over these resources.

During the extent of the field investigation, L.R. Kimball identified 134 streams within the Project study area, which consist of 55 UNTs the Stonycreek River (CWF), 2 segments of the Raystown Branch Juniata River (CWF, MF), and 77 UNTs to the Raystown Branch Juniata River.

This investigation was limited to the study area and dates shown herein. L.R. Kimball did not examine areas outside of the Project study area identified within this report; therefore, no information is provided regarding the presence and classification of wetlands or Waters of the U.S. located outside of the Project study area. In addition, human-induced and/or natural changes at the site may occur after this date which may result in changes in the presence, extent, and classification of the resources identified within this report.

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6.0 LIST OF PREPARERS

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7 years experience

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Indiana University of Pennsylvania
1992, BS, Biology
19 years experience

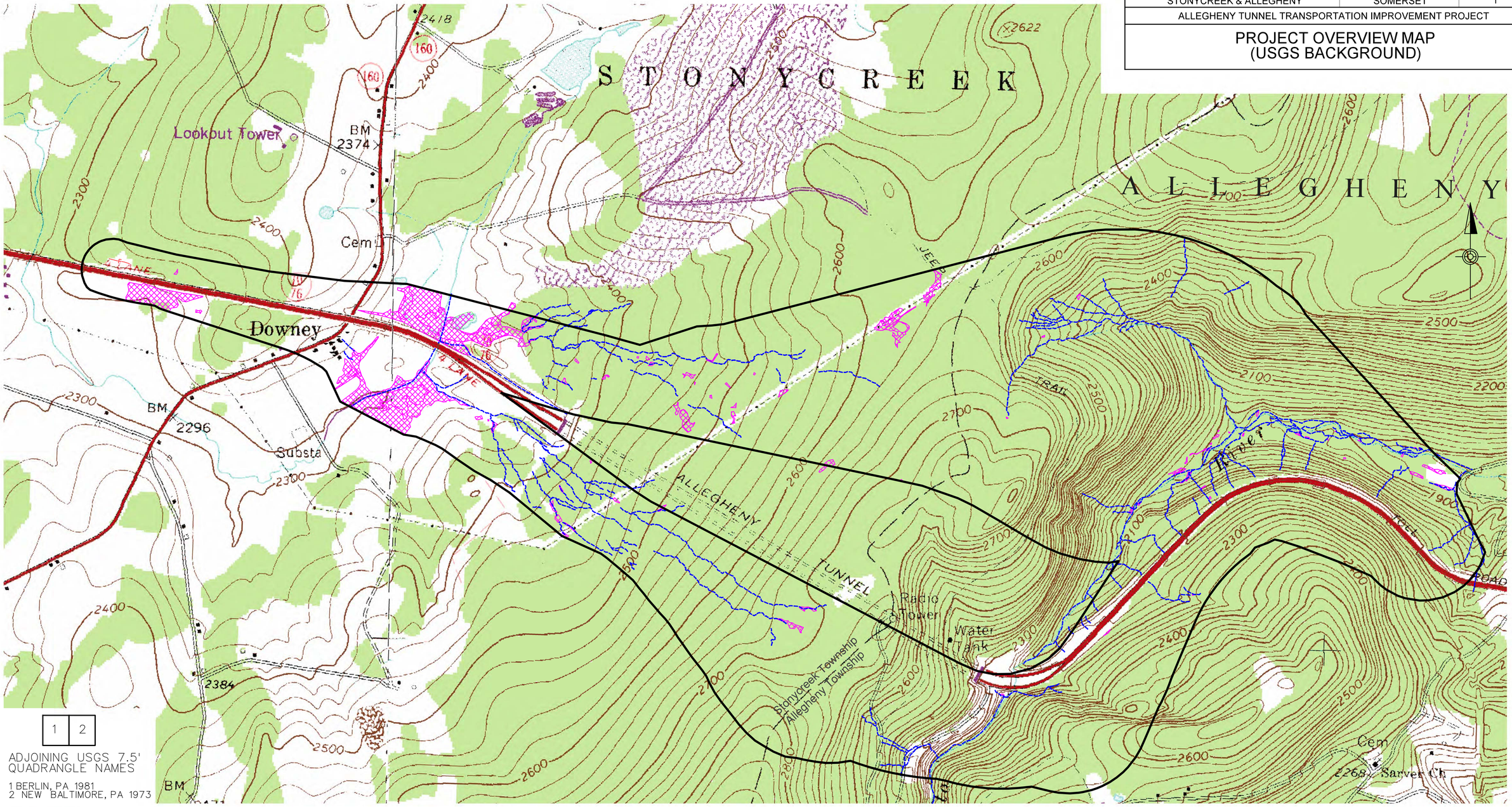
FIGURES

FIGURE 1

PROJECT LOCATION MAP – USGS BACKGROUND

TOWNSHIP	COUNTY	FIGURE NO.
STONYCREEK & ALLEGHENY	SOMERSET	1
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT		

PROJECT OVERVIEW MAP (USGS BACKGROUND)



1 | 2

ADJOINING USGS 7.5' QUADRANGLE NAMES

1 BERLIN, PA 1981
2 NEW BALTIMORE, PA 1973

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SCALE IN FEET 0 1200 2400

LEGEND

- Delineated Wetland
- Streams
- Study Area
- Township Line

Allegheny Tunnel
INTERSTATE 70 76
PENNA TURN-PIKE

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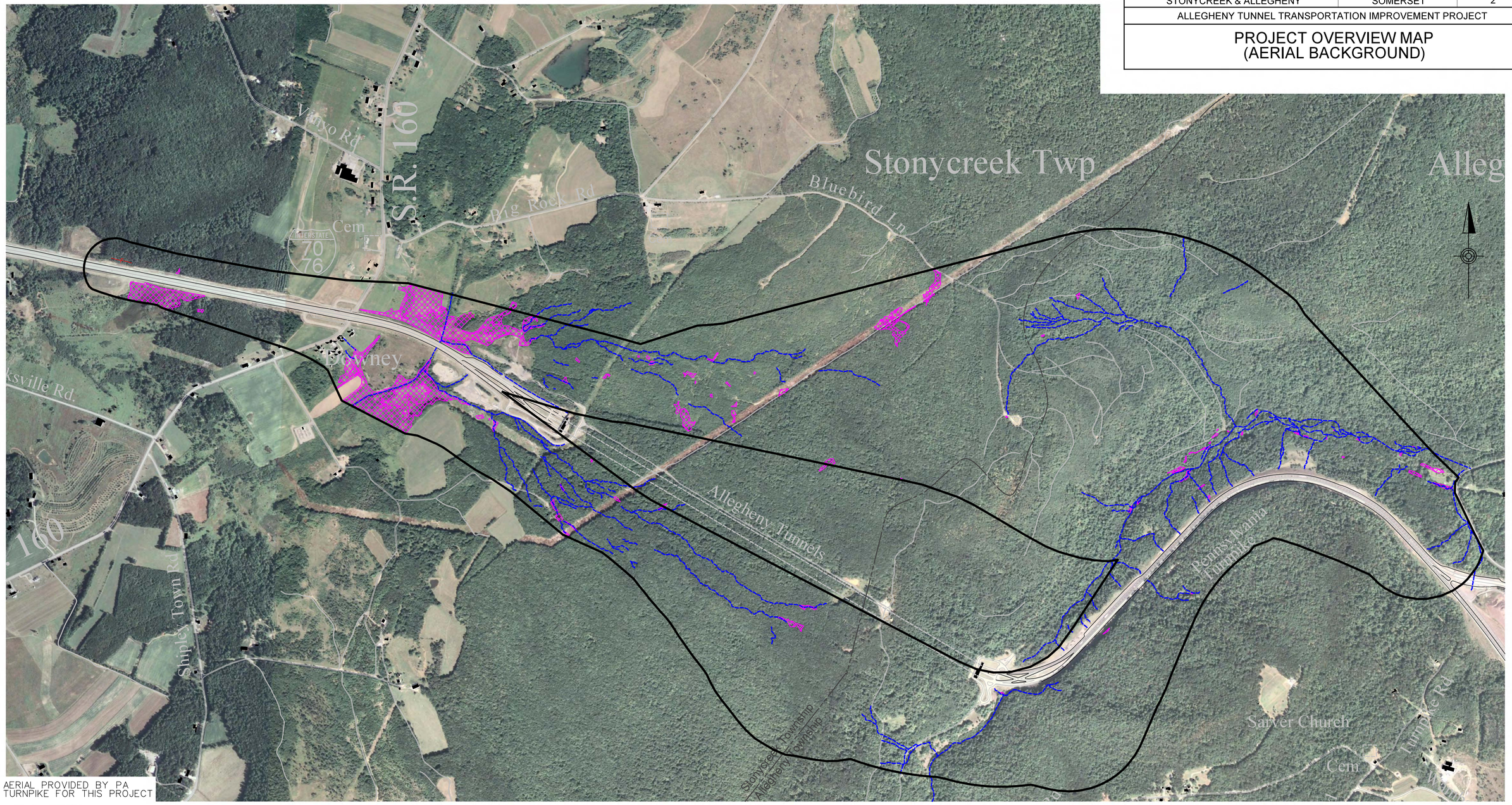
FIGURE 2

PROJECT LOCATION MAP – AERIAL BACKGROUND

TOWNSHIP	COUNTY	FIGURE NO.
STONYCREEK & ALLEGHENY	SOMERSET	2

ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT

PROJECT OVERVIEW MAP (AERIAL BACKGROUND)



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SCALE IN FEET 0 1200 2400

LEGEND

- Delineated Wetland
- Streams
- Study Area
- Roads
- Township Line

Allegheny Tunnel

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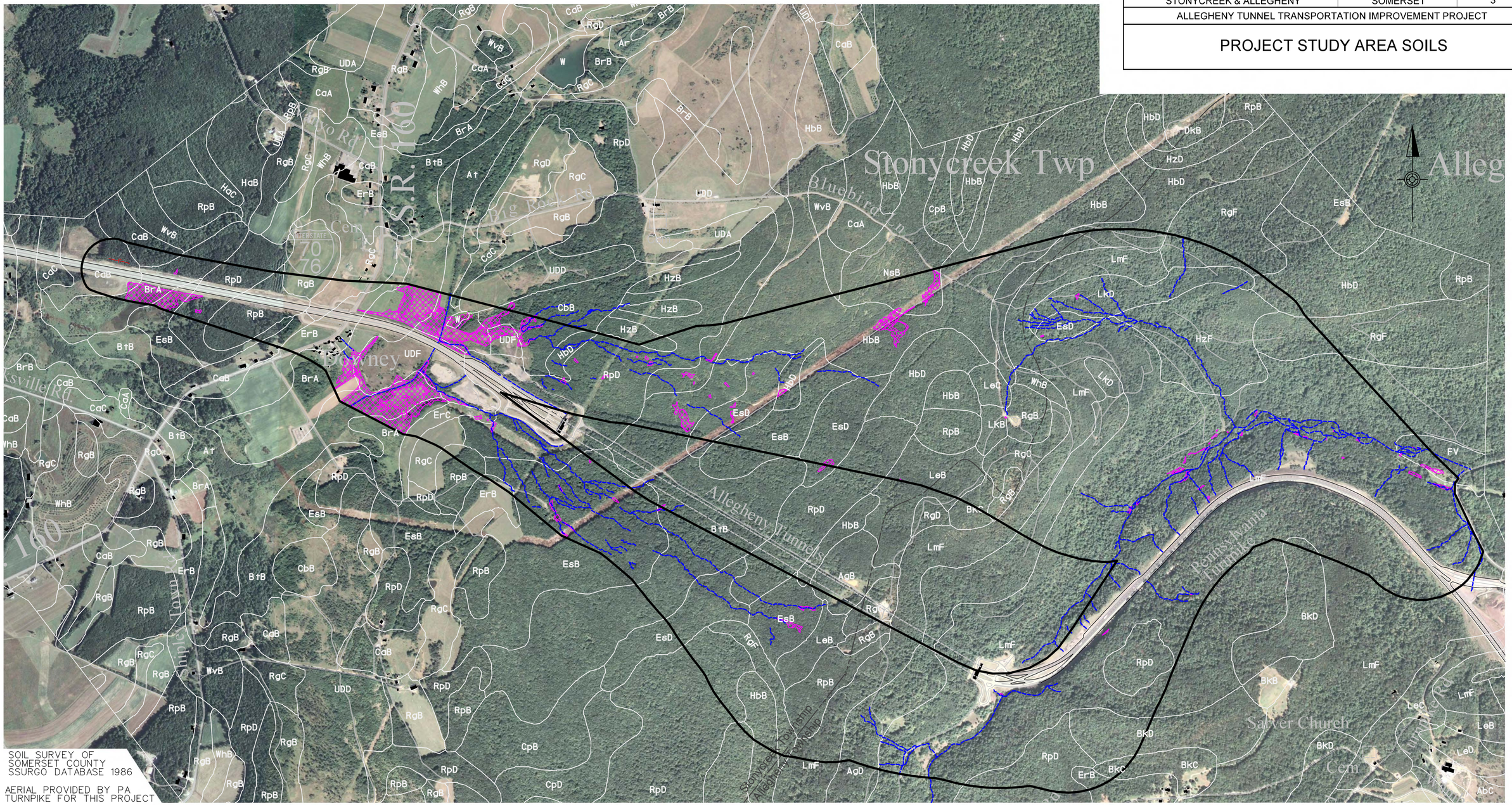
FIGURE 3

PROJECT AREA SOILS MAP

TOWNSHIP	COUNTY	FIGURE NO.
STONYCREEK & ALLEGHENY	SOMERSET	3

ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT

PROJECT STUDY AREA SOILS



SOIL SURVEY OF SOMERSET COUNTY SSURGO DATABASE 1986

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LEGEND

- Delineated Wetland
- Streams
- Study Area
- Roads
- Township Line
- Soil Boundary
- EsD Soil Classification

Allegheny Tunnel — INTERSTATE 70 76 — PENNA TURN-PIKE

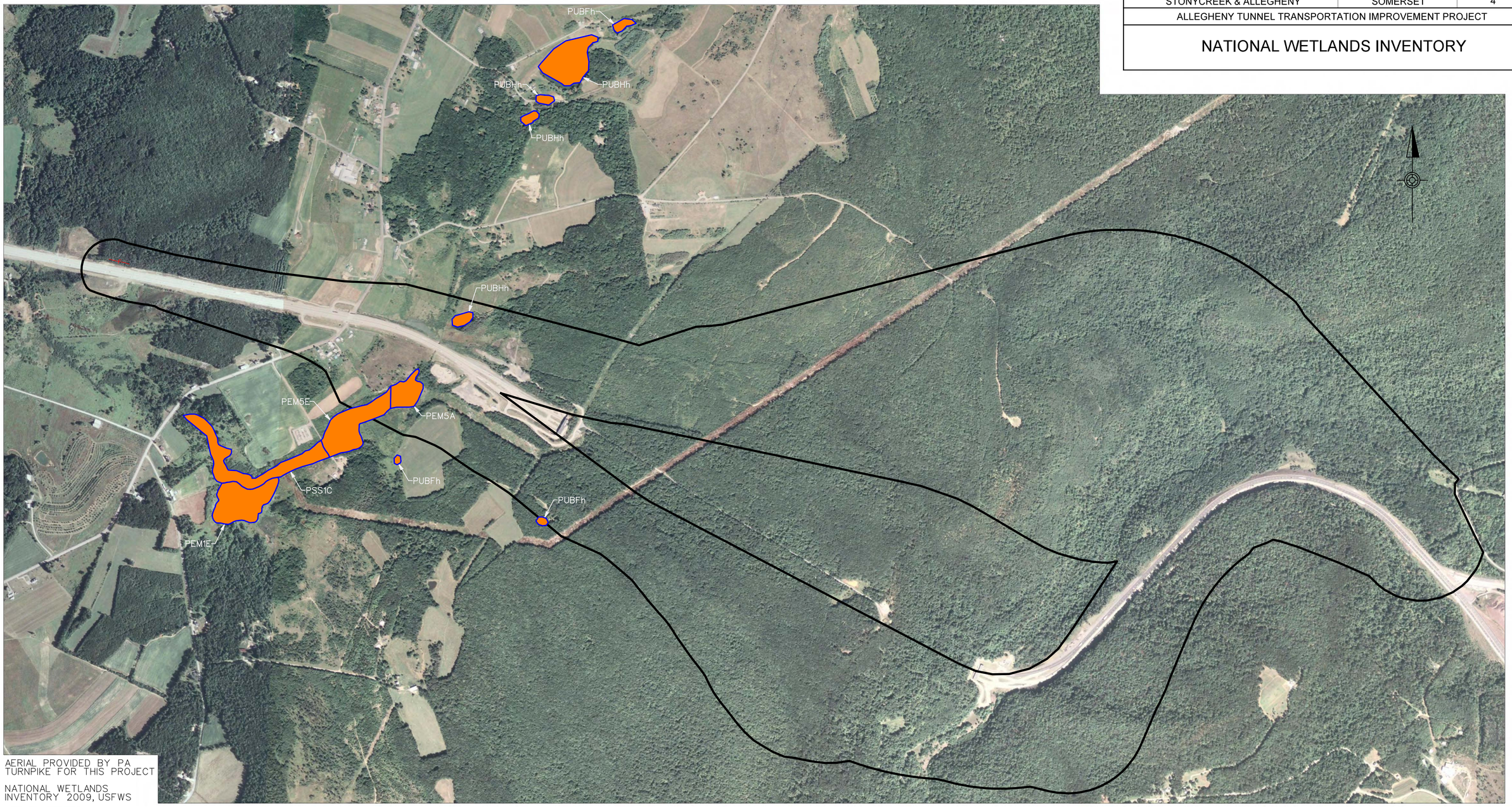
FIGURE 4

NATIONAL WETLAND INVENTORY

TOWNSHIP	COUNTY	FIGURE NO.
STONYCREEK & ALLEGHENY	SOMERSET	4

ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT

NATIONAL WETLANDS INVENTORY



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NATIONAL WETLANDS INVENTORY 2009, USFWS

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SCALE IN FEET 0 1200 2400

LEGEND

- Study Area
- NWI Wetland Boundary

Allegheny Tunnel

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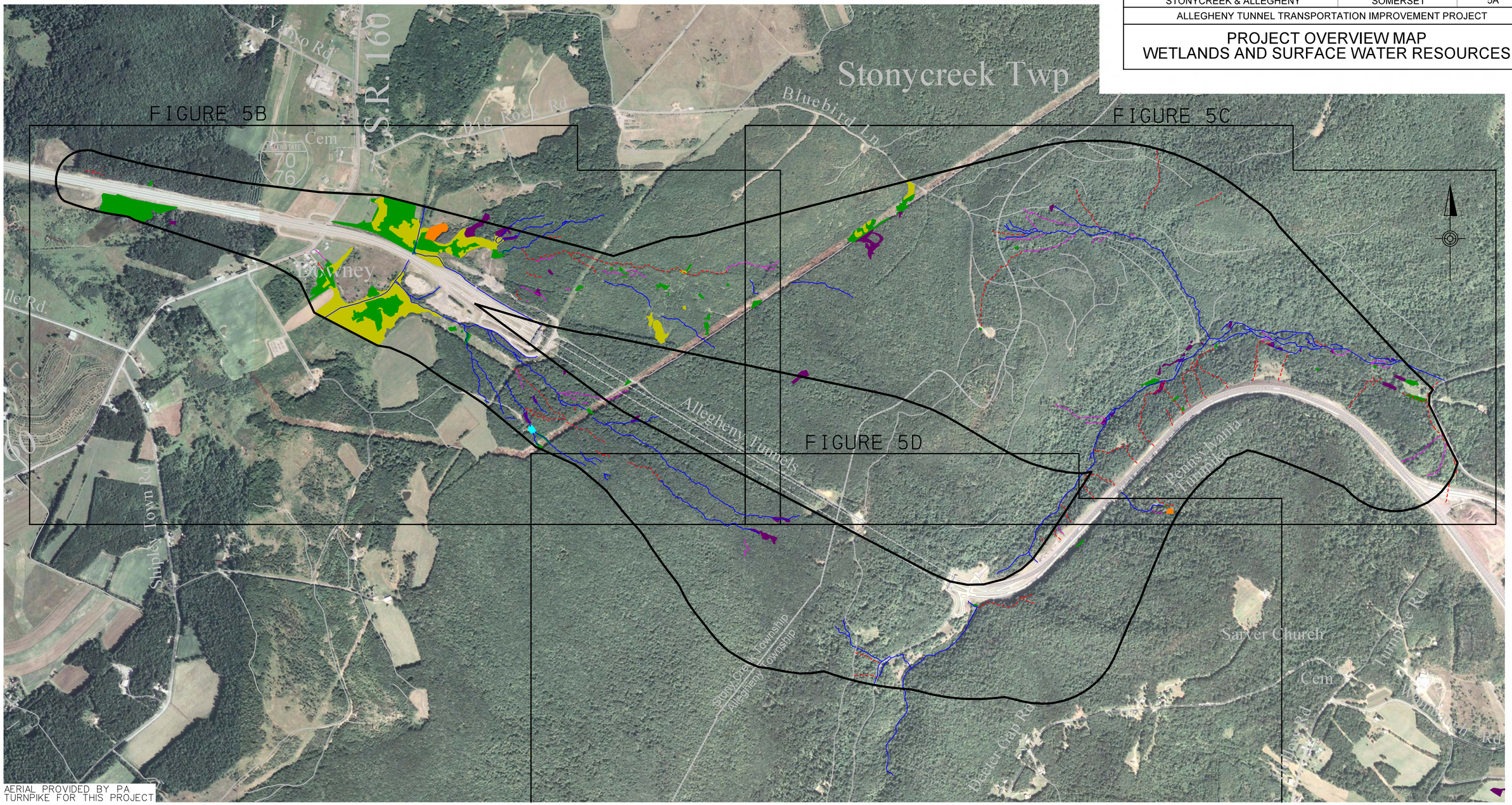
FIGURE 5

WETLANDS AND SURFACE WATER RESOURCES

TOWNSHIP	COUNTY	FIGURE NO.
STONYCREEK & ALLEGHENY	SOMERSET	5A

ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT

PROJECT OVERVIEW MAP
WETLANDS AND SURFACE WATER RESOURCES



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PENNA TURN-PIKE

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SCALE IN FEET 0 1200 2400

LEGEND

- Delineated Wetland-PEM
- Delineated Wetland-PFO
- Delineated Wetland-PSS
- Delineated Wetland-POW
- Man-Made Pond, Deepwater Habitat
- Study Area
- Roads
- Township Line
- Stream-Perennial
- Stream-Intermittent
- Stream-Ephemeral

INTERSTATE 70 76 Allegheny Tunnel PENNA TURN-PIKE

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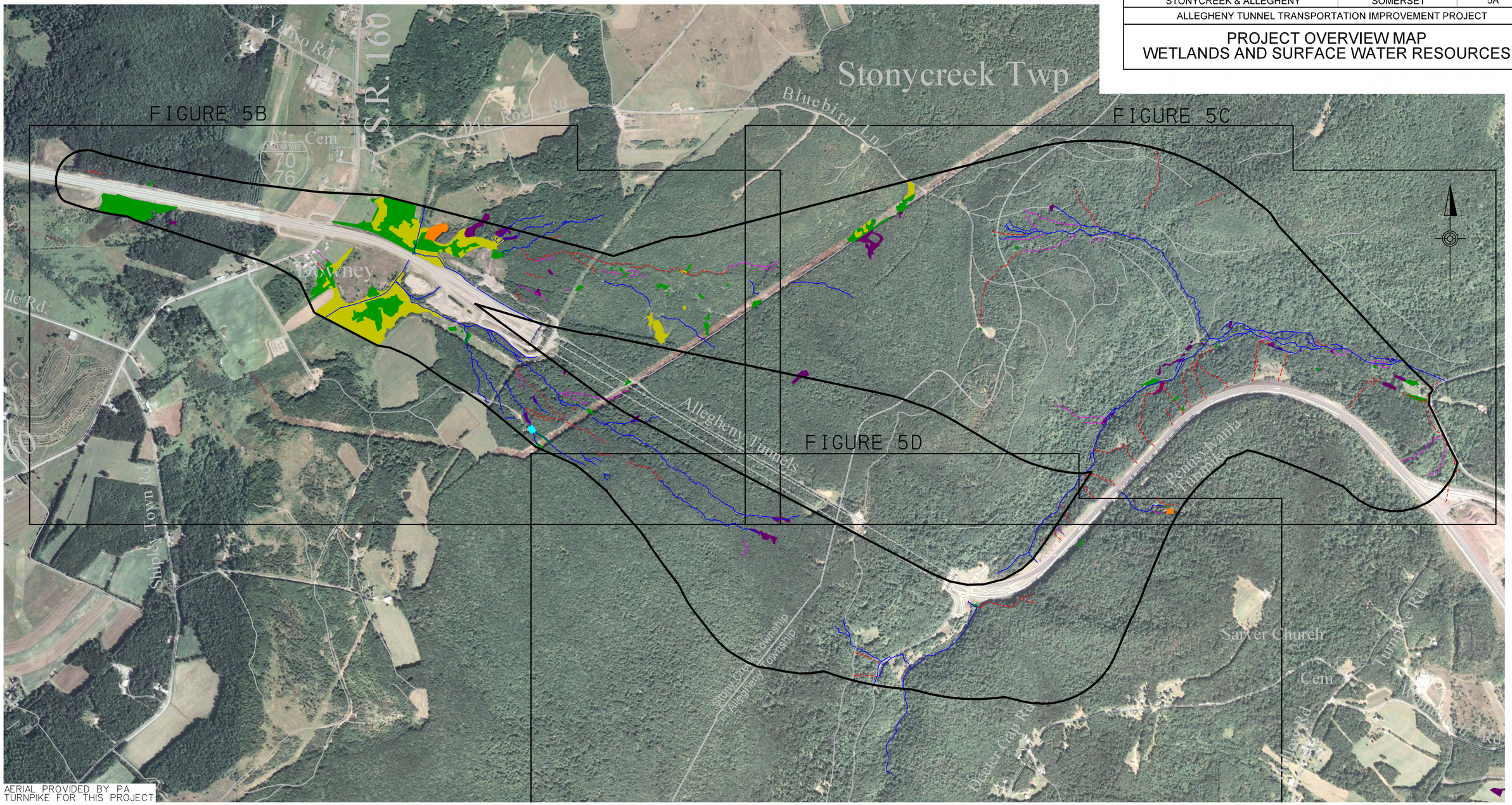
TOWNSHIP	COUNTY	FIGURE NO.
STONYCREEK & ALLEGHENY	SOMERSET	5A

ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT

PROJECT OVERVIEW MAP
WETLANDS AND SURFACE WATER RESOURCES



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LEGEND

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- Man-Made Pond, Deepwater Habitat
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- Roads
- Township Line
- Stream-Perennial
- Stream-Intermittent
- Stream-Ephemeral

INTERSTATE 70 76 Allegheny Tunnel PENNA TURN-PIKE

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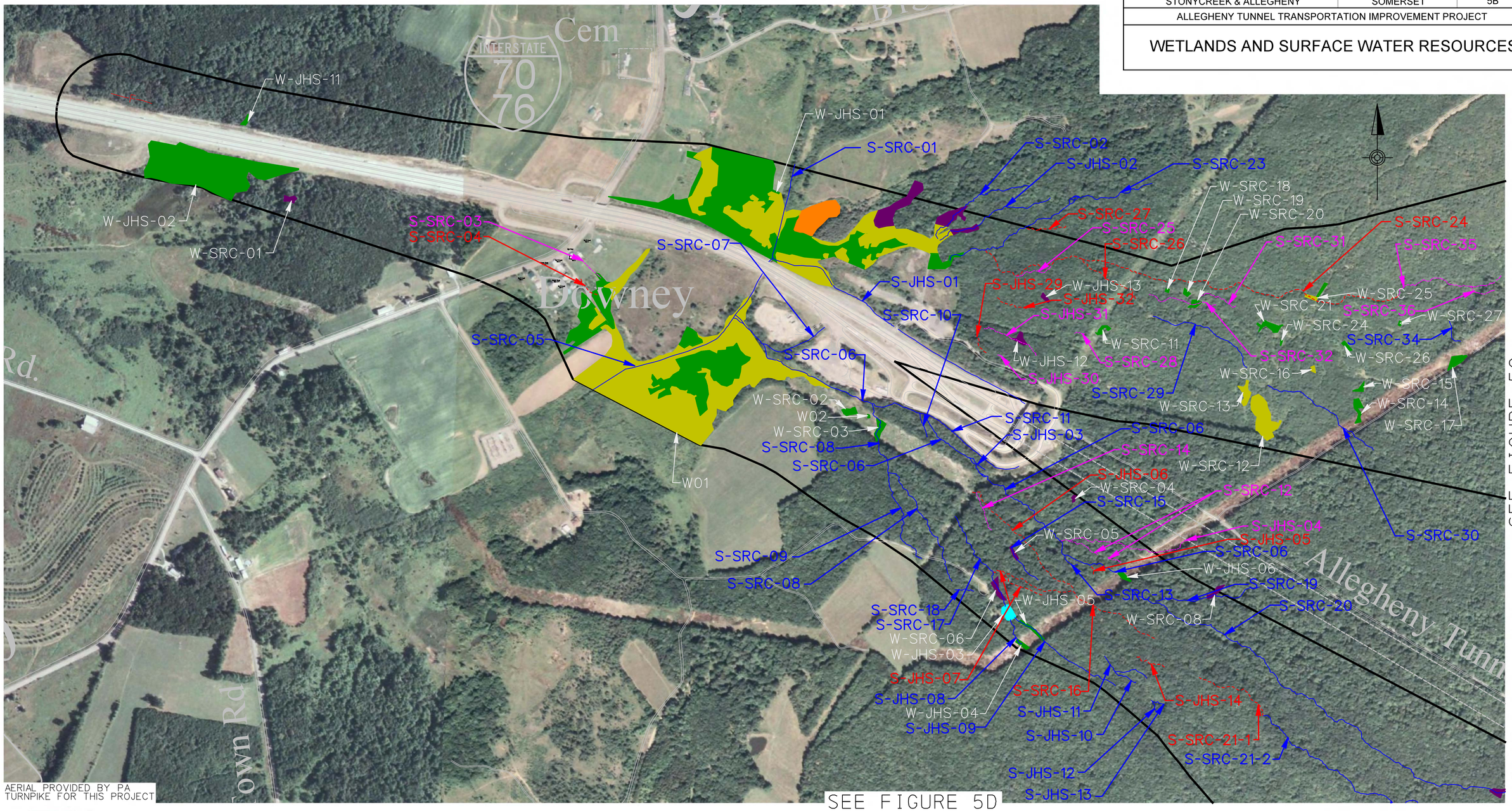
TOWNSHIP	COUNTY	FIGURE NO.
STONYCREEK & ALLEGHENY	SOMERSET	5B

ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT

WETLANDS AND SURFACE WATER RESOURCES



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SEE FIGURE 5C

SEE FIGURE 5D

PENNA TURN-PIKE

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LEGEND

- Delineated Wetland-PEM
- Delineated Wetland-PFO
- Delineated Wetland-PSS
- Delineated Wetland-POW
- Man-Made Pond, Deepwater Habitat
- Study Area
- Roads
- Stream-Perennial
- Stream-Intermittent
- Stream-Ephemeral

INTERSTATE 70 76 Allegheny Tunnel PENNA TURN-PIKE

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TOWNSHIP	COUNTY	FIGURE NO.
STONYCREEK & ALLEGHENY	SOMERSET	5C

ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT

WETLANDS AND SURFACE WATER RESOURCES

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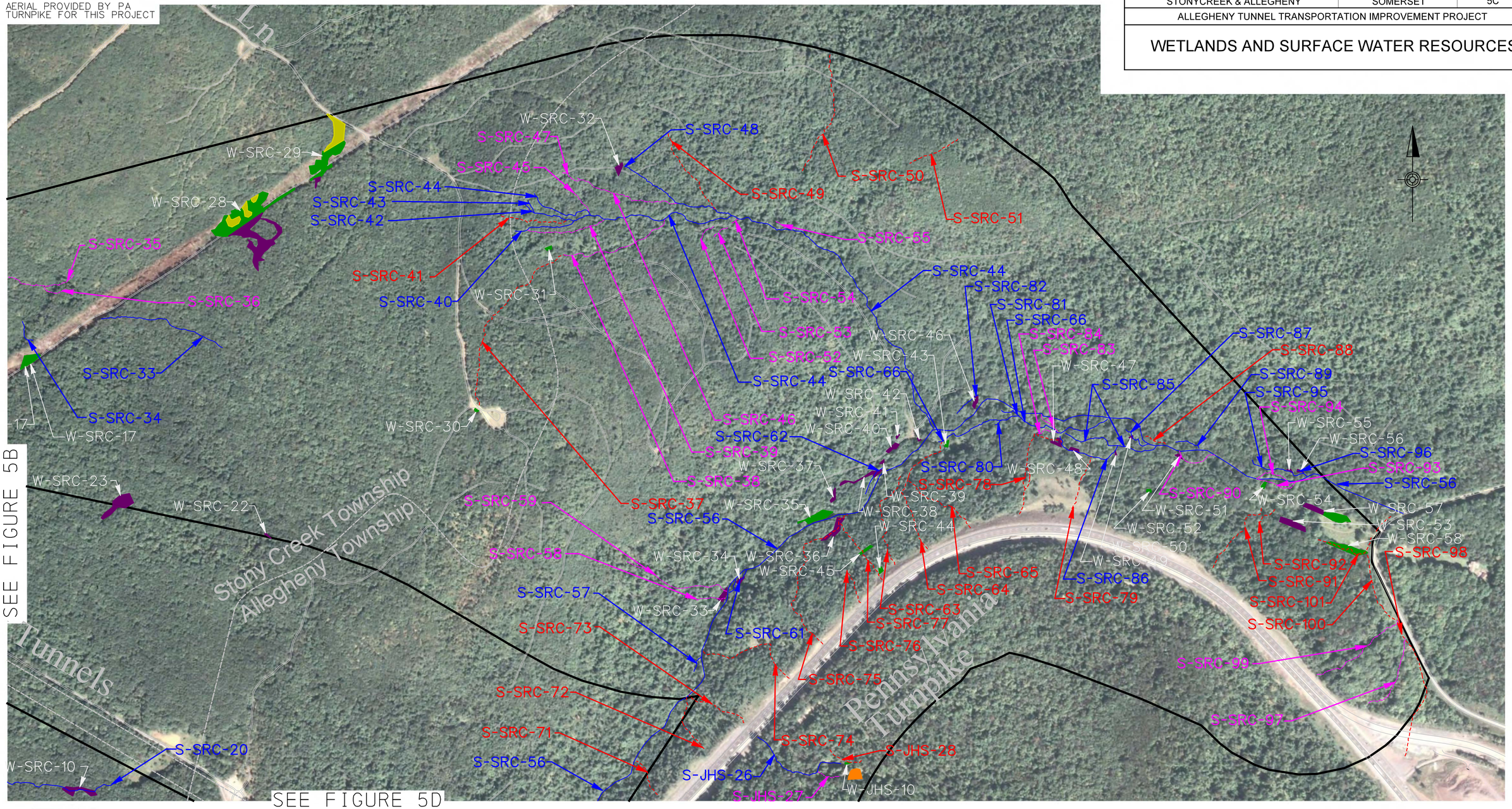

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LEGEND

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- Township Line
- Stream-Perennial
- Stream-Intermittent
- Stream-Ephemeral

INTERSTATE 70 76 — Allegheny Tunnel — PENNA TURNPIKE

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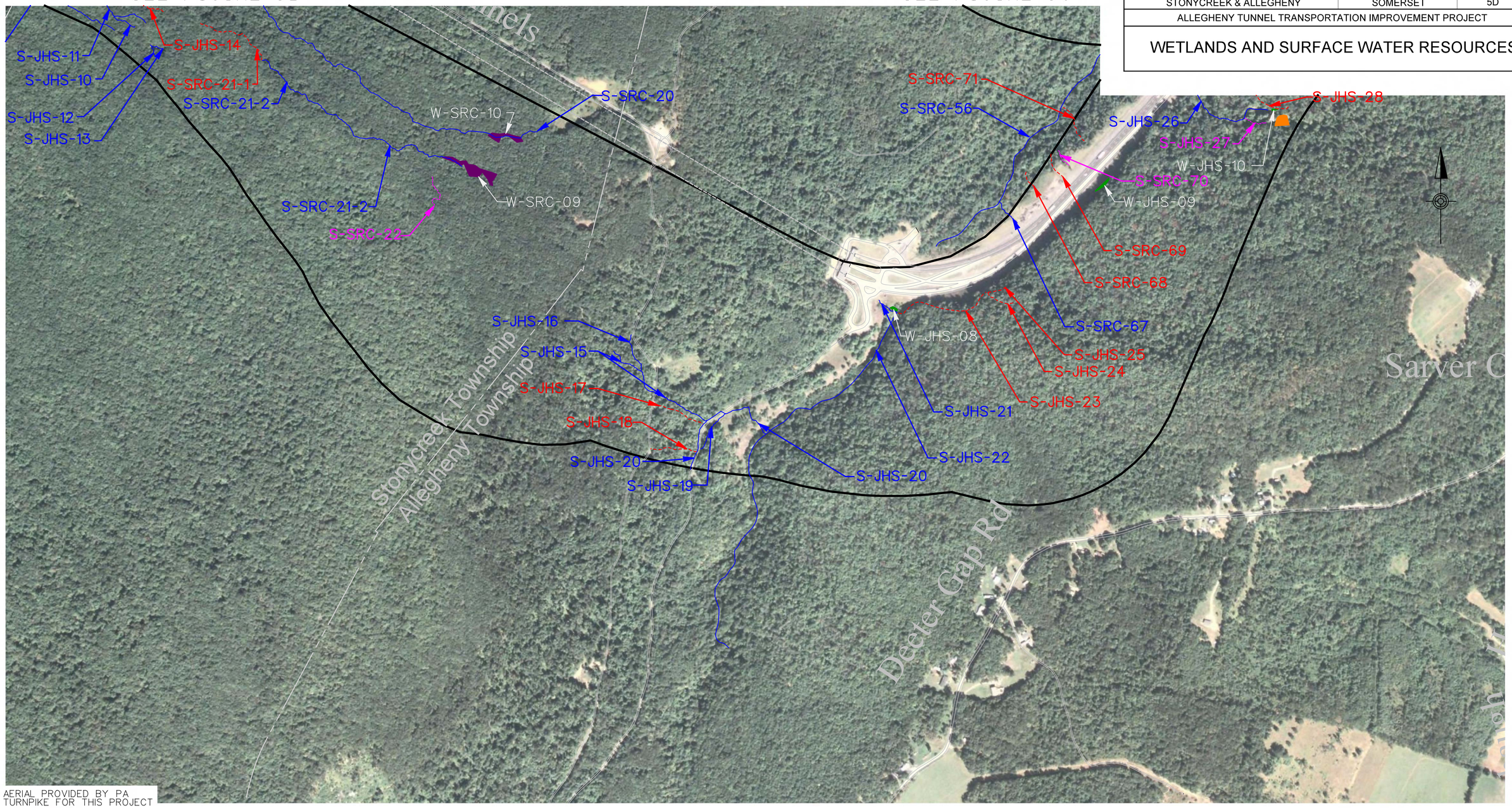
TOWNSHIP	COUNTY	FIGURE NO.
STONYCREEK & ALLEGHENY	SOMERSET	5D

ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT

WETLANDS AND SURFACE WATER RESOURCES

SEE FIGURE 5B

SEE FIGURE 5C



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LEGEND

- Delineated Wetland-PEM
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- Man-Made Pond, Deepwater Habitat
- Study Area
- Roads
- Township Line
- Stream-Perennial
- Stream-Intermittent
- Stream-Ephemeral

Allegheny Tunnel

APPENDICES

APPENDIX A

WETLAND RESOURCE DATA PACKAGES

WETLAND W01

Unit #1

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*1

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 9/29/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL ___ WET X Sample ID: W01SP01

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, (Township) Range: Stonycreek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0

Subregion: LRR N X MLRA 147 ___ Lat: 39.965540N Long: 78.874272W Datum: NAD1983

Soil Map Unit Name: BRA - Brinkerton silt loam, 0 to 3% Slopes NWI classification: PEMSA/PEMSE

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (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 X	No ___	**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks: water in pit
part of large wetland system associated in part w/ stream

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater X Point Source ___

Secondary Hydrology Source(s): Direct Precipitation X Overland Flow X Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W01SP01

Tree Stratum (Plot size: 30' dia. X Other:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1. Arrow-wood - Viburnum recognitum	40%	D	FACW-
2. Narrow-leaf Meadowsweet - Spiraea alba var. latifolia	10%	D	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50% = Total Cover		25% 10%
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Cattail - Broad-leaved - Typha latifolia	5%		OBL
2. Dewberry Species - Rubus spp	10%		UPL
3. Sphagnum Moss	5%		NI*
4. Wool grass - Scirpus Cyperinus	5%		FACW+
5. Soft rush - Juncus effusus	5%		OBL
6. Reed Meadow Grass - Glyceria grandis	40%	D	NI
7. Fowl Meadow Grass - Glyceria striata	40%	D	OBL
8. Swamp Goldenrod - Solidago uliginosa	5%		OBL
9. Purple Stemmed aster - Aster puniceus	5%		
10.			
11.			
12.			
	130% = Total Cover		60% 34%
Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	4	x 1 =	4
FACW species	3	x 2 =	6
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	8 (A)		15 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

* Sphagnum Moss does not have data in the USFWS wetland indicator status plant list - though it is referred to as a characteristic of wet places

GPS unit #1

Sample Point Photograph(s) (ID, Direction): #1, N & #2, W; Camera: KLE

Wetland Photograph(s) (ID, Direction): #1, ; & , ; Camera: KLE

SOIL Sampling Point: W01SP01

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[3]	Remarks
0-3	2.5y 6/1	80%	2.5y 6/8	20%	C	PL,M	SCL	oxidized root zones - live root
3-15	2.5y 2.5/1	100%					SCL	

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X No ___

Remarks: Loamy + detritus material in the first 2in

W01SP01 - Unit #1

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ___, Soils Change X, Signs of Hydrology X, Local Knowledge ___, Secondary Source ___

HGM Wetland Classification: Riverine ___ Depression X Slope ___ Mineral Soil Flat ___ Fringe ___ with minor riverine components

Cowardin Wetland Classification: PEM 40 % PSS 60 % PFO ___ % POW ___ % Overall Wetland System

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W01-01 start open through W01-129 end open GPSed Surveyed: Yes X No ___; Unit 1

W01-37a - W01-37j

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

Unit #1

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*1

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 10/5/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL ___ WET X Sample ID: W01SP02

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, Township, Range: Stonycreek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0

Subregion: LRR N X MLRA 147 ___ Lat: 39.966698 N Long: 78.874749 W Datum: NAD1983

Soil Map Unit Name: At - Atkins silt loam NWI classification: PEMSA/PEMSE

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (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 X No ___	**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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 X No ___ Depth (inches): 1 to 3

Water Table Present? Yes X No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Pockets of inundation

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater X Point Source ___

Secondary Hydrology Source(s): Direct Precipitation X Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

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

Sampling Point: WOI SP02

Tree Stratum (Plot size: 30' dia. X Other:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Speckled Alder - Alnus rugosa	60%	D	FACW
2. Black Cherry - Prunus serotina	5%		FACU
3.			
4.			
5.			
6.			
7.			
8.			
	65%	= Total Cover	32.5%

Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1. Speckled Alder - Alnus rugosa	90%	D	13% FACW
2. Silky Willow - Salix sericea	10%		OBL
3. Meadowsweet - narrow leaved	15%		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	115%	= Total Cover	57.5%

Herb Stratum (Plot size: 5' dia. X Other:)			
1. Jewel weed - Impatiens Capensis	2%		23% FACW
2. Sensitive fern - Onoclea sensibilis	2%		FACW
3. Aster Species - Aster spp	2%		
4. Whitegrass - Leersia Virginica	100%	D	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	106%	= Total Cover	53% 21-27

Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
		= 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	1	x 1 =	1
FACW species	6	x 2 =	12
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	8 (A)		17 (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

Sample Point Photograph(s) (ID, Direction): #2, SE & #3, NW; Camera: KLE

Wetland Photograph(s) (ID, Direction): ___, ___ & ___, ___; Camera: ___

SOIL Sampling Point: W01SP02

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[3]	Remarks
0-16in	10yr 4/1	80	7.5yr 5/8	20	C	M	si cl	Water in pit to surface

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X No ___

Remarks:

Speckled Alder community within larger wetland

Wetland interior Sample Point

W01-SP02 - unit 1

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ___, Soils Change X, Signs of Hydrology X, Local Knowledge ___, Secondary Source ___

HGM Wetland Classification: Riverine ___ Depression X Slope ___ Mineral Soil Flat ___ Fringe ___ with minor Riverine components

Cowardin Wetland Classification: PEM 40 % PSS 60 % PFO ___ % POW ___ % Overall wetland system

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W01-01 (start open) through W01-129 (end open) GPSed Surveyed: Yes X No ___; Unit 1

W01-37a - W01-37j

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

Unit 44

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*1

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 10/5/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL ___ WET X Sample ID: WJ SP03

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, Township, Range: Stonycreek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0

Subregion: LRR N X MLRA 147 ___ Lat: 39.966620N Long: 78.873712W Datum: NAD 1983

Soil Map Unit Name: At- Atkins silt loam NWI classification: PEM5A/PEM5E

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (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 X No ___	**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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 X	No ___	Depth (inches): ↑ to 3
Water Table Present?	Yes X	No ___	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater X Point Source ___

Secondary Hydrology Source(s): Direct Precipitation X Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

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

Sampling Point: WO1SP03

Tree Stratum (Plot size: 30' dia. X Other:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1. N. Arrowwood - Viburnum recognitum	15%	D	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15% = Total Cover		7.5% 3%
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Glyceria spp	100%	D	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		50% 20%
Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	1	x 1 =	1
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	2 (A)		3 (B)

Prevalence Index = B/A = 1.5

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

Open grass area - Glyceria species within interior of wetland

#16E

Sample Point Photograph(s) (ID, Direction): #4NE, ___ & #15S, ___; Camera: KD

Wetland Photograph(s) (ID, Direction): ___, ___ & ___, ___; Camera: ___

SOIL

Sampling Point: W01SP03

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[3]	Remarks
0-16cm	10yr 2/1	100%					Sl loam	Organic material throughout entire sample - dec & live

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X No ___

Remarks:

*No redox features were observed however based on sample point position, vegetation & hydrology professional judgement was used to determine that these soils are hydric and given sufficient time & exposure to air redox concentrations would have developed.

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ___, Soils Change X, Signs of Hydrology X, Local Knowledge ___, Secondary Source ___

HGM Wetland Classification: Riverine ___ Depression X Slope ___ Mineral Soil Flat ___ Fringe ___ with Minor Riverine Components

Cowardin Wetland Classification: PEM 40 % PSS 60 % PFO ___ % POW ___ % overall wetland system

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W01-01 (start open) through W01-109 (end open) GPSed Surveyed: Yes X No ___; Unit 1

W01-37a - W01-37j

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

Unit #1

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*1

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 10/5/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL ___ WET X Sample ID: WDISP04

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle Y Section, Township, Range: Stonycreek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0

Subregion: LRR N X MLRA 147 ___ Lat: 39.9166714 N Long: 78.8731030 W Datum: NAD 1983

Soil Map Unit Name: At - Atkins Silt loam NWI classification: PEMSA/PEMSE

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (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 X No ___	**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

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

Remarks: Sample point within interior of larger wetland. Point within an old woodland (currently)

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater X Point Source ___

Secondary Hydrology Source(s): Direct Precipitation X Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 601-X01

Tree Stratum (Plot size: 30' dia. X Other:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1. N. Arrowwood - Viburnum recognitum	40	D	FACW
2. Blackberry sp - Rubus spp	20	D	NI?
3. Elderberry - Sambucus canadensis	15	D	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		37.5% 15%
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Sensitive fern - Onoclea sensibilis	2		FACW
2. Rough-stemmed goldenrod - Solidago rugosa	5		FAC
3. Panicled aster - aster simplex	5		FACW
4. glyceria sp.	80	D	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	92 = Total Cover		46% 18.4%
Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	1	x 1 =	1
FACW species	4	x 2 =	8
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	6 (A)		12 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

Sample Point Photograph(s) (ID, Direction): #7, W & #8, SE; Camera: KLC

Wetland Photograph(s) (ID, Direction): ___, ___ & ___, ___; Camera: ___

SOIL

Sampling Point: W01SP04

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[3]	Remarks
0-10	7.5yr 4/2	60%	7.5yr 5/6	40	C	M	S	Soft body concentrations
10+	10yr 2/1	100%					L	organic muck throughout lower section - like a dead root ball

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- X* Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X* Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ *2 Umbric Surface (F13) **(MLRA 136, 122)**
- ___ *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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:

Water in pit at 5"

*Upper horizon (0-10") appears to be transported sandy material and meets sandy redox criteria as described in the regional supplement.

*The lower horizon (10+) is similar to that of sample point 3 (W01-SP03) containing redoximorphic features near surface.

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ___, Soils Change X, Signs of Hydrology X, Local Knowledge ___, Secondary Source ___

HGM Wetland Classification: Riverine ___ Depression X Slope ___ Mineral Soil Flat ___ Fringe ___ with minor riverine component

Cowardin Wetland Classification: PEM 40 % PSS 60 % PFO ___ % POW ___ % overall wetland system

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W01-01 start open through W01-W109 end open GPSed Surveyed: Yes X No ___; Unit 1

W01-37a - W01-37j

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*[1]

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 10/11/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL ___ WET X Sample ID: WDI-SP05

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, Township, Range: Stony Creek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0

Subregion: LRR N X MLRA 147 ___ Lat: 39.967556 N Long: 78.87672 W Datum: NAD 1983

Soil Map Unit Name: BrA - Brinkerton silt loam, 0 to 3 percent slopes NWI classification: PEMSA/PEMSE

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? NO (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 X	No ___	**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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 X No ___ Depth (inches): 3

Water Table Present? Yes X No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 6

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater X Point Source ___

Secondary Hydrology Source(s): Direct Precipitation X Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

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

Sampling Point: W01-SP05

Tree Stratum (Plot size: 30' dia. X Other:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Reed Canary-Phalaris arundinacea	5		FACW
2. Common Cattail-Typha latifolia	20		OBL
3. Glyceria Species	60	D	OBL
4. Unidentified Grass	40	D	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	125 = Total Cover		25
Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	2	x 1 =	2
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	5 (A)		9 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

Reed Canary at edge of sample point

Sample Point Photograph(s) (ID, Direction): #3, NE & #4, Pit; Camera: KLE

Wetland Photograph(s) (ID, Direction): #5, W & #6, Grass; Camera: ___

SOIL

Sampling Point: W01-SPOS

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[3]	Remarks
1-3								Organic layer - live + dead
3-16	10yr 4/1	60	10yr 5/8	40	C	M	C	

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X No _____

Remarks: Water in pit at 2"

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ____, Soils Change X, Signs of Hydrology X, Local Knowledge ____, Secondary Source ____

HGM Wetland Classification: Riverine ____ Depression X Slope ____ Mineral Soil Flat ____ Fringe ____ with minor riverine components

Cowardin Wetland Classification: PEM 40 % PSS 60 % PFO ____ % POW ____ % overall Wetland System

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W01-01 start open through W01-129 end open GPSed Surveyed: Yes X No ___; Unit 1

W01-37a - W01-37j

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

Unit #1

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*1

9/29/11

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: ~~11/30/2011~~

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL X WET ___ Sample ID: UPL01-

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, Township, Range: Stonycreek Township

Landform: Summit ___ Hillslope X Terrace ___ Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 5%

Subregion: LRR N X MLRA 147 ___ Lat: 39.965447 N Long: 78.873997W Datum: NAD 1983

Soil Map Unit Name: BrA - Brinkerton silt loam, 0-3 percent slopes NWI classification: PEM5A/PEM5E

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (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 X	No ___	**Is the Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks:

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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

Secondary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: UPL01

Tree Stratum (Plot size: 30' dia. X Other:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1. N Arrowwood-Viburnum recognitum	50%	D	FACW-
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50% = Total Cover		
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Panicled Aster-Aster Simplex	70%	D	FACW
2. Pokeweed - Phytolacca americana	5%		FACU
3. Tall Goldenrod - Solidago altissima	10%		FACU
4. rough Stemmed Goldenrod - Solidago rugosa	20%		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105% = Total Cover		50.5 21%
Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	2	x 2 =	4
FAC species	1	x 3 =	3
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	5 (A)		15 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

Transitional vegetation Dominated Between open field + wetland

Sample Point Photograph(s) (ID, Direction): #3, SE & #4, NE; Camera: KLE

Wetland Photograph(s) (ID, Direction): ___, ___ & ___, ___; Camera: ___

SOIL

Sampling Point: UPL01

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[3]	Remarks
0-16	2.5Y 3/3	100%					L	

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X

Remarks:

UPL01 SP01 Unit #1

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ____, Soils Change X, Signs of Hydrology X, Local Knowledge ____, Secondary Source ____

HGM Wetland Classification: Riverine ____ Depression X Slope ____ Mineral Soil Flat ____ Fringe ____ with minor Riverine component

Cowardin Wetland Classification: PEM 40 % PSS 60 % PFO ____ % POW ____ % overall wetland

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W01-01 staked through W01-129 end open GPSed Surveyed: Yes X No ___; Unit 1

W01-37a - W01-37j

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*[1]

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 10/11/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL X WET ___ Sample ID: UPL02

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, Township, Range: Stonycreek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0

Subregion: LRR N X MLRA 147 ___ Lat: 39.968754N Long: 78.875480W Datum: ___

Soil Map Unit Name: BrA - Brinkerton Silt loam, 0 to 3 percent slopes NWI classification: PEMSA / PEMSE

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? NO (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 X	**Is the Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks: Area appears to be previously disturbed with fill. approximately 50' from East bound lane of turnpike

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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

Secondary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: UPL02

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' dia. X Other:)			
1. Black Locust - Robinia pseudoacacia	15	D	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		7.5%
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			3%
1. Japanese Honeysuckle - Lonicera japonica	15	D	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		7.5%
Herb Stratum (Plot size: 5' dia. X Other:)			3%
1. Teasel - Dipsacus Sylvestris	30		NI
2. Crown Vetch - Coronilla Varia	25		NI
3. Tall Goldenrod - Solidago altissima	20		FACU
4. Spotted Knapweed - Centaurea maculosa	15		NI
5. Oxeye Daisy - Chrysanthemum leucanthemum	2		NI
6. Queen Annes Lace - Daucus Carota	5		NI
7. Yarrow - Achillea millefolium	5		FACU
8. Orchard Grass - Dactylis glomerata	80	D	FACU
9.			
10.			
11.			
12.			
	182 = Total Cover		91%
Woody Vine Stratum (Plot size: 30' dia. A Other:)			36 M%
1.			
2.			
3.			
4.			
5.			
6.			
	= 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: 3 (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	1	x 3 =	3
FACU species	4	x 4 =	16
UPL species	0	x 5 =	0
Column Totals:	5 (A)		19 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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

Sample Point Photograph(s) (ID, Direction): H1, S & H2, N; Camera: KLE

Wetland Photograph(s) (ID, Direction): ___, ___ & ___, ___; Camera: ___

SOIL

Sampling Point: UPL02

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[3]	Remarks
0-7	5yr 3/3	100%					Lots rocks	Rocks + fill material

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X

Remarks:

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ____, Soils Change X, Signs of Hydrology X, Local Knowledge ____, Secondary Source ____

HGM Wetland Classification: Riverine ____ Depression X Slope ____ Mineral Soil Flat ____ Fringe ____ Mirror with riverine component

Cowardin Wetland Classification: PEM 40 % PSS 60 % PFO ____ % POW ____ % Overall wetland

Wetland Survey / GPS Remarks: slope open

Wetland Boundary Flagged: WO1-01 through WO1-129 end open GPSed Surveyed: Yes X No ____; Unit 1

WO1-37a - WO1-37j

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

Open field side on other of stream [illegible] to [illegible]

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*1

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 11/1/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL X WET ___ Sample ID: UPL03

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section (Township) Range: Stonycreek Township

Landform: Summit ___ Hillslope X Terrace ___ Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0

Subregion: LRR N X MLRA 147 ___ Lat: 39.968001 N Long: 78.873030 W Datum: NAD/83

Soil Map Unit Name: UDF - Udorthents, mine Spoil, 25 to 70 percent slopes NWI classification: PEM5A/PEM5E

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? NO (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 X	Is the Sampled Area within a Wetland?	Yes ___ No X
Hydric Soil Present?	Yes ___ No X		
Wetland Hydrology Present?	Yes ___ No X		

Remarks:

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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

Secondary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

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

Sampling Point: UPL03

Tree Stratum (Plot size: 30' dia. X Other:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Orchard grass - Dactylis glomerata	100	D	FACU
2. Tall goldenrod - Solidago altissima	40	D	FACU
3. Queen Anne's Lace - Daucus carota	2		NI
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	142 = Total Cover		71 / 35.5%
Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	2 (A)		8 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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

Snow

Sample Point Photograph(s) (ID, Direction): #2, W & #3, E; Camera: Kle

Wetland Photograph(s) (ID, Direction): ___, ___ & ___, ___; Camera: ___

SOIL Sampling Point: UPL03

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[3]	Remarks
0-10	10yr 3/4	100					CL w/ rock fragments	
10-14							Rock	

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X

Remarks: area is possibly fill/waste area adjacent to turnpike (200's)

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ____, Soils Change X, Signs of Hydrology X, Local Knowledge ____, Secondary Source ____

HGM Wetland Classification: Riverine ____ Depression X Slope ____ Mineral Soil Flat ____ Fringe ____ with minor Riverine component

Cowardin Wetland Classification: PEM 40 % PSS 60 % PFO ____ % POW ____ % overall wetland system

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W01-01 start open through W01-129 end open GPSed Surveyed: Yes X No ___; Unit 1

W01-37a - W01-37j

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*[1]

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 11/1/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL ___ WET X Sample ID: UPLO4

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, Township, Range: Stonycreek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0

Subregion: LRR N X MLRA 147 ___ Lat: 39.967092 N Long: 79.877193 W Datum: NAD/83

Soil Map Unit Name: BrA - Brinkerton silt loam, 0 to 3 percent slopes NWI classification: PEMSA/PEMSE

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (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 X	No ___	**Is the Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks: Delineation in this area based on soils + change in grass species

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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

Secondary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: UPLOG

Tree Stratum (Plot size: 30' dia. X Other:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia, X Other:)			
1. N. Arrowwood - Viburnum dentatum	90	D	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Aster Species - Aster spp	30		UPL
2. Miscellaneous grass	100	D	UPL
3. White Oak - Quercus alba	1		FACU
4. Dewberry - Rubus spp	5		UPL
5. Goldenrod Species - Solidago spp	20		UPL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	156 = Total Cover		78% 31.2%
Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	1	x 3 =	3
FACU species	1	x 4 =	4
UPL species	4	x 5 =	20
Column Totals:	4 (A)		27 (B)

Prevalence Index = B/A = 6.8

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No __

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

Herbs - Unable to determine species due to time of yr

Sample Point Photograph(s) (ID, Direction): #5, N & #6, S; Camera: KLE

Wetland Photograph(s) (ID, Direction): __, __ & __, __; Camera: __

SOIL

Sampling Point: UPL04

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[3]	Remarks
0-10	2.5y 4/4	100					CL	
10+	2.5y 5/3	70	10yr 4/6	30	C	M	C	

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X

Remarks:

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ____, Soils Change X, Signs of Hydrology X, Local Knowledge ____, Secondary Source ____

HGM Wetland Classification: Riverine ____ Depression X Slope ____ Mineral Soil Flat ____ Fringe ____ with some Riverine components

Cowardin Wetland Classification: PEM 40% PSS 60% PFO ____% POW ____% overall wetland system

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W01-01 Hand open through W01-W9 and open GPSed Surveyed: Yes X No ____; Unit 1

W01-37a - W01-37j

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*1

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 11/1/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL X WET ___ Sample ID: UPL 05

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, Township, Range: Stonycreek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0

Subregion: LRR N X MLRA 147 ___ Lat: 39.966321 N Long: 78.871634 W Datum: NAD 83

Soil Map Unit Name: ErC - Ernest silt loam, 8 to 15 percent slopes NWI classification: PEMSA/PEMSE

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

Secondary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: UPLOS

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Rubus species	50	D	-UPL
2. Miscellaneous grasses	100	D	-UPL
3. Rough-stem goldenrod-Solidago rugosa	25		FAC
4. Hawthorn-Crataegus spp.	2		-UPL
5. Lowbush blueberry-Vaccinium angustifolium	20		FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	197 = Total Cover		98.5%
Woody Vine Stratum (Plot size: 30' dia. X Other:)			39.4%
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	1	x 3 =	3
FACU species	1	x 4 =	4
UPL species	3	x 5 =	15
Column Totals:	4 (A)		22 (B)

Prevalence Index = B/A = 5.5

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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

Herb species unable to positively Id due to time of season assumed upland varieties of Dominance

Sample Point Photograph(s) (ID, Direction): #7, N & #8, W; Camera: KCE

Wetland Photograph(s) (ID, Direction): ___, ___ & ___, ___; Camera: ___

SOIL

Sampling Point: UPL05

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[3]	Remarks
0-6	10yr 4/4	100%					CL	
6+								ROCK

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X

Remarks: Behind maintenance yard at East end of W01

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ___, Soils Change X, Signs of Hydrology X, Local Knowledge ___, Secondary Source ___

HGM Wetland Classification: Riverine ___ Depression X Slope ___ Mineral Soil Flat ___ Fringe ___ with minor riverine Components

Cowardin Wetland Classification: PEM 40 % PSS 60 % PFO ___ % POW ___ % Overall wetland System

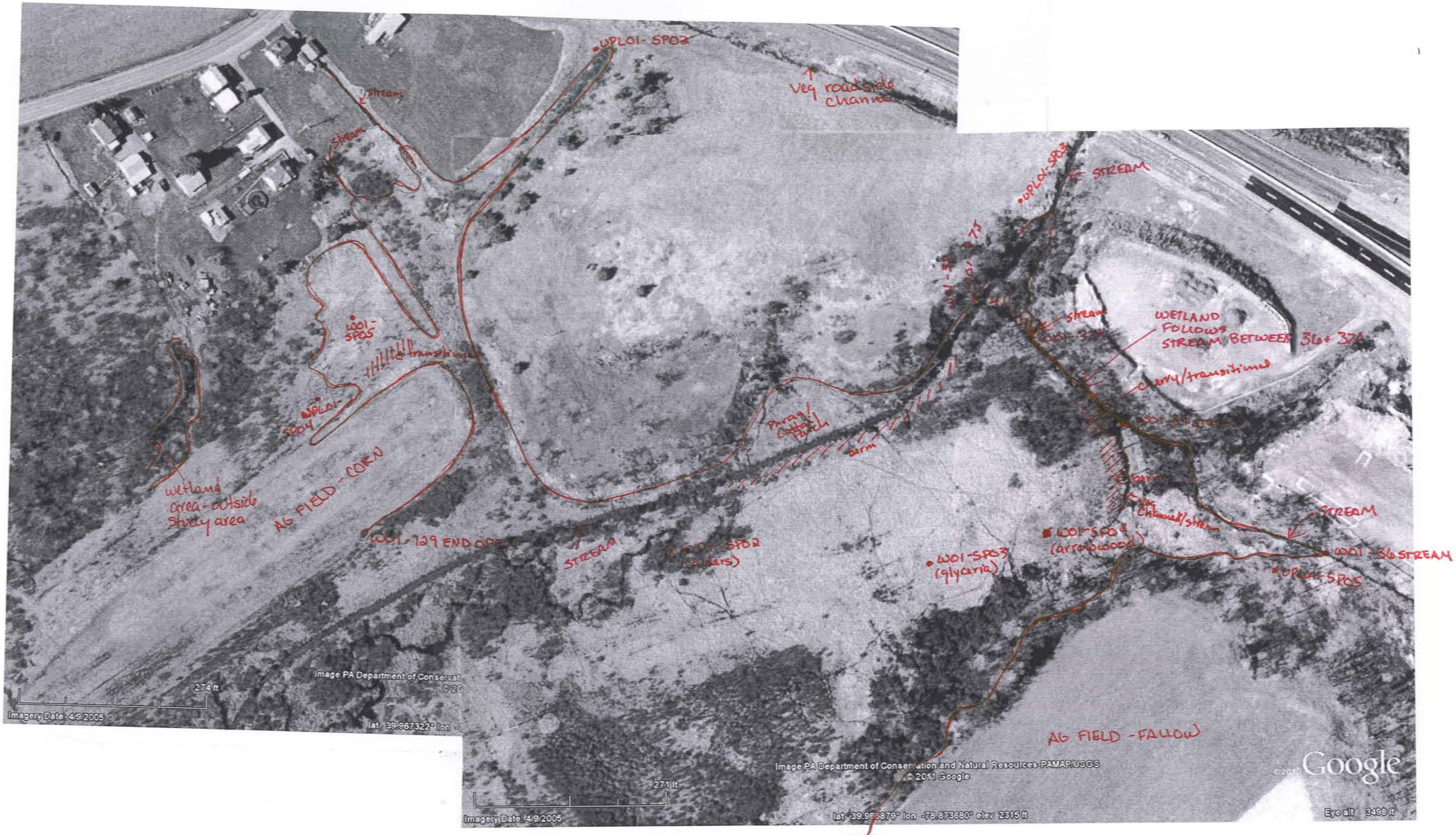
Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W01-01 (start open) through W01-12 (end open) GPSed Surveyed: Yes X No ___; Unit 1

W01-37a - W01-37b

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____



W01-SP01

UPL01-SP01

W01-01 START OPEN

////// = transitional area or upland berm

WETLAND W01 - ROUGH SKETCH

KLE + MPS Oct 2011

W-01

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 1 Rapid Assessment Version 1.0

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
AIS	PTC ALLEGHENY TUNNEL	10.05.11	N/A	W-01		
Name(s) of Evaluator(s)		**Lat (dd)**	**Long (dd)**	**Notes:**		
AGB				ASSOC. W/ STREAM S-SRC-05		

1. Wetland Zone of Influence Condition Index

	Condition Category					
Wetland Zone of Influence (300 foot area around AA perimeter)	**Optimal**	**Suboptimal**		**Marginal**		**Poor**	
	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover. Any areas comprised of wetlands or stream channels are also classified as optimal.	**High Suboptimal:** ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory	**Low Suboptimal:** ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and a maintained understory or recent timber hravesting cutover (< 5 years)	**High Marginal:** Non-maintained, dense herbaceous vegetation, with either a shrub or tree layer (dbh>3 inches) with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, ZOI areas lacking shrub and tree stratum or If tree stratum present, has <30% canopy cover with a maintained understory.	**High Poor:** Lawns, mowed and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
SCORE ___	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6		5 4 3 2 1	

1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.
2. Estimate the % area within each condition category. Calculators are provided for you below.
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.

Scoring:									
	% ZOI Area>	0.70	0.25	0.05				1.00 %	CI
	Score >	10	7	5				9 0.00	0.00

0.45

Comments:

LARGE ACREAGE - EXTENDS OFF-SITE. ASSOC. W/ STREAMS S-SRC-05 AND S-SRC-06.

W-01 overview, facing south.

W-01 overview, facing southeast.

WETLAND 02

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*1

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 11/1/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL ___ WET X Sample ID: UW2SP01

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, Township, Range: Stonycreek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave X Convex ___ Linear ___ Level ___ Slope (%): ___

Subregion: LRR N X MLRA 147 ___ Lat: 39.965894 Long: 78.870393 Datum: NAD1983

Soil Map Unit Name: ErC - Ernest silt loam, 8 to 15 percent slopes NWI classification: ___

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? NO (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 X No ___	**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks: Water in pit

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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 X No ___ Depth (inches): 5

Water Table Present? Yes X No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater X Point Source ___

Secondary Hydrology Source(s): Direct Precipitation X Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WDSP01

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Sphagnum Moss	80	D	Nik
2. Wool-grass - Scirpus cyperinus	25		FACW
3. Swamp Dewberry - Rubus	50	D	FACW
4. Skunk-cabbage - Symplocarpus foetidus	5		OBL
5. Fern Species	30		UPL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	190 = Total Cover		95% 38%
Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	1	x 1 =	1
FACW species	2	x 2 =	4
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	4 (A)		10 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

* Often found in wet areas + is associated with wetlands (sphagnum)

Sample Point Photograph(s) (ID, Direction): #9, N & #10, E; Camera: KLE

Wetland Photograph(s) (ID, Direction): ___, ___ & ___, ___; Camera: ___

SOIL

Sampling Point: WD2SP01

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[3]	Remarks
0-12	2.5y 3/1	100%					SI	organic material throughout

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X No ___

Remarks: Sulfidic odor

20'x20' depressional hole

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ___, Soils Change X, Signs of Hydrology X, Local Knowledge ___, Secondary Source ___

HGM Wetland Classification: Riverine ___ Depression X Slope ___ Mineral Soil Flat ___ Fringe ___

Cowardin Wetland Classification: PEM 100 % PSS ___% PFO ___% POW ___%

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: WD2-01 through WD2-06 GPSed Surveyed: Yes X No ___; Unit #1

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

MODIFIED WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont*1

Project/Site: Allegheny Tunnel County: Somerset X Bedford ___ Sampling Date: 11/1/11

Applicant/Owner: Pennsylvania Turnpike Commission State: PA Sample Point: UPL X WET ___ Sample ID: UPL016

Investigator(s): Sgt ___ Jrg ___ Ewl ___ Mps X Tls ___ Kle X Section, Township, Range: Stonycreek Township

Landform: Summit ___ Hillslope ___ Terrace X Floodplain ___ Local relief: Concave ___ Convex ___ Linear ___ Level X Slope (%): 0%

Subregion: LRR N X MLRA 147 ___ Lat: 39.965833N Long: 78.870410W Datum: ___

Soil Map Unit Name: EtC - Ernest silt loam, 8 to 15 percent slopes NWI classification: PEMSA/PEMSE

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (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 X	No ___	**Is the Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks:

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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

Primary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

Secondary Hydrology Source(s): Direct Precipitation ___ Overland Flow ___ Floodflow ___ Groundwater ___ Point Source ___

*1 Form modified from: U. S. Army Corps of Engineers. 2010. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, ed. J.S. Wakley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-XX. Vicksburg, MS: U.S. Army Engineer Research and Develo

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: UPL06

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' dia. X Other:)			
1. Witch Hazel-Hamamelis Virginiana	5	D	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5 = Total Cover		2.5 1.5
Herb Stratum (Plot size: 5' dia. X Other:)			
1. Club moss Species	5		—
2. Lowbush blueberry-Vaccinium angustifolium	25		FACU
3. Rubus Species	70	D	—
4. Miscellaneous grass	20		—
5. Rough-Stem goldenrod-Solidago rugosa	20		FAC
6. Speckled Alder-Alnus rugosa	25		FACW
7.			
8.			
9.			
10.			
11.			
12.			
	165 = Total Cover		82.5 49.5
Woody Vine Stratum (Plot size: 30' dia. X Other:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= 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	1	x 2 =	2
FAC species	2	x 3 =	6
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	4 (A)		12 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

Sample Point Photograph(s) (ID, Direction): #11, NW & ___, ___; Camera: KLE

Wetland Photograph(s) (ID, Direction): ___, ___ & ___, ___; Camera: ___

SOIL

Sampling Point: UPL06

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[3]	Remarks
0-4	2.5y 3/3	100					SL	
4+	2.5y 5/6	100					SL	

[3]s=sand, l=loam, c=clay, si =silt, f=fine, vf=very fine, co= coarse

[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)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- *2 Umbric Surface (F13) **(MLRA 136, 122)**
- *2 Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- *2 Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*2 Not applicable to LRR N or MLRA 147

[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 X

Remarks:

General Wetland Remarks:

Boundary Determination Parameters: Microtopography X, Community Change X, Species Composition Change X, Stratification Change ____, Soils Change X, Signs of Hydrology X, Local Knowledge ____, Secondary Source ____

HGM Wetland Classification: Riverine ____ Depression X Slope ____ Mineral Soil Flat ____ Fringe ____

Cowardin Wetland Classification: PEM 100 % PSS ____ % PFO ____ % POW ____ %

Wetland Survey / GPS Remarks:

Wetland Boundary Flagged: W03SP01 through W03SP06 GPSed Surveyed: Yes X No ___; Unit 1

Open Ended Boundary Flagged: _____ through _____, _____ through _____ & _____ through _____

Upland Inclusion(s) Flagged: _____ through _____, _____ through _____ & _____ through _____

W-02

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 1 Rapid Assessment Version 1.0

For use in all wetland classifications found within Pennsyvlania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
AMS	PTC MASONTOWN TUNNEL	10.31.11	N/A	W-02		
Name(s) of Evaluator(s)		**Lat (dd)**	**Long (dd)**	**Notes:**		
KLE				ASSOC. W/ STREAM S-SRC-06		

1. Wetland Zone of Influence Condition Index

	Condition Category				
Wetland Zone of Influence (300 foot area around AA perimeter)	**Optimal**	**Suboptimal**		**Marginal**		**Poor**	
	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover. Any areas comprised of wetlands or stream channels are also classified as optimal.	**High Suboptimal:** ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory	**Low Suboptimal:** ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and a maintained understory or recent timber hravesting cutover (< 5 years)	**High Marginal:** Non-maintained, dense herbaceous vegetation, with either a shrub or tree layer (dbh>3 inches) with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, ZOI areas lacking shrub and tree stratum or If tree stratum present, has <30% canopy cover with a maintained understory.	**High Poor:** Lawns, mowed and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
SCORE ___	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6		5 4 3 2 1	

1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.
2. Estimate the % area within each condition category. Calculators are provided for you below.
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.

Scoring:									
	% ZOI Area>	1.00						1.00 %	CI
	Score >	5						5 0.00	0.00

0.25

Comments:
POSSIBLY ASSOC. W/ STREAM S-SRC-06. LOCATED W/IN MAINTAINED ELECTRICAL POWERLINE R.O.W.

W02 overview, facing north.

W02 overview, facing northeast.

WETLAND W-JHS-01

WETLAND DETERMINATION DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 USCOE Wetlands Delineation Manual and Associated Regional Supplement)

Project/Site: Allegheny Tunnel		Date: 05.01.12	
Applicant/Owner: PTC		County: Somerset	
Investigator(s): JH, DLM, LAH		State: PA	
Cowardin Classification (Percentage): PEM/PSS/mmp.DH/PFO (53/36/6/5)		Wetland ID #: W.JHS.01 SP-1	
Climatic/Hydrologic Conditions Seasonally Typical?		☒ Yes	☐ No
Are "Normal Circumstances" present?		☒ Yes	☐ No
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology significantly disturbed (Atypical)?			
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology naturally Problematic?			
NWI Classification: (if applicable)			
Landform/Geomorphic Setting (Check All That Apply)			
☐ Built-up Land/Fill Area	☐ Terrace		
☐ Agricultural Drainage Swale	☐ Within Stream Channel		
☐ Hillslope Seep/Spring	☒ Floodplain		
☐ Toe-of-Slope/Hydrologic Jump	☐ Alluvial Fan		
☐ Closed Topographic Depression/Isolated System	☐ Delta		
☒ Hydrologically Connected to Other Aquatic Resources	☐ Other –		
Slope: 25 %	Land Relief: ☒ Concave ☐ Convex ☒ None		
Latitude: Longitude:	Datum:		
No. of Flags: 131 Open Ended Flag Nos. 130, 131, 129, 99, 100	Photographs (with Direction of Photo or Description) 1 – WSW 3 – NE 2 – NE 4 – NNW		
Remarks: ONE OF FIVE SAMPLE POINTS - LARGE WETLAND SYSTEM.			

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is the Sampled Area Within a Wetland?	☐ Yes	☐ No
Hydric Soils Present?	☒ Yes	☐ No			
Wetland Hydrology Present?	☒ Yes	☐ No			
Remarks: ASSOC. W/ STREAMS S.SRC.01 AND S.JHS.01. JURISDICTIONAL.					

NOTE:

- **Please draw a Plan View sketch (in the space provided on Page 4) of the wetland and surrounding area that includes the wetland's boundaries (provide flag numbers), any associated natural or man-made features (i.e., forest, ag fields, homes, roads, utility lines, etc.), connectivity to adjacent/abutting stream, and the locations of the wetland and upland soil pits. Also, please illustrate the general location of PEM, PSS, PFO, POW, PUB wetland components within the boundary of the wetland complex.**
- **Please complete the upland data sheet for each wetland found at the end of this form.**
- **Please GPS the wetland and upland soil pits and locate on the plan view map the location/direction (with arrows) of photos taken.**
- **Please make note of the wetland's connectivity to a jurisdictional water of the US (i.e., TNW [perennial & canoeable or larger stream], RPW [smaller perennial or intermittent stream], non-RPW [intermittent or ephemeral stream]) or whether it is an isolated system.**

DATA FORM – ROUTINE WETLAND DETERMINATION
WETLAND ID #: W-JHS-01 SP-1

VEGETATION

#	Tree Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
6				
			= Total Cover	

#	Sapling Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
			= Total Cover	

#	Shrub Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	ARROWWOOD (VIBURNUM DENTATUM)	40	Y	FAC
2	HAWTHORNE (CRATAEGUS SP.)	10	Y	–
3	HONEYSUCKLE (LONICERA JAPONICA)	2	N	FAC
4				
5				
		52	= Total Cover	

#	Herb Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	SKUNK CABBAGE (SYMPLOCARPUS FOETIDUS)	NOTED	N	OBL
2	SENSITIVE FERN (ONOCLEA SENSIBILIS)	NOTED	N	FACW
3	BUTTERCUP (RANUNCULUS SP.)	30	Y	–
4	SOFT RUSH (JUNCUS EFFUSUS)	25	Y	FACW
5	SEDGE (CAREX SP.)	25	Y	–
6	REED CANARY (PHALARIS ARUNDINACEA)	20	Y	FACW
7				
8				
9				
10				
			= Total Cover	

#	Woody Vine Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
			= Total Cover	

Dominance Test Worksheet		
# of Dominant Species that are OBL, FACW, or FAC?	3	(A)
Total # of Dominant Species across all Strata?	6	(B)
% of Dominant Species that are OBL, FACW, or FAC?	50	(A/B)

Prevalence Index Worksheet		
Total % Cover of:	Mult. by:	
OBL species	1 =	
FACW species	2 =	
FAC species	3 =	
FACU species	4 =	
UPL species	5 =	
Coln. Totals: (A)		(B)
Prevalence Index =	B/A =	

Hydrophytic Vegetation Indicators		
Rapid Test for Hydrophytic Veg.	☒ Yes	☐ No
Dominance Test is >50%	☒ Yes	☐ No
Prevalence Index is ≤3.0	☐ Yes	☐ No
Morphological Adaptations	☐ Yes	☒ No
Problematic Hydrophytic Veg	☐ Yes	☒ No

Vegetation Strata Definitions

Tree – Woody plant 20+ feet high & 3+ in. dbh

Sapling – Woody plant 20+ feet high & <3 in. dbh

Shrub – Woody plant ~3-20 feet high

Woody Vine – All woody vines

Hydrophytic Vegetation Present?	☒ Yes	☐ No

Remarks:

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W-JHS-01 SP-1

SOILS

Soil Survey Map Unit Name/Symbol: -	Drainage Class: -
Taxonomy: -	Field Observations Confirm Mapped Type: ☐ Yes ☒ No

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 2	- / -	- / - / - / -	-	-
2 - 6	10YR 3/1 / 90	10YR 4/4 / 10 / RM / M	FEW, DULL	SILT LOAM
6 - 12	2.5Y 4/2 / 70	10YR 4/4 / 30 / RM / M	MANY, DISTINCT	SILT LOAM
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

HYDRIC SOIL INDICATORS (Check All That Apply)

☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)
☒ Sulfidic Odor (A4)	☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5)	☒ Depleted Matrix (F3)
☐ 2 cm of Muck (A10)	☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1)	☒ Iron-Manganese Masses (F12)
☐ Sandy Gleyed Matrix (S4)	☐ Umbric Surface (F13)
☐ Sandy Redox (S5)	☐ Piedmont Floodplain Soils (F19)
☐ Stripped Matrix (S6)	☐ Other
☐ Dark Surface (S7)	

INDICATORS FOR PROBLEMATIC HYDRIC SOILS (Check All That Apply)

☐ 2 cm Muck (A10)	☐ Very Shallow Dark Surface (TF12)
☐ Piedmont Floodplain Soils (F19)	☐ Other
☐ Red Parent Material (TF2)	

Hydric Soil Present?	☒ Yes	☐ No
Remarks:		

WETLAND ID #: W·JHS·01 SP-1

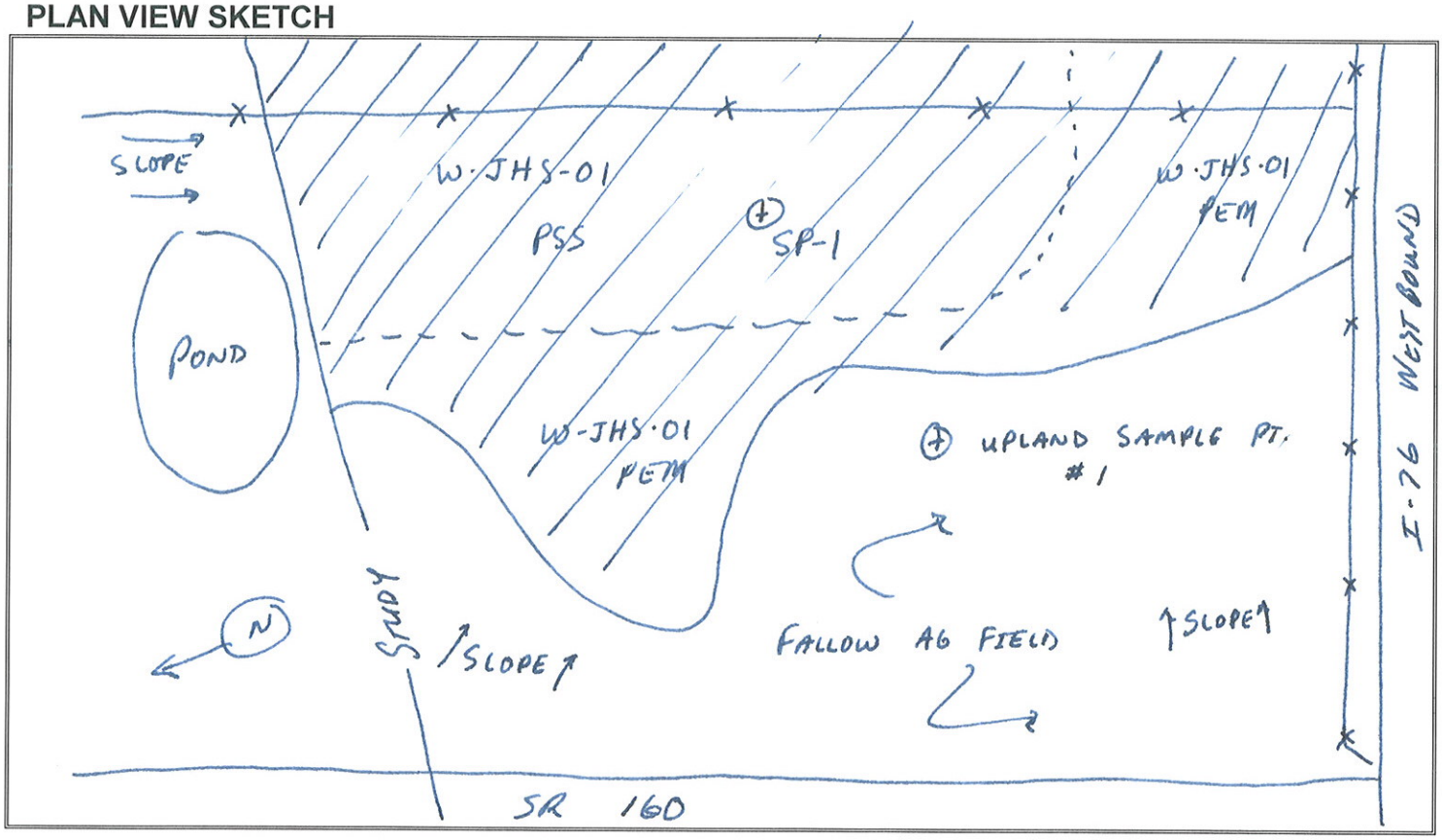
HYDROLOGY

WETLAND HYDROLOGY INDICATORS	
Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☒ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☒ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☒ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☒ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS			
Surface Water Present?	☒ Yes	☐ No	Depth of: 4 (in)
Water Table Present in Pit?	☐ Yes	☒ No	Depth of: - (in)
Saturated Soils Present?	☒ Yes	☐ No	Depth to: 0 (in)
Wetland Hydrology Present?	☒ Yes	☐ No	

Remarks: CONNECTED VIA S·SRC·01 AND S·JHS·01

PLAN VIEW SKETCH



UPLAND DATA SHEET – ROUTINE WETLAND DETERMINATION

WETLAND ID #: Upland Data Point W-JHS-01 SP-1 (UPLAND SAMPLE PT. 1)

VEGETATION

#	All Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	GOLDENROD (SOLIDAGO SP.)	30	Y	–
2	ORCHARD GRASS (DACTYLIS GLOMERATA)	20	Y	FACU
3	CINQUEFOIL (POTENTILLA SIMPLEX)	20	Y	FACU
4	ARROWWOOD (VIBURNUM DENTATUM)	20	Y	FAC
5	UNID'D GRASS SP.	10	N	–
6				
		100	= Total Cover	
Wetland Vegetation Present?		☒ Yes	☐ No	

Remarks: WETLAND VEG. IS PRESENT AND DOMINANT @ SAMPLE PT. (50/20).

SOILS

Soil Survey Map Unit Name/Symbol:	Drainage Class:

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 1	– / –	– / – / – / –	–	–
1 - 4	2.5Y 4/4 / 100	– / – / – / –	–	SILT LOAM
4 - 6	10YR 4/3 / 95	5YR 4/6 / 5 / RM / PL	FEW, BRIGHT	SILT LOAM

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

Hydric Soil Present?	☐ Yes	☒ No

Remarks: REFUSAL @ 6" DUE TO ROCK. WETLAND SOIL CHARACTERIS NOT PRESENT.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (1 or more required)	Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☐ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS

Surface Water Present?	☐ Yes	☒ No	Depth of: – (in)
Water Table Present in Pit?	☐ Yes	☒ No	Depth of: – (in)
Saturated Soils Present?	☐ Yes	☒ No	Depth to: – (in)
Wetland Hydrology Present?	☐ Yes	☒ No	

Remarks: NO WETLAND HYDROLOGY NOTED @ SAMPLE POINT.

WETLAND DETERMINATION DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 USCOE Wetlands Delineation Manual and Associated Regional Supplement)

Project/Site: Allegheny Tunnel	Date: 05.01.2012	
Applicant/Owner: PTC	County: Somerset	
Investigator(s): JH, DM, LEI	State: PA	
Cowardin Classification (Percentage): PEM/PSS/mmP·DH/PFO(53/36/6/5)	Wetland ID #: W·JHS·01 SP·2	
Climatic/Hydrologic Conditions Seasonally Typical?	☒ Yes	☐ No
Are "Normal Circumstances" present?	☒ Yes	☐ No
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology significantly disturbed (Atypical)?		
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology naturally Problematic?		
NWI Classification: (if applicable)		

Landform/Geomorphic Setting (Check All That Apply)	
☐ Built-up Land/Fill Area	☒ Terrace
☐ Agricultural Drainage Swale	☐ Within Stream Channel
☐ Hillslope Seep/Spring	☒ Floodplain
☒ Toe-of-Slope/Hydrologic Jump	☐ Alluvial Fan
☐ Closed Topographic Depression/Isolated System	☐ Delta
☒ Hydrologically Connected to Other Aquatic Resources	☐ Other –
Slope: <5 %	Land Relief: ☒ Concave ☐ Convex ☐ None
Latitude: Longitude:	Datum:
No. of Flags: 131 Open Ended Flag Nos. 130, 131, 129, 99, 100	Photographs (with Direction of Photo or Description) 1 – S 3 – 2 – 4 –
Remarks:	

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is the Sampled Area Within a Wetland?	☒ Yes	☐ No
Hydric Soils Present?	☒ Yes	☐ No			
Wetland Hydrology Present?	☒ Yes	☐ No			
Remarks: CONNECTED VIA S·SRC·01 AND S·JHS·01					

NOTE:

- **Please draw a Plan View sketch (in the space provided on Page 4) of the wetland and surrounding area that includes the wetland's boundaries (provide flag numbers), any associated natural or man-made features (i.e., forest, ag fields, homes, roads, utility lines, etc.), connectivity to adjacent/abutting stream, and the locations of the wetland and upland soil pits. Also, please illustrate the general location of PEM, PSS, PFO, POW, PUB wetland components within the boundary of the wetland complex.**
- **Please complete the upland data sheet for each wetland found at the end of this form.**
- **Please GPS the wetland and upland soil pits and locate on the plan view map the location/direction (with arrows) of photos taken.**
- **Please make note of the wetland's connectivity to a jurisdictional water of the US (i.e., TNW [perennial & canoeable or larger stream], RPW [smaller perennial or intermittent stream], non-RPW [intermittent or ephemeral stream]) or whether it is an isolated system.**

DATA FORM – ROUTINE WETLAND DETERMINATION **PAGE 2**

WETLAND ID #: W-JHS-01 SP-2

VEGETATION

#	Tree Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
6				
			= Total Cover	
#	Sapling Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
			= Total Cover	
#	Shrub Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	HONEYSUCKLE (LONICERA JAPONICA)	5	N	FAC
2	ARROWWOOD (VIBURNUM DENTATUM)	30	Y	FAC
3				
4				
5				
		35	= Total Cover	
#	Herb Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	ASTER (SYMPHYOTRICHUM SP.)	20	Y	-
2	GOLDENROD (SOLIDAGO RUGOSA)	20	Y	FAC
3	SOFT RUSH (JUNCUS EFFUSUS)	20	Y	FACW
4	YELLOW MUSTARD (ALLIARIA PETIOLATA)	NOTED	N	FACU
5	REED CANARY GR. (PHALARIS ARUND.)	40	Y	FACW
6	TEASEL (DIPSACUS FULLONUM)	NOTED	N	FACU
7				
8				
9				
10				
		100	= Total Cover	
#	Woody Vine Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
			= Total Cover	

Dominance Test Worksheet

# of Dominant Species that are OBL, FACW, or FAC?	4 (A)
Total # of Dominant Species across all Strata?	5 (B)
% of Dominant Species that are OBL, FACW, or FAC?	80 (A/B)

Prevalence Index Worksheet

Total % Cover of:	Mult. by:	
OBL species	1 =	
FACW species	2 =	
FAC species	3 =	
FACU species	4 =	
UPL species	5 =	
Coln. Totals: (A)		(B)
Prevalence Index =	B/A =	

Hydrophytic Vegetation Indicators

Rapid Test for Hydrophytic Veg.	☒ Yes	☐ No
Dominance Test is >50%	☒ Yes	☐ No
Prevalence Index is ≤3.0	☐ Yes	☐ No
Morphological Adaptations	☐ Yes	☒ No
Problematic Hydrophytic Veg	☐ Yes	☒ No

Vegetation Strata Definitions

Tree – Woody plant 20+ feet high & 3+ in. dbh

Sapling – Woody plant 20+ feet high & <3 in. dbh

Shrub – Woody plant ~3-20 feet high

Woody Vine – All woody vines

Hydrophytic Vegetation Present?	☒ Yes	☐ No

Remarks:

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W·JHS·01 SP·2

SOILS

Soil Survey Map Unit Name/Symbol: -	Drainage Class: -
Taxonomy: -	Field Observations Confirm Mapped Type: ☐ Yes ☒ No

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 1	– / –	– / – / – / –	–	–
1 - 5	10YR 3/2 / 90	5YR 4/6 / 10 / RM / PL	FEW, BRIGHT	SILT LOAM
5 - 11	10YR 4/2 / 90	7.5YR 4/4 / 10 / RM / PL	MANY, BRIGHT	SILT LOAM
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

HYDRIC SOIL INDICATORS (Check All That Apply)

☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)
☐ Sulfidic Odor (A4)	☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)
☐ 2 cm of Muck (A10)	☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1)	☐ Iron-Manganese Masses (F12)
☐ Sandy Gleyed Matrix (S4)	☐ Umbric Surface (F13)
☐ Sandy Redox (S5)	☐ Piedmont Floodplain Soils (F19)
☐ Stripped Matrix (S6)	☐ Other
☐ Dark Surface (S7)	

INDICATORS FOR PROBLEMATIC HYDRIC SOILS (Check All That Apply)

☐ 2 cm Muck (A10)	☐ Very Shallow Dark Surface (TF12)
☐ Piedmont Floodplain Soils (F19)	☐ Other
☐ Red Parent Material (TF2)	

Hydric Soil Present?	☒ Yes	☐ No
Remarks:		

WETLAND ID #: W · JHS · 01 SP · 2

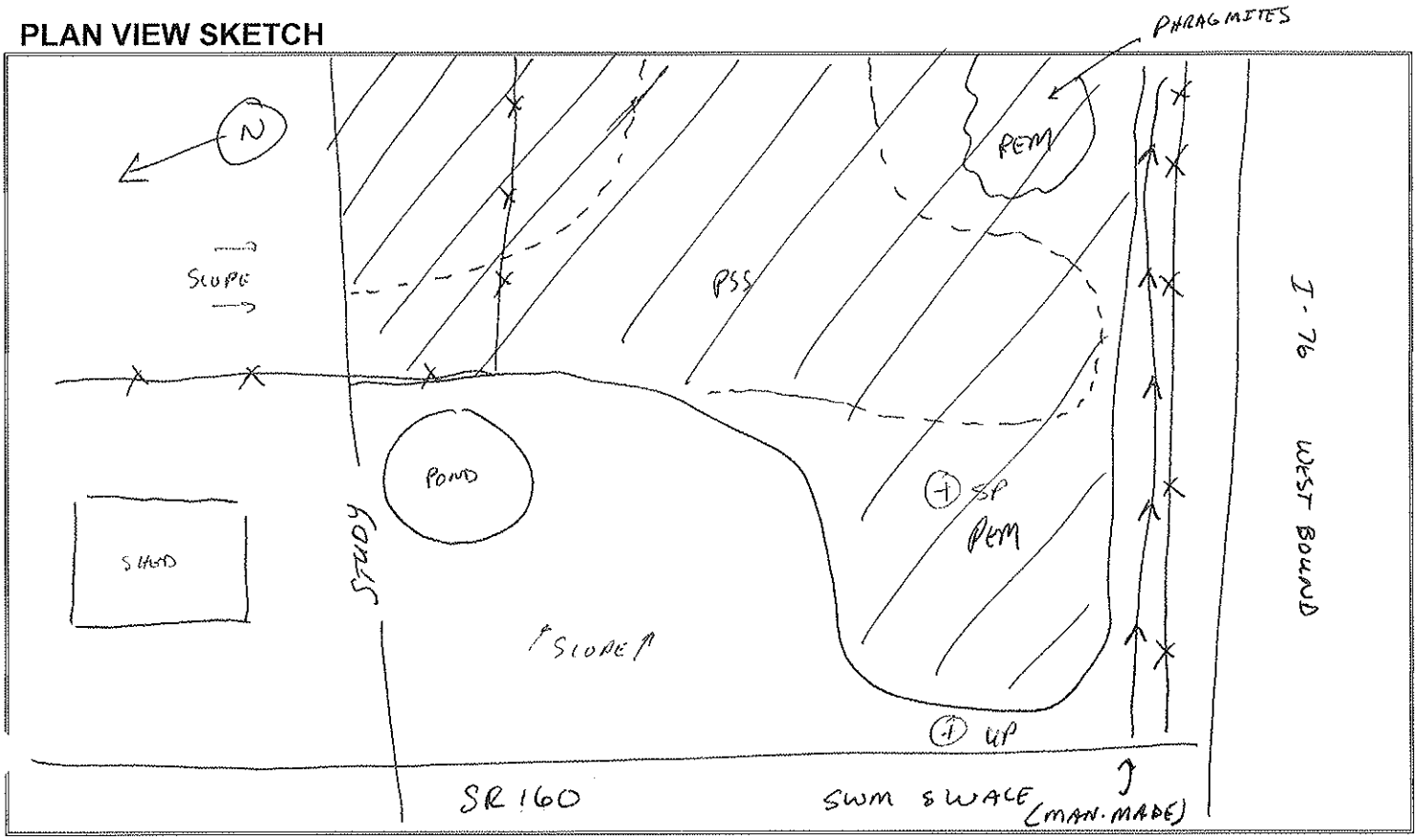
HYDROLOGY

WETLAND HYDROLOGY INDICATORS	
Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☒ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☒ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS			
Surface Water Present?	☐ Yes	☒ No	Depth of: – (in)
Water Table Present in Pit?	☒ Yes	☐ No	Depth of: 6 (in)
Saturated Soils Present?	☒ Yes	☐ No	Depth to: 0 (in)
Wetland Hydrology Present?	☒ Yes	☐ No	

Remarks: CONNECTED VIA S. SAC · 01 AND S. JHS · 01

PLAN VIEW SKETCH



UPLAND DATA SHEET – ROUTINE WETLAND DETERMINATION

WETLAND ID #: Upland Data Point ↑ W·JHS·01 SP·2 (UPLAND SAMPLE PT. 1)

VEGETATION

#	All Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	GOLDENROD (SOLIDAGO SP.)	30	Y	–
2	ORCHARD GRASS (DACTYLIS GLOMERATA)	20	Y	FACU
3	CINQUEFOIL (POTENTILLA SIMPLEX)	20	Y	FACU
4	ARROWWOOD (VIBURNUM DENTATUM)	20	Y	FAC
5	UNID'D GRASS SP.	10	N	–
6				
		100	= Total Cover	
Wetland Vegetation Present?		☒ Yes	☐ No	

Remarks: WETLAND VEG. IS PRESENT AND DOMINANT @ SAMPLE PT. (50/20).

SOILS

Soil Survey Map Unit Name/Symbol:	Drainage Class:

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 1	– / –	– / – / – / –	–	–
1 - 4	2.5Y 4/4 / 100	– / – / – / –	–	SILT LOAM
4 - 6	10YR 4/2 / 95	5YR 4/6 / 5 / RM / PL	FEW, BASENT	SILT LOAM

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

Hydric Soil Present?	☐ Yes	☒ No

Remarks: REFUSAL @ 6" DUE TO ROCK. WETLAND SOIL CHARACTERISTICS NOT PRESENT

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (1 or more required)	Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☐ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS

Surface Water Present?	☐ Yes	☒ No	Depth of: – (in)
Water Table Present in Pit?	☐ Yes	☒ No	Depth of: – (in)
Saturated Soils Present?	☐ Yes	☒ No	Depth to: – (in)
Wetland Hydrology Present?	☐ Yes	☒ No	

Remarks: WETLAND HYDROLOGY NOT NOTED @ SAMPLE PT.

WETLAND DETERMINATION DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 USCOE Wetlands Delineation Manual and Associated Regional Supplement)

Project/Site: Allegheny Tunnel		Date: 05.01.2012	
Applicant/Owner: PTC		County: Somerset	
Investigator(s): JH, DM, LH		State: PA	
Cowardin Classification (Percentage): PEM/PSS/MMP.DH/PFO(53/36/6/5)		Wetland ID #: W-JHS-01 SP.3	
Climatic/Hydrologic Conditions Seasonally Typical?		☒ Yes	☐ No
Are "Normal Circumstances" present?		☒ Yes	☐ No
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology significantly disturbed (Atypical)?			
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology naturally Problematic?			
NWI Classification: — (if applicable)			
Landform/Geomorphic Setting (Check All That Apply)			
☐ Built-up Land/Fill Area	☐ Terrace		
☐ Agricultural Drainage Swale	☐ Within Stream Channel		
☐ Hillslope Seep/Spring	☒ Floodplain		
☐ Toe-of-Slope/Hydrologic Jump	☐ Alluvial Fan		
☐ Closed Topographic Depression/Isolated System	☐ Delta		
☒ Hydrologically Connected to Other Aquatic Resources	☐ Other –		
Slope: <5 %	Land Relief: ☒ Concave ☐ Convex ☐ None		
Latitude: Longitude:	Datum:		
No. of Flags: 131 Open Ended Flag Nos. 130, 131, 129, 99, 100	Photographs (with Direction of Photo or Description) 1 – S 3 – PIT 2 – N 4 –		
Remarks: CONNECTED TO S.SRC.01 & S.JHS.01.			

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is the Sampled Area Within a Wetland?	☒ Yes	☐ No
Hydric Soils Present?	☒ Yes	☐ No			
Wetland Hydrology Present?	☒ Yes	☐ No			
Remarks: JURISDICTIONAL - CONNECTED TO S.SRC.01 AND S.JHS.01.					

NOTE:

- **Please draw a Plan View sketch (in the space provided on Page 4) of the wetland and surrounding area that includes the wetland's boundaries (provide flag numbers), any associated natural or man-made features (i.e., forest, ag fields, homes, roads, utility lines, etc.), connectivity to adjacent/abutting stream, and the locations of the wetland and upland soil pits. Also, please illustrate the general location of PEM, PSS, PFO, POW, PUB wetland components within the boundary of the wetland complex.**
- **Please complete the upland data sheet for each wetland found at the end of this form.**
- **Please GPS the wetland and upland soil pits and locate on the plan view map the location/direction (with arrows) of photos taken.**
- **Please make note of the wetland's connectivity to a <u>jurisdictional</u> water of the US (i.e., TNW [perennial & canoeable or larger stream], RPW [smaller perennial or intermittent stream], non-RPW [intermittent or ephemeral stream]) or whether it is an isolated system.**

DATA FORM – ROUTINE WETLAND DETERMINATION
WETLAND ID #: W·JHS·01 SP.3

VEGETATION

#	Tree Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
6				
			= Total Cover	
#	Sapling Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
			= Total Cover	
#	Shrub Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	ARROWWOOD (VIBURNUM DENTATUM)	10	Y	FAC
2	MEADOWSWEET (SPIREA ALBA)	15	Y	FACW
3				
4				
5				
		25	= Total Cover	
#	Herb Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	TUSSOCK SEDGE (CAREX AQUATILIS)	60	Y	OBL
2	REED CANARY (PHALARIS ARUNDINACEA)	20	Y	FACW
3	DEER TONGUE (DICHANTHELIUM CLANDES.)	20	Y	FAC
4				
5				
6				
7				
8				
9				
10				
		100	= Total Cover	
#	Woody Vine Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
			= Total Cover	

Dominance Test Worksheet

# of Dominant Species that are OBL, FACW, or FAC?	5 (A)
Total # of Dominant Species across all Strata?	5 (B)
% of Dominant Species that are OBL, FACW, or FAC?	100 (A/B)

Prevalence Index Worksheet

Total % Cover of:	Mult. by:	
OBL species	1 =	
FACW species	2 =	
FAC species	3 =	
FACU species	4 =	
UPL species	5 =	
Coln. Totals: (A)		(B)
Prevalence Index =	B/A =	

Hydrophytic Vegetation Indicators

Rapid Test for Hydrophytic Veg.	☒ Yes	☐ No
Dominance Test is >50%	☒ Yes	☐ No
Prevalence Index is ≤3.0	☐ Yes	☐ No
Morphological Adaptations	☐ Yes	☒ No
Problematic Hydrophytic Veg	☐ Yes	☒ No

Vegetation Strata Definitions

Tree – Woody plant 20+ feet high & 3+ in. dbh

Sapling – Woody plant 20+ feet high & <3 in. dbh

Shrub – Woody plant ~3-20 feet high

Woody Vine – All woody vines

Hydrophytic Vegetation Present?	☒ Yes	☐ No

Remarks:

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: WD·JHS·01 SP·3

SOILS

Soil Survey Map Unit Name/Symbol: -	Drainage Class: -
Taxonomy: -	Field Observations Confirm Mapped Type: ☐ Yes ☒ No

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 1	- / -	- / - / - / -	-	-
1 - 4	2.5Y 4/1 / 100	- / - / - / -	-	SILT LOAM
4 - 12	2.5Y 5/4 / 70	7.5YR 5/6 / 30 / RM / PL	MANY, BRIGHT	CLAY LOAM
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

HYDRIC SOIL INDICATORS (Check All That Apply)

☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)
☒ Sulfidic Odor (A4)	☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5)	☒ Depleted Matrix (F3)
☒ 2 cm of Muck (A10)	☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1)	☐ Iron-Manganese Masses (F12)
☐ Sandy Gleyed Matrix (S4)	☐ Umbric Surface (F13)
☐ Sandy Redox (S5)	☐ Piedmont Floodplain Soils (F19)
☐ Stripped Matrix (S6)	☐ Other
☐ Dark Surface (S7)	

INDICATORS FOR PROBLEMATIC HYDRIC SOILS (Check All That Apply)

☐ 2 cm Muck (A10)	☐ Very Shallow Dark Surface (TF12)
☐ Piedmont Floodplain Soils (F19)	☐ Other
☐ Red Parent Material (TF2)	

Hydric Soil Present?	☒ Yes	☐ No

Remarks: NO SOIL SAMPLE COLLECTED DUE TO ROOT MAT - NOTED VEG. & HYDRO.

WETLAND ID #: W-JHS-01 SP-3

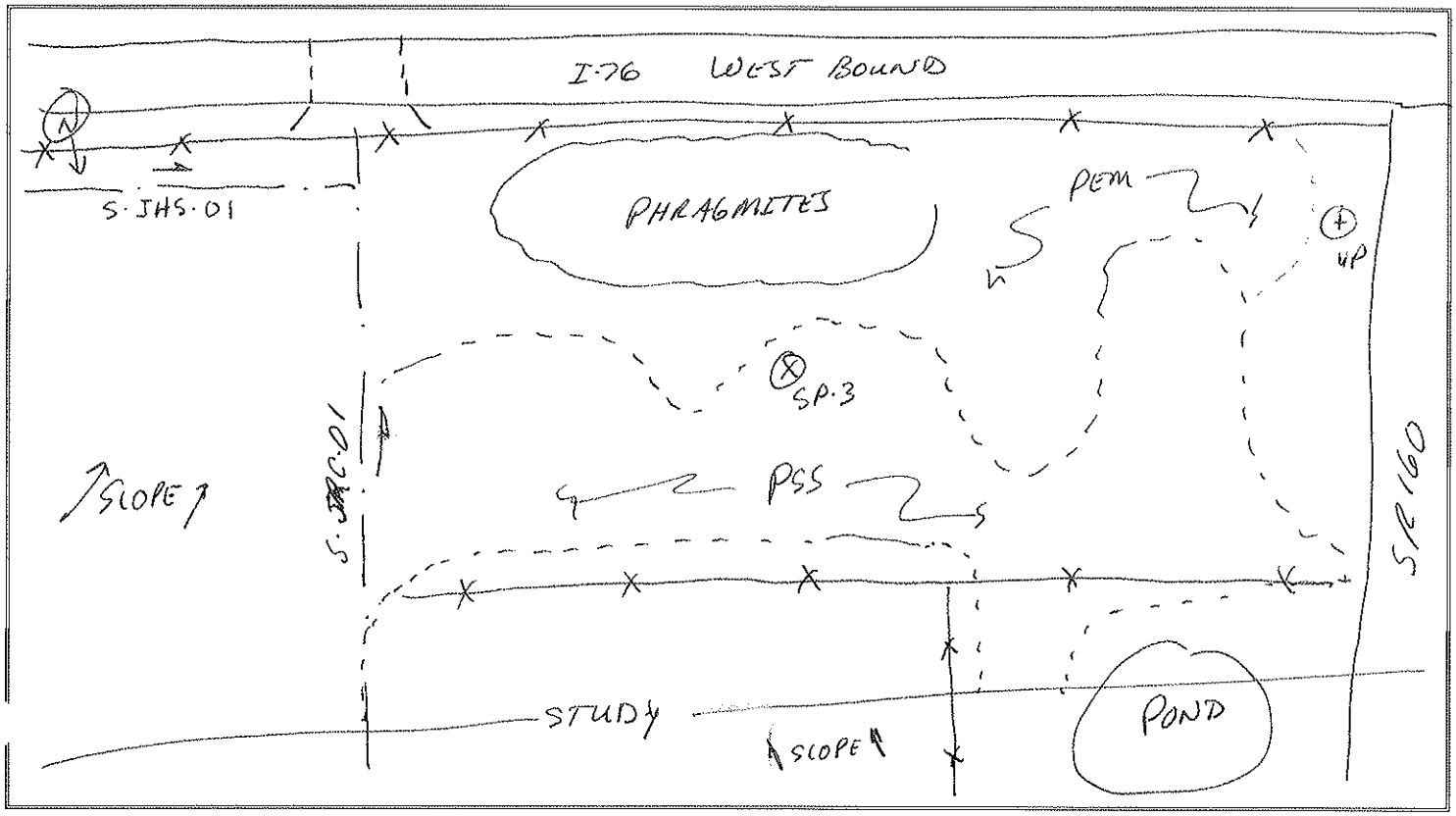
HYDROLOGY

WETLAND HYDROLOGY INDICATORS	
Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☒ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☒ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☒ Drainage Patterns
☒ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☒ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☒ Microtopographic Relief (D4)
☒ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☒ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS			
Surface Water Present?	☒ Yes	☐ No	Depth of: 4 (in)
Water Table Present in Pit?	☒ Yes	☐ No	Depth of: 8 (in)
Saturated Soils Present?	☒ Yes	☐ No	Depth to: 0 (in)
Wetland Hydrology Present?	☒ Yes	☐ No	

Remarks:

PLAN VIEW SKETCH



UPLAND DATA SHEET – ROUTINE WETLAND DETERMINATION

WETLAND ID #: Upland Data Point — W·JHS·01 SP·3 (UPLAND SAMPLE PT. 1)

VEGETATION

#	All Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	GOLDENROD (SOLIDAGO SP.)	30	Y	–
2	ORCHARD GRASS (DACTYLIS GLOMERATA)	20	Y	FACU
3	CINQUEFOIL (POTENTILLA SIMPLEX)	20	Y	FACU
4	ARROWWOOD (VIBURNUM DENTATUM)	20	Y	FAC
5	UNID'D GRASS SP.	10	N	–
6				
			= Total Cover	
Wetland Vegetation Present?		☒ Yes	☐ No	

Remarks: WETLAND VEG. IS PRESENT AND DOMINANT @ SAMPLE PT. (50/20)

SOILS

Soil Survey Map Unit Name/Symbol:	Drainage Class:

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 1	– / –	– / – / – / –	–	–
1 - 4	2.5Y 4/4 / 100	– / – / – / –	–	SILT LOAM
4 - R	10YR 4/3 / 95	5YR 4/6 / 5 / RM / PL	FEW, BRIGHT	SILT LOAM

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

Hydric Soil Present?	☐ Yes	☒ No

Remarks: REFUSAL @ 6" DUE TO ROCK. WETLAND SOIL INDICATORS NOT PRESENT @ SAMPLE.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☐ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☐ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS

Surface Water Present?	☐ Yes	☒ No	Depth of: – (in)
Water Table Present in Pit?	☐ Yes	☒ No	Depth of: – (in)
Saturated Soils Present?	☐ Yes	☒ No	Depth to: – (in)
Wetland Hydrology Present?	☐ Yes	☒ No	

Remarks: NO WETLAND HYDROLOGY NOTED @ SAMPLE PT.

WETLAND DETERMINATION DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 USCOE Wetlands Delineation Manual and Associated Regional Supplement)

Project/Site: Allegheny Tunnel	Date: 05.09.2012	
Applicant/Owner: PTC	County: Somerset	
Investigator(s): DLM, LAU	State: PA	
Cowardin Classification (Percentage): PEM/PSS/MMD·DH/PFO(53/36/6/5)	Wetland ID #: W·JHS·01 SP.4	
Climatic/Hydrologic Conditions Seasonally Typical?	☒ Yes	☐ No
Are "Normal Circumstances" present?	☒ Yes	☐ No
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology significantly disturbed (Atypical)?		
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology naturally Problematic?		
NWI Classification: – (if applicable)		

Landform/Geomorphic Setting (Check All That Apply)	
☐ Built-up Land/Fill Area	☐ Terrace
☐ Agricultural Drainage Swale	☒ Within Stream Channel
☐ Hillslope Seep/Spring	☒ Floodplain
☐ Toe-of-Slope/Hydrologic Jump	☐ Alluvial Fan
☐ Closed Topographic Depression/Isolated System	☐ Delta
☒ Hydrologically Connected to Other Aquatic Resources	☐ Other –

Slope: 25 %	Land Relief: ☒ Concave ☐ Convex ☐ None
Latitude: Longitude:	Datum:
No. of Flags: 131 Open Ended Flag Nos. 130, 131, 129, 99, 100	Photographs (with Direction of Photo or Description) 1 – S 3 – WETLAND PET 2 – E 4 –
Remarks:	

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is the Sampled Area Within a Wetland?	☒ Yes	☐ No
Hydric Soils Present?	☒ Yes	☐ No			
Wetland Hydrology Present?	☒ Yes	☐ No			
Remarks: CONNECTED VIA S·SRC·01 AND S·JHS·01.					

NOTE:

- **Please draw a Plan View sketch (in the space provided on Page 4) of the wetland and surrounding area that includes the wetland's boundaries (provide flag numbers), any associated natural or man-made features (i.e., forest, ag fields, homes, roads, utility lines, etc.), connectivity to adjacent/abutting stream, and the locations of the wetland and upland soil pits. Also, please illustrate the general location of PEM, PSS, PFO, POW, PUB wetland components within the boundary of the wetland complex.**
- **Please complete the upland data sheet for each wetland found at the end of this form.**
- **Please GPS the wetland and upland soil pits and locate on the plan view map the location/direction (with arrows) of photos taken.**
- **Please make note of the wetland's connectivity to a <u>jurisdictional</u> water of the US (i.e., TNW [perennial & canoeable or larger stream], RPW [smaller perennial or intermittent stream], non-RPW [intermittent or ephemeral stream]) or whether it is an isolated system.**

DATA FORM – ROUTINE WETLAND DETERMINATION
WETLAND ID #: W·JHS·01 SP·4

VEGETATION

#	Tree Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
6				
			= Total Cover	
#	Sapling Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
			= Total Cover	
#	Shrub Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	ARROWWOOD (VIBURNUM DENTATUM)	50	Y	FAC
2	MEADOW SWEET (SPIREA ALBA)	50	Y	FACW
3				
4				
5				
		100	= Total Cover	
#	Herb Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	TUSSOCK SEDGE (CAREX STRICTA)	60	Y	OBL
2	PHRAGMITES (PHRAGMITES AUSTRALIS)	5	N	FACW
3	CATTAILS (TYPHA LATIFOLIA)	5	N	OBL
4	SOFT RUSH (JUNCUS EFFUSUS)	20	Y	FACW
5	SKUNK CABBAGE (SYMPLOCARPUS FOETIDUS)	10	N	OBL
6				
7				
8				
9				
10				
			= Total Cover	
#	Woody Vine Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
			= Total Cover	

Dominance Test Worksheet

# of Dominant Species that are OBL, FACW, or FAC?	4 (A)
Total # of Dominant Species across all Strata?	4 (B)
% of Dominant Species that are OBL, FACW, or FAC?	100 (A/B)

Prevalence Index Worksheet

Total % Cover of:	Mult. by:	
OBL species	1 =	
FACW species	2 =	
FAC species	3 =	
FACU species	4 =	
UPL species	5 =	
Coln. Totals: (A)		(B)
Prevalence Index =	B/A =	

Hydrophytic Vegetation Indicators

Rapid Test for Hydrophytic Veg.	☒ Yes	☐ No
Dominance Test is >50%	☒ Yes	☐ No
Prevalence Index is ≤3.0	☐ Yes	☐ No
Morphological Adaptations	☐ Yes	☒ No
Problematic Hydrophytic Veg	☐ Yes	☒ No

Vegetation Strata Definitions

Tree – Woody plant 20+ feet high & 3+ in. dbh

Sapling – Woody plant 20+ feet high & <3 in. dbh

Shrub – Woody plant ~3-20 feet high

Woody Vine – All woody vines

Hydrophytic Vegetation Present?	☒ Yes	☐ No

Remarks:

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W·JHS·01 SP·4

SOILS

Soil Survey Map Unit Name/Symbol: -			Drainage Class: -	
Taxonomy: -		Field Observations Confirm Mapped Type:	☐ Yes	☒ No

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 10	5Y 2.5/1 / 100	- / - / - / -	-	SILT
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

HYDRIC SOIL INDICATORS (Check All That Apply)	
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)
☒ Sulfidic Odor (A4)	☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)
☒ 2 cm of Muck (A10)	☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1)	☐ Iron-Manganese Masses (F12)
☐ Sandy Gleyed Matrix (S4)	☐ Umbric Surface (F13)
☐ Sandy Redox (S5)	☐ Piedmont Floodplain Soils (F19)
☐ Stripped Matrix (S6)	☐ Other
☐ Dark Surface (S7)	

INDICATORS FOR PROBLEMATIC HYDRIC SOILS (Check All That Apply)	
☐ 2 cm Muck (A10)	☐ Very Shallow Dark Surface (TF12)
☐ Piedmont Floodplain Soils (F19)	☐ Other
☐ Red Parent Material (TF2)	

Hydric Soil Present?	☒ Yes	☐ No

Remarks: MUCKY MATERIAL ASSOC. W/ THICK ROOT MAT.

WETLAND ID #: W·JHS·01 SP·4

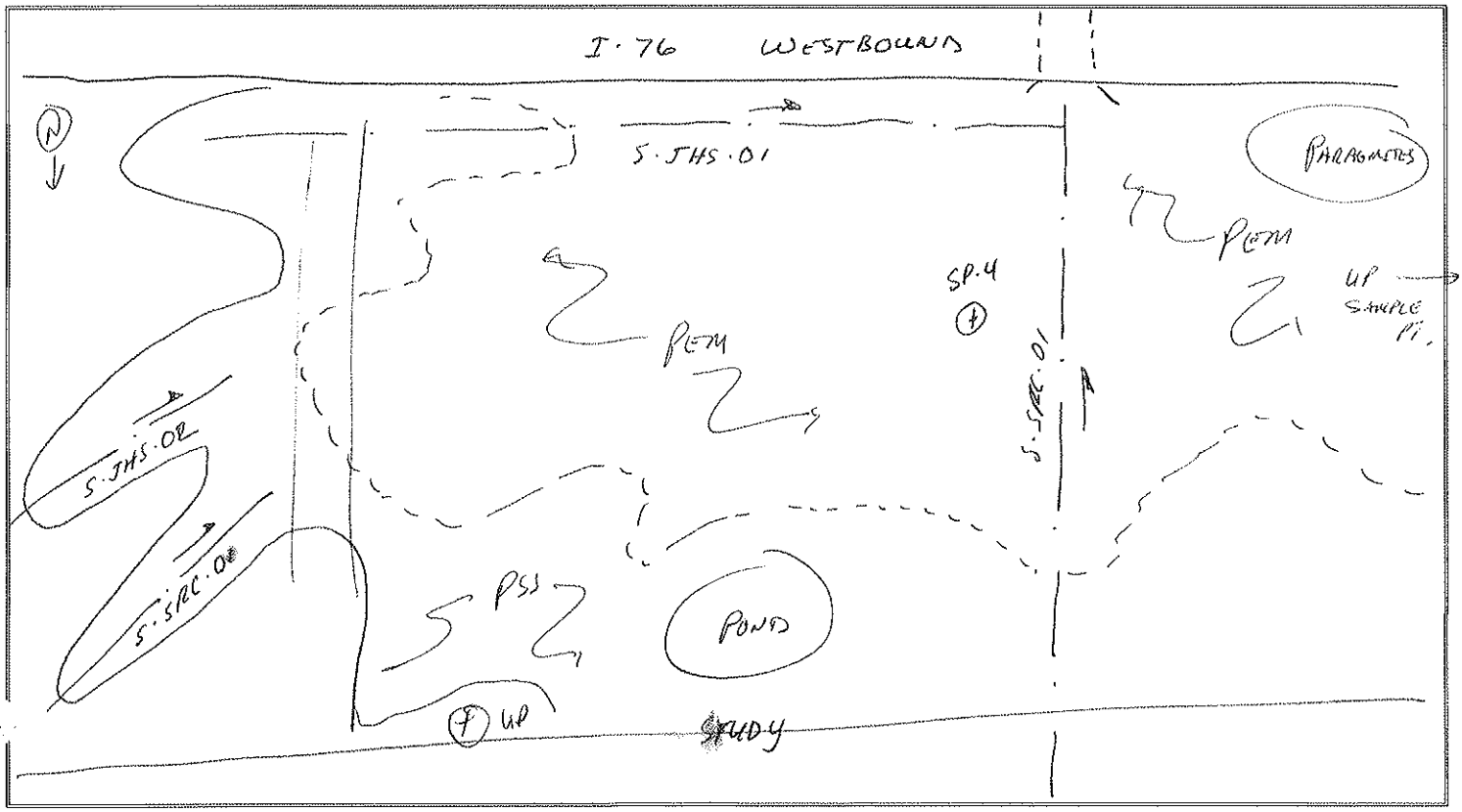
HYDROLOGY

WETLAND HYDROLOGY INDICATORS	
Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☐ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☒ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☒ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS			
Surface Water Present?	☒ Yes	☐ No	Depth of: 4 (in)
Water Table Present in Pit?	☒ Yes	☐ No	Depth of: 8 (in)
Saturated Soils Present?	☒ Yes	☐ No	Depth to: 0 (in)
Wetland Hydrology Present?	☒ Yes	☐ No	

Remarks: ASSOC. W/ S·SRC·01 AND S·JHS·01. FED BY S·SRC·02 AND S·JHS·02.

PLAN VIEW SKETCH



UPLAND DATA SHEET – ROUTINE WETLAND DETERMINATION

WETLAND ID #: Upland Data Point W·JHS·01 SP·4 (UPLAND SAMPLE PT. 2)

VEGETATION

#	All Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	HAWTHORNE (CRATAEGUS SP.)	40 - TREE	Y	–
2	RED MAPLE (ACER RUBRUM)	60 - TREE	Y	FAC
3	BARBERRY (BERBERIS THUNBERGII)	20 - SHRUB	Y	FACU
4	CHESTNUT OAK (QUERCUS PRINUS)	20 - SHRUB	Y	UPL
5	UNID'D GRASS SP.	50 - HERB	Y	–
6	CINQUEFOIL (POTENTILLA SIMPLEX)	50 - HERB	Y	FACU
		100	= Total Cover	
Wetland Vegetation Present?		☒ Yes	☐ No	

Remarks: WETLAND VEG. IS PRESENT AND DOMINANT @ SAMPLE PT. (50/50).

SOILS

Soil Survey Map Unit Name/Symbol:	Drainage Class:

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 1	– / –	– / – / – / –	–	–
1 - 4	10YR 4/3 / 90	7.5Y 6/6 / 10 / RM / PL	FEW, DISTINCT	SILT LOAM
4 - 6	2.5Y 5/2 / 70	7.5Y 4/6 / 30 / RM / M	MANY, DISTINCT	SILT CLAY

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

Hydric Soil Present?	☒ Yes	☐ No

Remarks: WETLAND SOIL CHARACTERISTICS ARE PRESENT @ SAMPLE PT.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (1 or more required)	Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☐ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS

Surface Water Present?	☐ Yes	☒ No	Depth of: – (in)
Water Table Present in Pit?	☐ Yes	☒ No	Depth of: – (in)
Saturated Soils Present?	☐ Yes	☒ No	Depth to: – (in)
Wetland Hydrology Present?	☐ Yes	☒ No	

Remarks: NO WETLAND HYDROLOGY NOTED @ SAMPLE POINT.

WETLAND DETERMINATION DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 USCOE Wetlands Delineation Manual and Associated Regional Supplement)

Project/Site: Allegheny Tunnel		Date: 05.09.2012	
Applicant/Owner: PTC		County: Somerset	
Investigator(s): DLM, LAU		State: PA	
Cowardin Classification (Percentage): PEM/PSS/MMD.DH/PFO(53/36/6/5)		Wetland ID #: W.JHS.01 SP.5	
Climatic/Hydrologic Conditions Seasonally Typical?		☒ Yes	☐ No
Are "Normal Circumstances" present?		☒ Yes	☐ No
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology significantly disturbed (Atypical)?			
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology naturally Problematic?			
NWI Classification: — (if applicable)			

Landform/Geomorphic Setting (Check All That Apply)	
☐ Built-up Land/Fill Area	☐ Terrace
☐ Agricultural Drainage Swale	☐ Within Stream Channel
☐ Hillslope Seep/Spring	☐ Floodplain
☐ Toe-of-Slope/Hydrologic Jump	☐ Alluvial Fan
☐ Closed Topographic Depression/Isolated System	☐ Delta
☐ Hydrologically Connected to Other Aquatic Resources	☐ Other –

Slope: 45 %	Land Relief: ☒ Concave ☐ Convex ☐ None
Latitude: Longitude:	Datum:
No. of Flags: 131 Open Ended Flag Nos. 99, 100, 129, 130, 131	Photographs (with Direction of Photo or Description) 1 – E 3 – SW 2 – SW 4 –
Remarks:	

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is the Sampled Area Within a Wetland?	☒ Yes	☐ No
Hydric Soils Present?	☒ Yes	☐ No			
Wetland Hydrology Present?	☒ Yes	☐ No			
Remarks: ASSOC. W/ STREAMS S.JHS.01 AND S.SAC.01. JURISDICTIONAL.					

NOTE:

- **Please draw a Plan View sketch (in the space provided on Page 4) of the wetland and surrounding area that includes the wetland's boundaries (provide flag numbers), any associated natural or man-made features (i.e., forest, ag fields, homes, roads, utility lines, etc.), connectivity to adjacent/abutting stream, and the locations of the wetland and upland soil pits. Also, please illustrate the general location of PEM, PSS, PFO, POW, PUB wetland components within the boundary of the wetland complex.**
- **Please complete the upland data sheet for each wetland found at the end of this form.**
- **Please GPS the wetland and upland soil pits and locate on the plan view map the location/direction (with arrows) of photos taken.**
- **Please make note of the wetland's connectivity to a <u>jurisdictional</u> water of the US (i.e., TNW [perennial & canoeable or larger stream], RPW [smaller perennial or intermittent stream], non-RPW [intermittent or ephemeral stream]) or whether it is an isolated system.**

DATA FORM – ROUTINE WETLAND DETERMINATION
WETLAND ID #: W · JHS · 01 SP · 5

VEGETATION

#	Tree Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	SHAGBARK HICKORY (CARYA OVATA)	10	N	FACU
2	AM. HORNBEAM (CARPINUS CAROLINIANA)	50	Y	FAC
3	SILVER MAPLE (ACER SACCHARINUM)	20	Y	FACW
4	BIRCH (BETULA LENTA)	20	Y	FACU
5				
6				
			= Total Cover	

#	Sapling Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
			= Total Cover	

#	Shrub Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	ARROWWOOD (VIBURNUM PENTAGONUM)	20	Y	FAC
2				
3				
4				
5				
		20	= Total Cover	

#	Herb Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	SKUNK CABBAGE (SYMPLOCARPUS FOETIDUS)	50	Y	OBL
2	NY FERN (PARATHELYPTERIS NOVEBORACENSIS)	30	Y	FAC
3	SENSITIVE FERN (ONOCLEA SENSIBILIS)	15	N	FACW
4	MAY APPLE (PODOPHYLLUM PELTATUM)	5	N	FACU
5				
6				
7				
8				
9				
10				
			= Total Cover	

#	Woody Vine Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
			= Total Cover	

Dominance Test Worksheet

# of Dominant Species that are OBL, FACW, or FAC?	5 (A)
Total # of Dominant Species across all Strata?	6 (B)
% of Dominant Species that are OBL, FACW, or FAC?	83 (A/B)

Prevalence Index Worksheet

Total % Cover of:	Mult. by:	
OBL species	1 =	
FACW species	2 =	
FAC species	3 =	
FACU species	4 =	
UPL species	5 =	
Coln. Totals: (A)		(B)
Prevalence Index =	B/A =	

Hydrophytic Vegetation Indicators

Rapid Test for Hydrophytic Veg.	☒ Yes	☐ No
Dominance Test is >50%	☒ Yes	☐ No
Prevalence Index is ≤3.0	☐ Yes	☐ No
Morphological Adaptations	☐ Yes	☒ No
Problematic Hydrophytic Veg	☐ Yes	☒ No

Vegetation Strata Definitions

Tree – Woody plant 20+ feet high & 3+ in. dbh

Sapling – Woody plant 20+ feet high & <3 in. dbh

Shrub – Woody plant ~3-20 feet high

Woody Vine – All woody vines

Hydrophytic Vegetation Present?	☒ Yes	☐ No

Remarks:

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W·JHS·01 SP·5

SOILS

Soil Survey Map Unit Name/Symbol: -	Drainage Class: -
Taxonomy: -	Field Observations Confirm Mapped Type: ☐ Yes ☒ No

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 2	- / -	- / - / - / -	-	-
2 - 6	2.5Y 5/2 / 100	- / - / - / -	-	SILT LOAM
6 - 10	2.5Y 4/1 / 70	7.5YR 4/6 / 30 / RM / PL	MANY, DISTINCT	SILT LOAM
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

HYDRIC SOIL INDICATORS (Check All That Apply)

☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)
☐ Sulfidic Odor (A4)	☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)
☐ 2 cm of Muck (A10)	☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1)	☐ Iron-Manganese Masses (F12)
☐ Sandy Gleyed Matrix (S4)	☐ Umbric Surface (F13)
☐ Sandy Redox (S5)	☐ Piedmont Floodplain Soils (F19)
☐ Stripped Matrix (S6)	☐ Other
☐ Dark Surface (S7)	

INDICATORS FOR PROBLEMATIC HYDRIC SOILS (Check All That Apply)

☐ 2 cm Muck (A10)	☐ Very Shallow Dark Surface (TF12)
☐ Piedmont Floodplain Soils (F19)	☐ Other
☐ Red Parent Material (TF2)	

Hydric Soil Present?	☒ Yes	☐ No

Remarks: REFUSAL @ 10" DUE TO ROCK.

WETLAND ID #: W. JHS·01 SP·5

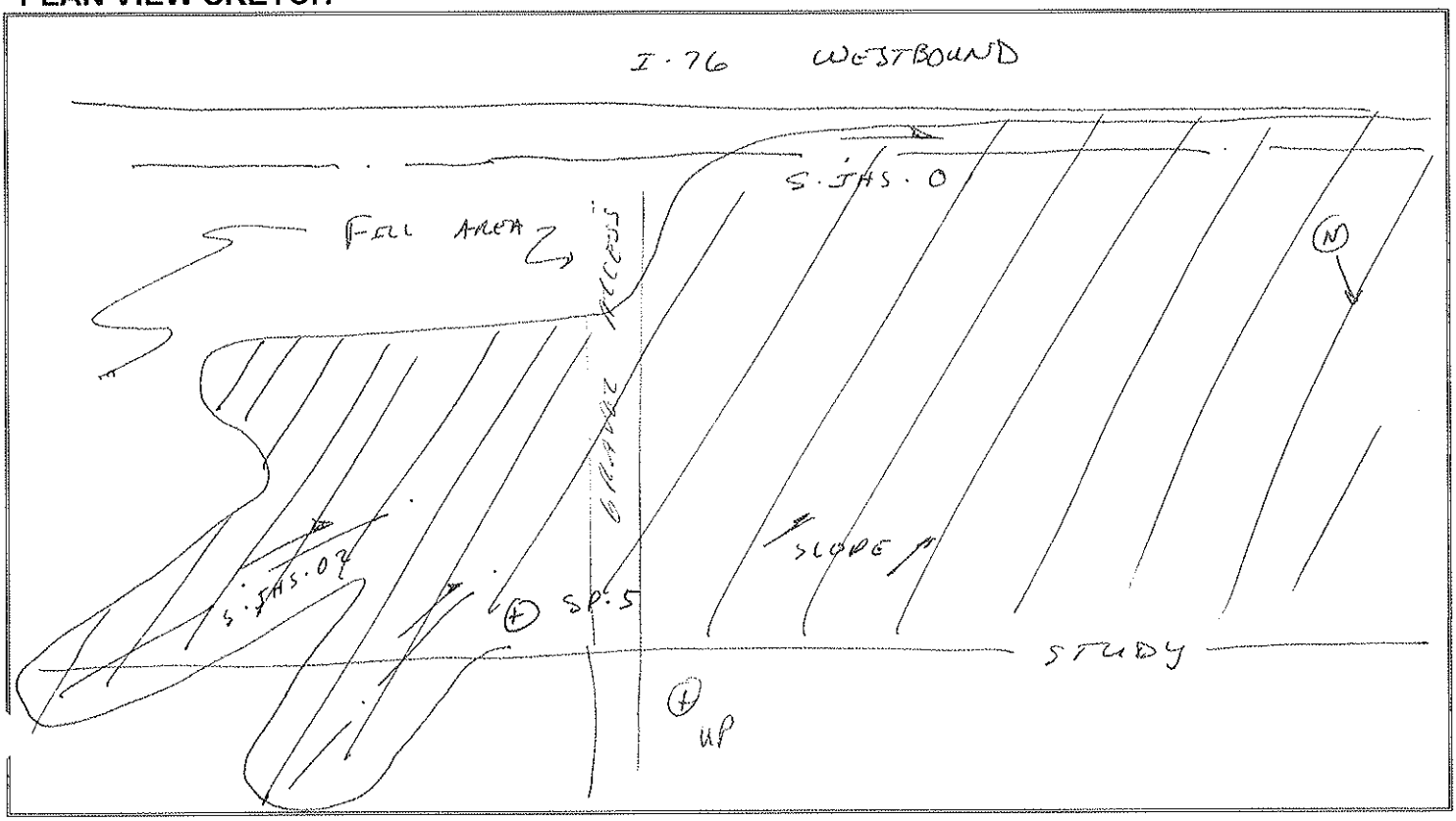
HYDROLOGY

WETLAND HYDROLOGY INDICATORS	
Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☒ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☒ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS			
Surface Water Present?	☒ Yes	☐ No	Depth of: 2 (in)
Water Table Present in Pit?	☒ Yes	☒ No	Depth of: — (in)
Saturated Soils Present?	☒ Yes	☐ No	Depth to: 0 (in)
Wetland Hydrology Present?	☒ Yes	☐ No	

Remarks: ASSOC. W/ STREAMS S·JHS·02 & S·SRE·01

PLAN VIEW SKETCH



UPLAND DATA SHEET – ROUTINE WETLAND DETERMINATION

WETLAND ID #: Upland Data Point W-JHS-01 SP-5 (UPLAND SAMPLE PT. 2)

VEGETATION

#	All Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	HAWTHORNE (CRATAEGUS SP.)	40 - TREE	Y	–
2	RED MAPLE (ACER RUBRUM)	60 - TREE	Y	FAC
3	BARBERRY (BERBERIS THUNBERGII)	20 - SHRUB	Y	FACU
4	CHESTNUT OAK (QUERCUS PRINUS)	20 - SHRUB	Y	UPL
5	UNID'D GRASS SP.	50 - HERB	Y	–
6	CINQUEFOIL (POTENTILLA SIMPLEX	60 - HERB	Y	FACU
		100	= Total Cover	
Wetland Vegetation Present?		☒ Yes	☐ No	

Remarks: WETLAND VEG IS PRESENT AND DOMINANT @ SAMPLE PT. (50/20). - TREE LAYER.

SOILS

Soil Survey Map Unit Name/Symbol:	Drainage Class:

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 1	– / –	– / – / – / –	–	–
1 - 4	10YR 4/3 / 90	7.5Y 5/6 / 10 / RM / PL	FEW, DISTINCT	SILT LOAM
4 - 6	2.5Y 5/2 / 70	7.5Y 4/6 / 30 / RM / M	MANY, DISTINCT	SILT CLAY

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

Hydric Soil Present?	☒ Yes	☐ No

Remarks: WETLAND SOIL CHARACTERISTICS ARE PRESENT @ SAMPLE PT.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (1 or more required)	Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☐ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS

Surface Water Present?	☐ Yes	☒ No	Depth of: – (in)
Water Table Present in Pit?	☐ Yes	☒ No	Depth of: – (in)
Saturated Soils Present?	☐ Yes	☒ No	Depth to: – (in)
Wetland Hydrology Present?	☐ Yes	☒ No	

Remarks: NO WETLAND HYDROLOGY NOTED @ SAMPLE PT.

W · JHS · 01

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 1 Rapid Assessment Version 1.0

For use in all wetland classifications found within Pennsyvlania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
AIIJ	PTC ALLEGHENY TUNNEL	05.01.12	N/A	W·JHS·01		
Name(s) of Evaluator(s)		**Lat (dd)**	**Long (dd)**	**Notes:**		
JHS, DLM, LAH				ASSOC. W/ STREAMS S·SAC·01 & S·JHS·01		

1. Wetland Zone of Influence Condition Index

	Condition Category				
Wetland Zone of Influence (300 foot area around AA perimeter)	**Optimal**	**Suboptimal**		**Marginal**		**Poor**	
	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover. Any areas comprised of wetlands or stream channels are also classified as optimal.	**High Suboptimal:** ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory	**Low Suboptimal:** ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and a maintained understory or recent timber hravesting cutover (< 5 years)	**High Marginal:** Non-maintained, dense herbaceous vegetation, with either a shrub or tree layer (dbh>3 inches) with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, ZOI areas lacking shrub and tree stratum **or** if tree stratum present, has <30% canopy cover with a maintained understory.	**High Poor:** Lawns, mowed and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
SCORE ___	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6		5 4 3 2 1	

1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.
2. Estimate the % area within each condition category. Calculators are provided for you below.
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.

Scoring:									
	% ZOI Area>	0.45	0.30	0.15	0.10			100 %	CI
	Score >	1	7	9	5			4.4 0.22	0.22

0.22

Comments:

LARGE WETLAND AREA ADJ. TO I-76 WESTBOUND.

W-JHS-01 SP-1 skunk cabbage and high water table.

W-JHS-01 SP-1 wetland soil test pit.

W-JHS-01 SP-1 upland soil test pit.

W-JHS-01 SP-2 overview, facing south.

W-JHS-01 SP-2 wetland soil test pit.

W-JHS-01 SP-2 upland soil test pit.

W-JHS-01 SP-3 overview, detail of vegetative cover.

W-JHS-01 SP-3 overview, facing east.

W-JHS-01 SP-3 overview, facing north-northwest.

W-JHS-01 SP-3 overview, facing southwest.

W-JHS-01 SP-3 wetland soil test pit.

W-JHS-01 SP-3 upland soil test pit.

W-JHS-01 SP-4 overview, facing east.

W-JHS-01 SP-4 overview, facing south.

W-JHS-01 SP-4 wetland soil test pit.

W-JHS-01 SP-4 upland soil test pit.

W-JHS-01 SP-5 overview, facing east.

W-JHS-01 SP-5 overview, facing southwest.

W-JHS-01 SP-5 overview, facing south.

W-JHS-01 SP-5 wetland soil test pit.

W-JHS-01 SP-5 upland soil test pit.

WETLAND W-JHS-02

WETLAND DETERMINATION DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 USCOE Wetlands Delineation Manual and Associated Regional Supplement)

Project/Site: Allegheny Tunnel	Date: 05.10.2012	
Applicant/Owner: PTC	County: Somerset	
Investigator(s): DLM, LAU	State: PA	
Cowardin Classification (Percentage): PEM (100)	Wetland ID #: W.JHS.02	
Climatic/Hydrologic Conditions Seasonally Typical?	☒ Yes	☐ No
Are "Normal Circumstances" present?	☐ Yes	☒ No
Are ☐ Vegetation, ☒ Soils, or ☒ Hydrology significantly disturbed (Atypical)? HWY CONSTR. & FILL		
Are ☐ Vegetation, ☒ Soils, or ☒ Hydrology naturally Problematic? AMD - IMPACTED.		
NWI Classification: — (if applicable)		

Landform/Geomorphic Setting (Check All That Apply)	
☐ Built-up Land/Fill Area	☐ Terrace
☐ Agricultural Drainage Swale	☐ Within Stream Channel
☒ Hillslope Seep/Spring	☐ Floodplain
☐ Toe-of-Slope/Hydrologic Jump	☐ Alluvial Fan
☐ Closed Topographic Depression/Isolated System	☐ Delta
☒ Hydrologically Connected to Other Aquatic Resources	☐ Other –
Slope: < 5 %	Land Relief: ☒ Concave ☐ Convex ☐ None
Latitude: Longitude:	Datum:
No. of Flags: 33 Open Ended Flag Nos. 19, 20, 21, 22, 23, 24, 25, 26	Photographs (with Direction of Photo or Description) 1 – WNW 3 – WETLAND PIT 2 – SW 4 – UPLAND PIT
Remarks: FLD BY GW FROM I-76 CULVERTS. POSSIBLE AMD.	

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is the Sampled Area Within a Wetland?	☒ Yes	☐ No
Hydric Soils Present?	☒ Yes	☐ No			
Wetland Hydrology Present?	☒ Yes	☐ No			
Remarks: ASSOC. W/ OFFSITE STREAMS - JURISDICTIONAL					

NOTE:

- **Please draw a Plan View sketch (in the space provided on Page 4) of the wetland and surrounding area that includes the wetland's boundaries (provide flag numbers), any associated natural or man-made features (i.e., forest, ag fields, homes, roads, utility lines, etc.), connectivity to adjacent/abutting stream, and the locations of the wetland and upland soil pits. Also, please illustrate the general location of PEM, PSS, PFO, POW, PUB wetland components within the boundary of the wetland complex.**
- **Please complete the upland data sheet for each wetland found at the end of this form.**
- **Please GPS the wetland and upland soil pits and locate on the plan view map the location/direction (with arrows) of photos taken.**
- **Please make note of the wetland's connectivity to a jurisdictional water of the US (i.e., TNW [perennial & canoeable or larger stream], RPW [smaller perennial or intermittent stream], non-RPW [intermittent or ephemeral stream]) or whether it is an isolated system.**

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W·JHS·02

VEGETATION

#	Tree Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
6				
			= Total Cover	

#	Sapling Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
			= Total Cover	

#	Shrub Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	ARROWWOOD (VIBURNUM DENTATUM)	NOTED	N	FAC
2	MEADOWSWEET (SPIREA ALBA)	NOTED	N	FACW
3				
4				
5				
		100	= Total Cover	

#	Herb Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	REED CANARY GR. (PHALARIS ARUNDINACEA)	30	Y	FACW
2	CATTAILS (TYPHA LATIFOLIA)	10	N	OBL
3	SKUNK CABBAGE (SYMPLOCARPUS FOETIDUS)	25	Y	OBL
4	ASTERS (SYMPHYOTRICHUM SP.)	15	N	–
5	RUSH (JUNCUS SP.)	20	Y	–
6				
7				
8				
9				
10				
			= Total Cover	

#	Woody Vine Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
			= Total Cover	

Dominance Test Worksheet

# of Dominant Species that are OBL, FACW, or FAC?	2 (A)
Total # of Dominant Species across all Strata?	3 (B)
% of Dominant Species that are OBL, FACW, or FAC?	67 (A/B)

Prevalence Index Worksheet

Total % Cover of:	Mult. by:	
OBL species	1 =	
FACW species	2 =	
FAC species	3 =	
FACU species	4 =	
UPL species	5 =	
Coln. Totals: (A)		(B)
Prevalence Index =	B/A =	

Hydrophytic Vegetation Indicators

Rapid Test for Hydrophytic Veg.	☒ Yes	☐ No
Dominance Test is >50%	☒ Yes	☐ No
Prevalence Index is ≤3.0	☐ Yes	☐ No
Morphological Adaptations	☐ Yes	☒ No
Problematic Hydrophytic Veg	☐ Yes	☒ No

Vegetation Strata Definitions

Tree – Woody plant 20+ feet high & 3+ in. dbh

Sapling – Woody plant 20+ feet high & <3 in. dbh

Shrub – Woody plant ~3-20 feet high

Woody Vine – All woody vines

Hydrophytic Vegetation Present?	☒ Yes	☐ No

Remarks:

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W·JHS·02

SOILS

Soil Survey Map Unit Name/Symbol: -	Drainage Class: -
Taxonomy: -	Field Observations Confirm Mapped Type: ☐ Yes ☒ No

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 2	- / -	- / - / - / -	-	-
2 - 7	5YR 2.5/2 / 100	- / - / - / -	-	SILT LOAM w/ SAND
7 - 12	5YR 2.5/1 / 100	- / - / - / -	-	SILT LOAM w/ SAND
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

HYDRIC SOIL INDICATORS (Check All That Apply)

☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)
☐ Sulfidic Odor (A4)	☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)
☐ 2 cm of Muck (A10)	☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1)	☐ Iron-Manganese Masses (F12)
☐ Sandy Gleyed Matrix (S4)	☐ Umbric Surface (F13)
☐ Sandy Redox (S5)	☐ Piedmont Floodplain Soils (F19)
☐ Stripped Matrix (S6)	☐ Other
☐ Dark Surface (S7)	

INDICATORS FOR PROBLEMATIC HYDRIC SOILS (Check All That Apply)

☐ 2 cm Muck (A10)	☐ Very Shallow Dark Surface (TF12)
☐ Piedmont Floodplain Soils (F19)	☐ Other
☐ Red Parent Material (TF2)	

Hydric Soil Present?	☒ Yes	☐ No

Remarks: SOIL APPEARS TO BE AMD-IMPACTED.

WETLAND ID #: W·JHS·02

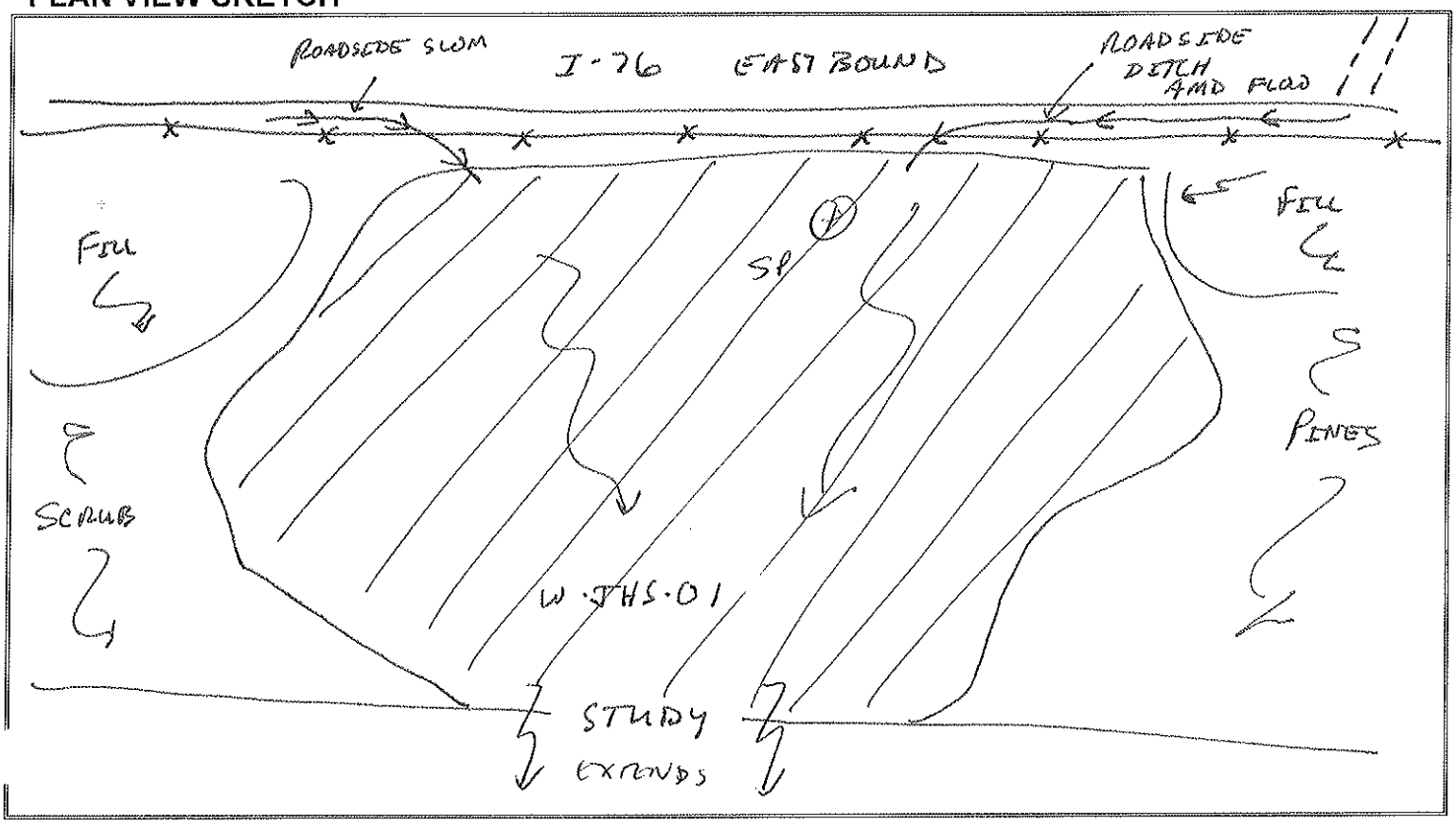
HYDROLOGY

WETLAND HYDROLOGY INDICATORS	
Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☒ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☒ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☒ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☒ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☒ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS			
Surface Water Present?	☒ Yes	☐ No	Depth of: 6 (in)
Water Table Present in Pit?	☒ Yes	☐ No	Depth of: 4 (in)
Saturated Soils Present?	☒ Yes	☐ No	Depth to: 0 (in)
Wetland Hydrology Present?	☒ Yes	☐ No	

Remarks: DRAINS VIA STREAMS OFF-SITE. JURISDICTIONAL. POSSIBLE AMD.

PLAN VIEW SKETCH



UPLAND DATA SHEET – ROUTINE WETLAND DETERMINATION

WETLAND ID #: 1 **Upland Data Point** W·JHS·02

VEGETATION

#	All Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	HAWTHORNE (CRATAEGUS SP.)	60 - TREE	Y	—
2	RED PINE (PINUS RESINOSA)	40 - TREE	Y	FACU
3	GOLDENROD (SOLIDAGO SP.)	50 - HERB	Y	—
4	SWAMP DEWBERRY (RUBUS HISPIDUS)	40 - HERB	Y	FACW
5	MAYAPPLE (PODOPHYLLUM PELTATUM)	10 - HERB	N	FACU
6				
		100	= Total Cover	
Wetland Vegetation Present?		☒ Yes	☐ No	

Remarks: WETLAND VEG. IS PRESENT AND DOMINANT IN HERB LAYER @ SAMPLE PT. (50/80).

SOILS

Soil Survey Map Unit Name/Symbol:	Drainage Class:

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 3	- / -	- / - / - / -	-	-
3 - 6	2.5Y 3/2 / 100	- / - / - / -	-	SILTY CLAY
6 - 11	2.5Y 5/6 / 100	- / - / - / -	-	SILTY CLAY

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

Hydric Soil Present?	☐ Yes	☒ No

Remarks: HYDRIC SOIL CHARACTERISTICS ARE NOT PRESENT @ SAMPLE PT.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☐ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☐ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS

Surface Water Present?	☐ Yes	☒ No	Depth of: — (in)
Water Table Present in Pit?	☐ Yes	☒ No	Depth of: — (in)
Saturated Soils Present?	☐ Yes	☒ No	Depth to: — (in)
Wetland Hydrology Present?	☐ Yes	☒ No	

Remarks: WETLAND HYDROLOGY NOT NOTED @ SAMPLE PT.

W-JHS-02

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 1 Rapid Assessment Version 1.0

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
AIIJ	PTC ALLEGHENY TUNNEL	05.10.12	N/A	W-JHS-02		
Name(s) of Evaluator(s)		**Lat (dd)**	**Long (dd)**	**Notes:**		
DLM, LAU				ASSOC. W/ OFFSITE STREAMS		

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category: Optimal	Suboptimal		Marginal		Poor	
	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover. Any areas comprised of wetlands or stream channels are also classified as optimal.	**High Suboptimal:** ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory	**Low Suboptimal:** ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and a maintained understory or recent timber hravesting cutover (< 5 years)	**High Marginal:** Non-maintained, dense herbaceous vegetation, with either a shrub or tree layer (dbh>3 inches) with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, ZOI areas lacking shrub and tree stratum **or** If tree stratum present, has <30% canopy cover with a maintained understory.	**High Poor:** Lawns, mowed and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
SCORE___	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6		5 4 3	2 1

1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.
2. Estimate the % area within each condition category. Calculators are provided for you below.
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.

Scoring:										
	% ZOI Area>	0.38	0.37	0.13	0.12				100 0%	CI
	Score >	1	8	4	3				4.22 0.00	0.00

(0.21)

Comments:

LARGE RESOURCE HAS OFF-SITE EXTENT. POTENTIAL AMD IMPACT FROM I-76 EB.

W-JHS-02 overview, facing east.

W-JHS-02 overview, facing southeast.

W-JHS-02 overview, facing south-southeast.

W-JHS-02 overview, facing southwest.

W-JHS-02 overview, facing west-northwest.

W-JHS-02 wetland soil test pit.

W-JHS-02 upland soil test pit.

WETLAND W-JHS-03

WETLAND DETERMINATION DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 USCOE Wetlands Delineation Manual and Associated Regional Supplement)

Project/Site: Allegheny Tunnel	Date: 05.17.2012
Applicant/Owner: PTC	County: Somerset
Investigator(s): JH, DLM, LAH	State: PA
Cowardin Classification (Percentage): POW (100)	Wetland ID #: W-JHS-03
Climatic/Hydrologic Conditions Seasonally Typical?	☒ Yes ☐ No
Are "Normal Circumstances" present?	☐ Yes ☒ No
Are ☐ Vegetation, ☐ Soils, or ☒ Hydrology significantly disturbed (Atypical)? MAN-MADE POND	
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology naturally Problematic?	
NWI Classification: — (if applicable)	

Landform/Geomorphic Setting (Check All That Apply)	
☐ Built-up Land/Fill Area	☐ Terrace
☐ Agricultural Drainage Swale	☒ Within Stream Channel
☐ Hillslope Seep/Spring	☐ Floodplain
☐ Toe-of-Slope/Hydrologic Jump	☐ Alluvial Fan
☐ Closed Topographic Depression/Isolated System	☐ Delta
☒ Hydrologically Connected to Other Aquatic Resources	☒ Other – MAN-MADE POND
Slope: 5 %	Land Relief: ☒ Concave ☐ Convex ☐ None
Latitude: Longitude:	Datum:
No. of Flags: PREVIOUS SURVEY Open Ended Flag Nos.	Photographs (with Direction of Photo or Description) 1 – LO 3 – UPLAND PIT 2 – E 4 –
Remarks: VEGETATION SAMPLED IMMEDIATELY OUTSIDE OF WETLAND BOUNDS.	

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes	☒ No	Is the Sampled Area Within a Wetland?	☒ Yes	☐ No
Hydric Soils Present?	☒ Yes	☐ No			
Wetland Hydrology Present?	☒ Yes	☐ No			
Remarks: MAN-MADE POND - JURISDICTIONAL VIA CONNECTIONS.					

NOTE:

- **Please draw a Plan View sketch (in the space provided on Page 4) of the wetland and surrounding area that includes the wetland's boundaries (provide flag numbers), any associated natural or man-made features (i.e., forest, ag fields, homes, roads, utility lines, etc.), connectivity to adjacent/abutting stream, and the locations of the wetland and upland soil pits. Also, please illustrate the general location of PEM, PSS, PFO, POW, PUB wetland components within the boundary of the wetland complex.**
- **Please complete the upland data sheet for each wetland found at the end of this form.**
- **Please GPS the wetland and upland soil pits and locate on the plan view map the location/direction (with arrows) of photos taken.**
- **Please make note of the wetland's connectivity to a jurisdictional water of the US (i.e., TNW [perennial & canoeable or larger stream], RPW [smaller perennial or intermittent stream], non-RPW [intermittent or ephemeral stream]) or whether it is an isolated system.**

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W-JHS-03

VEGETATION

#	Tree Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	ASH (FRAXINUS PENNSYLVANICA)	NOTED	–	FACW
2	WHITE OAK (QUERCUS ALBA)	NOTED	–	FACU
3	CHERRY (PRUNUS SEROTINA)	NOTED	–	FACU
4				
5				
6				
		–	= Total Cover	

#	Sapling Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	WHITE OAK (QUERCUS ALBA)	NOTED	–	FACU
2	CHERRY (PRUNUS SEROTINA)	NOTED	–	FACU
3				
4				
5				
		–	= Total Cover	

#	Shrub Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	MT. LAUREL (KALMIA LATIFOLIA)	NOTED	–	FACU
2	RHODODENDRON (R. PRINOPHYLLUM)	NOTED	–	FAC
3	WITCH HAZEL (HAMAMELIS VIRGINIANA)	NOTED	–	FACU
4				
5				
		–	= Total Cover	

#	Herb Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	SOLOMONS SEAL (POLYGONATUM BIFLORUM)	NOTED	–	FACU
2	SKUNK CABBAGE (SYMPLOCARPUS FOETIDUS)	NOTED	–	OBL
3	NEW YORK FERN (PARATHELYPTERIS NOV.)	NOTED	–	FAC
4	LYCOPODIUM SP.	NOTED	–	–
5				
6				
7				
8				
9				
10				
		–	= Total Cover	

#	Woody Vine Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
			= Total Cover	

Dominance Test Worksheet

# of Dominant Species that are OBL, FACW, or FAC?	– (A)
Total # of Dominant Species across all Strata?	– (B)
% of Dominant Species that are OBL, FACW, or FAC?	– (A/B)

Prevalence Index Worksheet

Total % Cover of:	Mult. by:	
OBL species	1 =	
FACW species	2 =	
FAC species	3 =	
FACU species	4 =	
UPL species	5 =	
Coln. Totals: (A)		(B)
Prevalence Index =	B/A =	

Hydrophytic Vegetation Indicators

Rapid Test for Hydrophytic Veg.	☐ Yes	☒ No
Dominance Test is >50%	☐ Yes	☒ No
Prevalence Index is ≤3.0	☐ Yes	☐ No
Morphological Adaptations	☐ Yes	☒ No
Problematic Hydrophytic Veg	☐ Yes	☒ No

Vegetation Strata Definitions

Tree – Woody plant 20+ feet high & 3+ in. dbh

Sapling – Woody plant 20+ feet high & <3 in. dbh

Shrub – Woody plant ~3-20 feet high

Woody Vine – All woody vines

Hydrophytic Vegetation Present?	☐ Yes	☒ No

Remarks:

VEGETATION SURVEY CONDUCTED IMMEDIATELY OUTSIDE OF WETLAND BOUNDARY - PONDED AREA IS BOUNDARY.

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W-JHS-03

SOILS

Soil Survey Map Unit Name/Symbol: -	Drainage Class: -
Taxonomy: -	Field Observations Confirm Mapped Type: ☐ Yes ☒ No

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

HYDRIC SOIL INDICATORS (Check All That Apply)	
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)
☐ Sulfidic Odor (A4)	☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)
☐ 2 cm of Muck (A10)	☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1)	☐ Iron-Manganese Masses (F12)
☐ Sandy Gleyed Matrix (S4)	☐ Umbric Surface (F13)
☐ Sandy Redox (S5)	☐ Piedmont Floodplain Soils (F19)
☐ Stripped Matrix (S6)	☐ Other
☐ Dark Surface (S7)	

INDICATORS FOR PROBLEMATIC HYDRIC SOILS (Check All That Apply)	
☐ 2 cm Muck (A10)	☐ Very Shallow Dark Surface (TF12)
☐ Piedmont Floodplain Soils (F19)	☐ Other
☐ Red Parent Material (TF2)	

Hydric Soil Present?	☒ Yes	☐ No

Remarks: NO SOIL SAMPLE TAKEN – MAN-MADE POND. INUNDATED TO ~48"

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W · SHS · 03

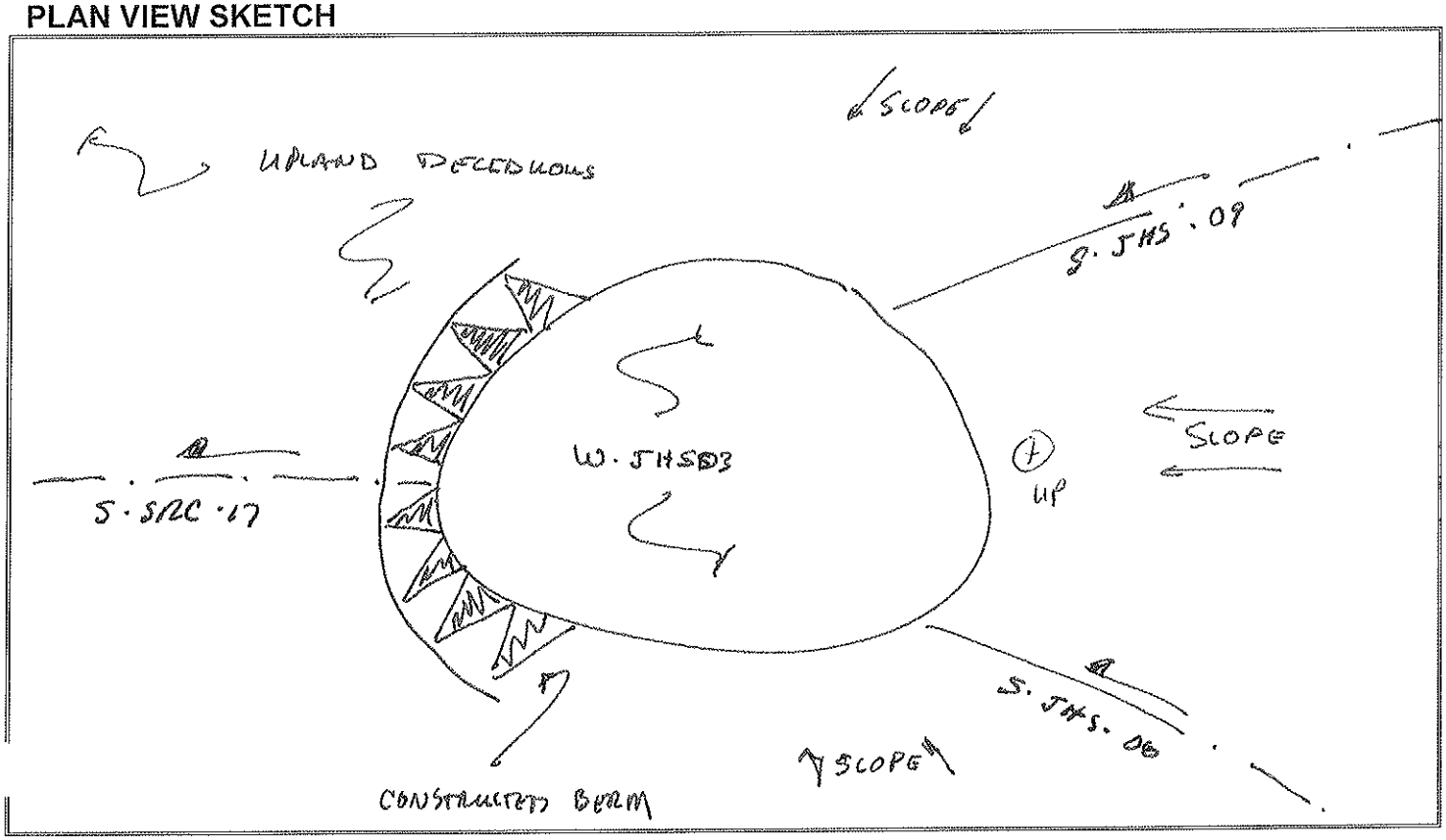
HYDROLOGY

WETLAND HYDROLOGY INDICATORS	
Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☒ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☒ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☒ Geomorphic Position (D2)
☒ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☒ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☒ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☒ Other MAN-MADE POND	☒ No Recorded Data Available

FIELD OBSERVATIONS			
Surface Water Present?	☒ Yes	☐ No	Depth of: 48+ (in)
Water Table Present in Pit?	☒ Yes	☐ No	Depth of: ○ (in)
Saturated Soils Present?	☒ Yes	☐ No	Depth to: ○ (in)
Wetland Hydrology Present?	☒ Yes	☐ No	

Remarks: MAN-MADE POND. DRAINS VIA S·SRC·17. FED BY S·JHS·08 & S·JHS·09.

PLAN VIEW SKETCH



UPLAND DATA SHEET – ROUTINE WETLAND DETERMINATION

WETLAND ID #: Upland Data Point ↑ W-JHS-03

VEGETATION

#	All Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	LOWBUSH BLUEBERRY (VACCINIUM ANGUSTIFOLIUM)	30	Y	FACU
2	WHITE OAK (QUERCUS ALBA)	20	Y	FACU
3	SWEET BIRCH (BETULA LENTA)	10	N	FACU
4	MOUNTAIN LAUREL (KALMIA LATIFOLIA)	10	N	FACU
5				
6				
			= Total Cover	
Wetland Vegetation Present?		☐ Yes	☒ No	

Remarks: WETLAND VEG IS NOT PRESENT OR DOMINANT @ SAMPLE PT.

SOILS

Soil Survey Map Unit Name/Symbol:			Drainage Class:
PROFILE DESCRIPTION			
Depth Range (in)	**Matrix Color / %**	**Mottle Color / % / Type / Loc**	**Mottle Abundance / Contrast**	**Texture**
0 - 5	- / -	- / - / - / -	-	
5 - 8	2.5YR 2.5/1 / 100	- / - / - / -	-	SANDY LOAM
8 - 10	5YR 4/2 / 100	- / - / - / -	-	SANDY LOAM

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

Hydric Soil Present?	☐ Yes	☒ No

Remarks: WETLAND SOIL CHARACTERISTICS ARE NOT PRESENT @ SAMPLE PT.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS	
Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☐ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☐ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☐ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS			
Surface Water Present?	☐ Yes	☒ No	Depth of: (in)
Water Table Present in Pit?	☐ Yes	☒ No	Depth of: (in)
Saturated Soils Present?	☐ Yes	☒ No	Depth to: (in)
Wetland Hydrology Present?	☐ Yes	☒ No	

Remarks: NO WETLAND HYDROLOGY NOTED @ SAMPLE PT.

W·JHS·03

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 1 Rapid Assessment Version 1.0

For use in all wetland classifications found within Pennsyvlania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
AIIJ	PTC ALLEGHENY TUNNEL	05.17.12	N/A	W·JHS·03		
Name(s) of Evaluator(s)	**Lat (dd)**	**Long (dd)**	**Notes:**			
JH, DLM, LAH			MAN·MADE POND ASSOC. W/ STREAM S·SEC·17			

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category: Optimal	Suboptimal: High Suboptimal:	Suboptimal: Low Suboptimal:	Marginal: High Marginal:	Marginal: Low Marginal:	Poor: High Poor:	Poor: Low Poor:
	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover. Any areas comprised of wetlands or stream channels are also classified as optimal.	ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory	ZOI areas with tree stratum (dbh > 3 inches, with 30-60% tree canopy cover and a maintained understory or recent timber hravesting cutover (< 5 years)	Non-maintained, dense herbaceous vegetation, with either a shrub or tree layer (dbh>3 inches) with <30% tree canopy cover.	Non-maintained, dense herbaceous vegetation, ZOI areas lacking shrub and tree stratum **or** if tree stratum present, has <30% canopy cover with a maintained understory.	mowed and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
SCORE __	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6		5 4 3	2 1

1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.
2. Estimate the % area within each condition category. Calculators are provided for you below.
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.

Scoring:									
	% ZOI Area>	0.80	0.20					100 %	CI
	Score >	15	5					13 0.80	0.80

0.65

Comments:

MAN·MADE POND. POSSIBLY DEEP WATER HABITAT.

W-JHS-03 overview, facing northeast.

W-JHS-03 overview, facing west.

W-JHS-03 upland soil test pit.

WETLAND W-JHS-04

WETLAND DETERMINATION DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 USCOE Wetlands Delineation Manual and Associated Regional Supplement)

Project/Site: Allegheny Tunnel	Date: 05.17.2012
Applicant/Owner: PTC	County: Somerset
Investigator(s): JH, DLM, LAU	State: PA
Cowardin Classification (Percentage): PEM (100)	Wetland ID #: W-JHS-04
Climatic/Hydrologic Conditions Seasonally Typical?	☒ Yes ☐ No
Are "Normal Circumstances" present?	☐ Yes ☒ No
Are ☒ Vegetation, ☐ Soils, or ☐ Hydrology significantly disturbed (Atypical)? MAINTAINED ROW	
Are ☐ Vegetation, ☐ Soils, or ☐ Hydrology naturally Problematic?	
NWI Classification: — (if applicable)	

Landform/Geomorphic Setting (Check All That Apply)	
☐ Built-up Land/Fill Area	☐ Terrace
☐ Agricultural Drainage Swale	☐ Within Stream Channel
☐ Hillslope Seep/Spring	☐ Floodplain
☐ Toe-of-Slope/Hydrologic Jump	☐ Alluvial Fan
☐ Closed Topographic Depression/Isolated System	☐ Delta
☐ Hydrologically Connected to Other Aquatic Resources	☐ Other –

Slope: 5 %	Land Relief: ☒ Concave ☐ Convex ☐ None
Latitude: Longitude:	Datum:
No. of Flags: 4 Open Ended Flag Nos. N/A	Photographs (with Direction of Photo or Description) 1 – N 3 – WETLAND PIT 2 – S 4 – UPLAND PIT

Remarks: WETLAND DEVELOPED DUE TO POOR RESTORATION FROM PIPELINE INSTALL.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is the Sampled Area Within a Wetland?	☒ Yes	☐ No
Hydric Soils Present?	☒ Yes	☐ No			
Wetland Hydrology Present?	☒ Yes	☐ No			

Remarks: CONNECTED VIA STREAM S-JHS-08. JURISDICTIONAL

NOTE:

- **Please draw a Plan View sketch (in the space provided on Page 4) of the wetland and surrounding area that includes the wetland's boundaries (provide flag numbers), any associated natural or man-made features (i.e., forest, ag fields, homes, roads, utility lines, etc.), connectivity to adjacent/abutting stream, and the locations of the wetland and upland soil pits. Also, please illustrate the general location of PEM, PSS, PFO, POW, PUB wetland components within the boundary of the wetland complex.**
- **Please complete the upland data sheet for each wetland found at the end of this form.**
- **Please GPS the wetland and upland soil pits and locate on the plan view map the location/direction (with arrows) of photos taken.**
- **Please make note of the wetland's connectivity to a jurisdictional water of the US (i.e., TNW [perennial & canoeable or larger stream], RPW [smaller perennial or intermittent stream], non-RPW [intermittent or ephemeral stream]) or whether it is an isolated system.**

DATA FORM – ROUTINE WETLAND DETERMINATION **PAGE 2**

WETLAND ID #: W · JHS · 4

VEGETATION

#	Tree Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
6				
			= Total Cover	

#	Sapling Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
3				
4				
5				
			= Total Cover	

#	Shrub Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	MTN. LAUREL (KALMIA LATIFOLIA)	NOTED	N	FACU
2	RHODODENDRON (R. PROTOPHYLLUM)	NOTED	N	FAC
3				
4				
5				
		—	= Total Cover	

#	Herb Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1	SKUNK CABBAGE (SYMPLOCARPUS FOETIDUS)	20	Y	OBL
2	NODDING SEDGE (CAREX GYNANDRA)	15	N	OBL
3	SPHAGNUM (LYCOPODIUM SP.)	30	Y	—
4	NY FERN (PHEGOPTERIS NOV.)	5	N	FAC
5	SWAMP DEWBERRY (RUBUS HISPIDUS)	20	Y	FACW
6	DEVILSTONGUE (DICHANTHELIUM CLANDESTINUM)	5	N	FAC
7	SOFT RUSH (JUNCUS EFFUSUS)	5	N	FACW
8	PATH RUSH (ELEOCHARIS TENUIS)	10	N	FACW
9				
10				
		100	= Total Cover	

#	Woody Vine Stratum Species Common Name (*Genus species*)	Absolute % Cover	Dominant Species	Indicator
1				
2				
			= Total Cover	

Dominance Test Worksheet

# of Dominant Species that are OBL, FACW, or FAC?	3 (A)
Total # of Dominant Species across all Strata?	5 (B)
% of Dominant Species that are OBL, FACW, or FAC?	60 (A/B)

Prevalence Index Worksheet

Total % Cover of:	Mult. by:	
OBL species	1 =	
FACW species	2 =	
FAC species	3 =	
FACU species	4 =	
UPL species	5 =	
Coln. Totals: (A)		(B)
Prevalence Index =	B/A =	

Hydrophytic Vegetation Indicators

Rapid Test for Hydrophytic Veg.	☒ Yes	☐ No
Dominance Test is >50%	☒ Yes	☐ No
Prevalence Index is ≤3.0	☐ Yes	☐ No
Morphological Adaptations	☐ Yes	☒ No
Problematic Hydrophytic Veg	☐ Yes	☒ No

Vegetation Strata Definitions

Tree – Woody plant 20+ feet high & 3+ in. dbh

Sapling – Woody plant 20+ feet high & <3 in. dbh

Shrub – Woody plant ~3-20 feet high

Woody Vine – All woody vines

Hydrophytic Vegetation Present?	☒ Yes	☐ No

Remarks:

NOTED SPAGNUM.

DATA FORM – ROUTINE WETLAND DETERMINATION

WETLAND ID #: W·JHS·04

SOILS

Soil Survey Map Unit Name/Symbol: -	Drainage Class: -
Taxonomy: -	Field Observations Confirm Mapped Type: ☐ Yes ☒ No

PROFILE DESCRIPTION

Depth Range (in)	Matrix Color / %	Mottle Color / % / Type / Loc	Mottle Abundance / Contrast	Texture
0 - 3	– / –	– / – / – / –	–	–
3 - 7	10YR 3/1 / 100	– / – / – / –	–	SANDY SILT
7 - 12	2.5Y 4/2 / 100	– / – / – / –	–	SANDY SILT
-	/	/ / /		
-	/	/ / /		
-	/	/ / /		

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains

Location: PL = Pore Lining and M = Matrix

HYDRIC SOIL INDICATORS (Check All That Apply)

☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)
☒ Sulfidic Odor (A4)	☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5)	☒ Depleted Matrix (F3)
☐ 2 cm of Muck (A10)	☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1)	☐ Iron-Manganese Masses (F12)
☐ Sandy Gleyed Matrix (S4)	☐ Umbric Surface (F13)
☐ Sandy Redox (S5)	☐ Piedmont Floodplain Soils (F19)
☐ Stripped Matrix (S6)	☐ Other
☐ Dark Surface (S7)	

INDICATORS FOR PROBLEMATIC HYDRIC SOILS (Check All That Apply)

☐ 2 cm Muck (A10)	☐ Very Shallow Dark Surface (TF12)
☐ Piedmont Floodplain Soils (F19)	☐ Other
☐ Red Parent Material (TF2)	

Hydric Soil Present?	☒ Yes	☐ No

Remarks: WETLAND SOIL IS PRIMARILY ALLUVIUM FROM STREAM S·JHS·08.

WETLAND ID #: W·JHS·4

HYDROLOGY

WETLAND HYDROLOGY INDICATORS	
Primary Indicators (1 or more required)	**Secondary Indicators (2 or more required)**
☒ Surface Water (A1)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☐ Drainage Patterns
☐ Water Marks (B1)	☒ Moss Trim Lines (B16)
☒ Sediment Deposits (B2)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Crayfish Burrows (C8)
☒ Algal Mat or Crust (B4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)	☐ Shallow Aquitard
☐ Aquatic Fauna (B13)	☐ Microtopographic Relief (D4)
☐ True Aquatic Plants (B14)	☐ FAC-Neutral Test
☐ Hydrogen Sulfide Odor (C1)	☐ Other
☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Recorded Data (Describe in Remarks)
☐ Presence of Reduced Iron (C4)	☐ Stream, Lake, or Tidal Gauge
☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Aerial Photographs
☒ Thin Muck Surface (C7)	☐ Other - (i.e., well data)
☐ Other	☒ No Recorded Data Available

FIELD OBSERVATIONS			
Surface Water Present?	☒ Yes	☐ No	Depth of: 5 (in)
Water Table Present in Pit?	☒ Yes	☐ No	Depth of: 7 (in)
Saturated Soils Present?	☒ Yes	☐ No	Depth to: 0 (in)
Wetland Hydrology Present?	☒ Yes	☐ No	

Remarks: DRAINS VIA S·JHS·08.

PLAN VIEW SKETCH