

August 5, 2013

Mr. Gary Cavill, P.E.
Greenman-Pedersen, Inc.
50 Glenmaura National Boulevard
Suite 102
Scranton, PA 18505

RE: Wetland Identification and Delineation
Stockpile Area
Shippensburg University
Cumberland County, PA

Dear Mr. Cavill:

GTS has completed a Wetland Identification and Delineation for the subject parcel located on Shippensburg University property, within Shippensburg Borough, Cumberland County, Pennsylvania. This report presents the results of the wetland investigation that included a review of background information sources and mapping, as well as a site investigation conducted on July 1, 2013 by GTS Technologies, Inc. (GTS).

SITE DESCRIPTION

The Site is located within Shippensburg Township and is a parcel used by Shippensburg University for maintenance vehicles as well as a crushed stone stockpile used for roadway work (Figures 1 and 2, Regional and Project Location Maps). The area is characterized by a mix of low density residential and agricultural usage. The site is bordered to the northeast by Fogelsanger Road and to the southwest by Burd Run and is on the northeast edge of Shippensburg University campus. A wetland delineation was performed in this area in 1995, identifying wetlands on a parcel to the southeast but not in the area of the stone stockpile. A recent Cumberland County Conservation District field view expressed concern that the wetland boundary had expanded beyond what was originally delineated and that jurisdictional wetlands were now present along the edges of the stockpile. Shippensburg University had expressed interest in increasing the footprint of the stockpile.

METHODOLOGY

Wetlands were delineated in accordance with the 2010 U.S. Army Corps of Engineers Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. Background research was performed prior to the field investigation through an examination of published information and mapping (Figures 3 and 4, Soils and National Wetland Inventory Maps). The field investigation, conducted on July 1, 2013, examined the soils, vegetation, and hydrology on the subject site to verify the presence of wetlands. Wetland indicators for all three parameters must be present for an area to be determined a wetland. Indicators of wetlands include a dominance of hydrophytic vegetation, the presence of hydric soils and multiple signs of wetland hydrology.

RESULTS

Two (2) wetlands were identified during the on-site investigation in accordance with the methodology described within the 2010 U.S. Army Corps of Engineers Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. Wetland 1 and Wetland 2 were described as palustrine emergent wetlands with non-persistent vegetation that are seasonally flooded (PEM2C). The wetland boundaries were marked in the field with consecutively numbered flags. Flag locations were surveyed by Greenman-Pedersen, Inc.. The approximate location of the wetlands and stream are plotted on the Wetland Location Plan (Figure 5, Wetland Location Map). Descriptions of the soils, vegetation, and signs of hydrology at two selected locations were recorded on individual Wetland Data Forms, attached to this report.

Soils on the project site consisted of Melvin silt loam (Me) and Purdy silt loam (Pu). Both Melvin silt loam and Purdy silt loam are considered hydric soils, according to the Natural Resource Conservation Service (NRCS) National list of hydric soils.

Wetland 1 – Wetland 1 is located along the west side of the stone stockpile and was classified as a palustrine emergent wetland with non-persistent vegetation that is seasonally flooded (PEM2C). Wetland 1 is 0.057 acres in size. Wetland 1 continues to the west/southwest but was not delineated past the boundary of the silt fence per site representative request. Signs of hydrology and indicators of hydric soils were noted in association with Wetland 1. Soils at P-1 (within the wetland) from 0-2 inches were a brown (10YR 4/3) silty gravel with no mottling. Soils from 2-8 inches were a dark grayish brown (10YR 4/2) silty gravel with no mottles. Auger refusal was reached at 8". Indicators of hydrology included inundation, saturation, and water-stained leaves. Hydrology for Wetland 1 is a result of upland drainage (particularly from the soil pile) and the flooding of Burd Run. Dominant plants and indicator status of plants observed in association with Wetland 1 include the following: Grass (*Poa sp.*, NL), Moneywort (*Lysimachia nummularia*, FACW), Soft-stem Club Rush (*Schoenoplectus tabernaemontani*, OBL), Mild Water-pepper (*Persicaria hydropiper*, OBL), Poison Ivy (*Toxicodendron radicans*, FAC), Sallow Sedge (*Carex lurida*, OBL), Spotted Trumpetweed (*Eutrochium maculatum*, FACW), Canadian Thistle (*Cirsium arvense*, FACU), Virginia Creeper (*Parthenocissus quinquefolia*, FACU).

Soils at P-2 (the upland area adjacent to Wetland 1) were a brown (10YR 4/3) silty gravel with oxidized rhizospheres from 0-4 inches. From 4-10 inches, soil was brown (10YR 4/3) with 10% yellowish brown (10YR 5/4) mottles. No indicators of wetland hydrology were noted within the upland area. Dominant vegetation associated with the upland adjacent to Wetland 1 included: American Sycamore (*Platanus occidentalis*, FACW), Box Elder (*Acer negundo*, FAC), Japanese Knotweed (*Fallopia japonica*, FACU), Canada Goldenrod (*Solidago canadensis*, FACU), Crown Vetch (*Securigera varia*, NL), Virginia Creeper (*Parthenocissus quinquefolia*, FACU), Poison Ivy (*Toxicodendron radicans*, FAC), and Japanese Honeysuckle (*Lonicera japonica*, FAC).

Wetland 2 was a grass-lined drainage swale approximately and is 0.038 acre in size, open-ended to the south. Soils were a dark grayish brown (10Yr 4/2) with no mottles from 0-8 inches. Auger refusal occurred at approximately 8 inches due to a compacted layer. Soils were moist and saturated in some areas. Vegetation was limited to a single grass species: Large Barnyard Grass (*Echinochloa crus-galli*, FAC).



Shippensburg Univ. Stockpile
Cumberland County, PA
August 5, 2013

This grassy drainage swale directs hydrology from northern portions of the Shippensburg maintenance property to the wetland and pond present on the parcel to the south. No data point was completed for this drainage swale due to presence of a grass monoculture.

SUMMARY

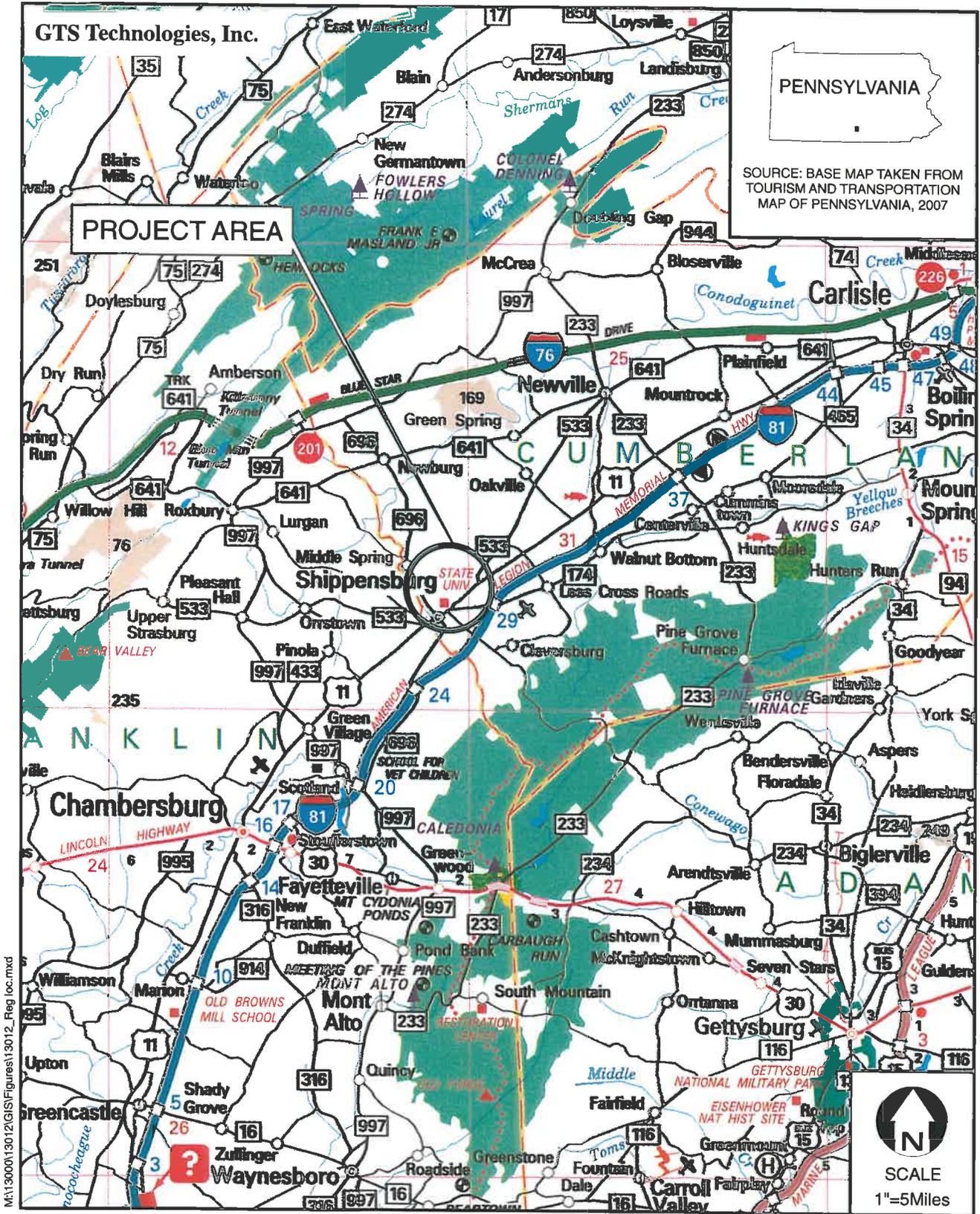
GTS Technologies, Inc. has determined that jurisdictional wetlands are present on the Shippensburg University stockpile site. The Wetland Identification and Delineation Report is based on a review of secondary sources, as well as field investigations of the vegetation, soils, and hydrology in the project area. It is subject to review and verification by the U.S. Army Corps of Engineers and the Department of Environmental Protection, Bureau of Dams, Waterways, and Wetlands.

State and Federal permits should be obtained prior to the initiation of any fill or encroachment activities in the wetland, waters of the Commonwealth, or Waters of the United States, identified herein.

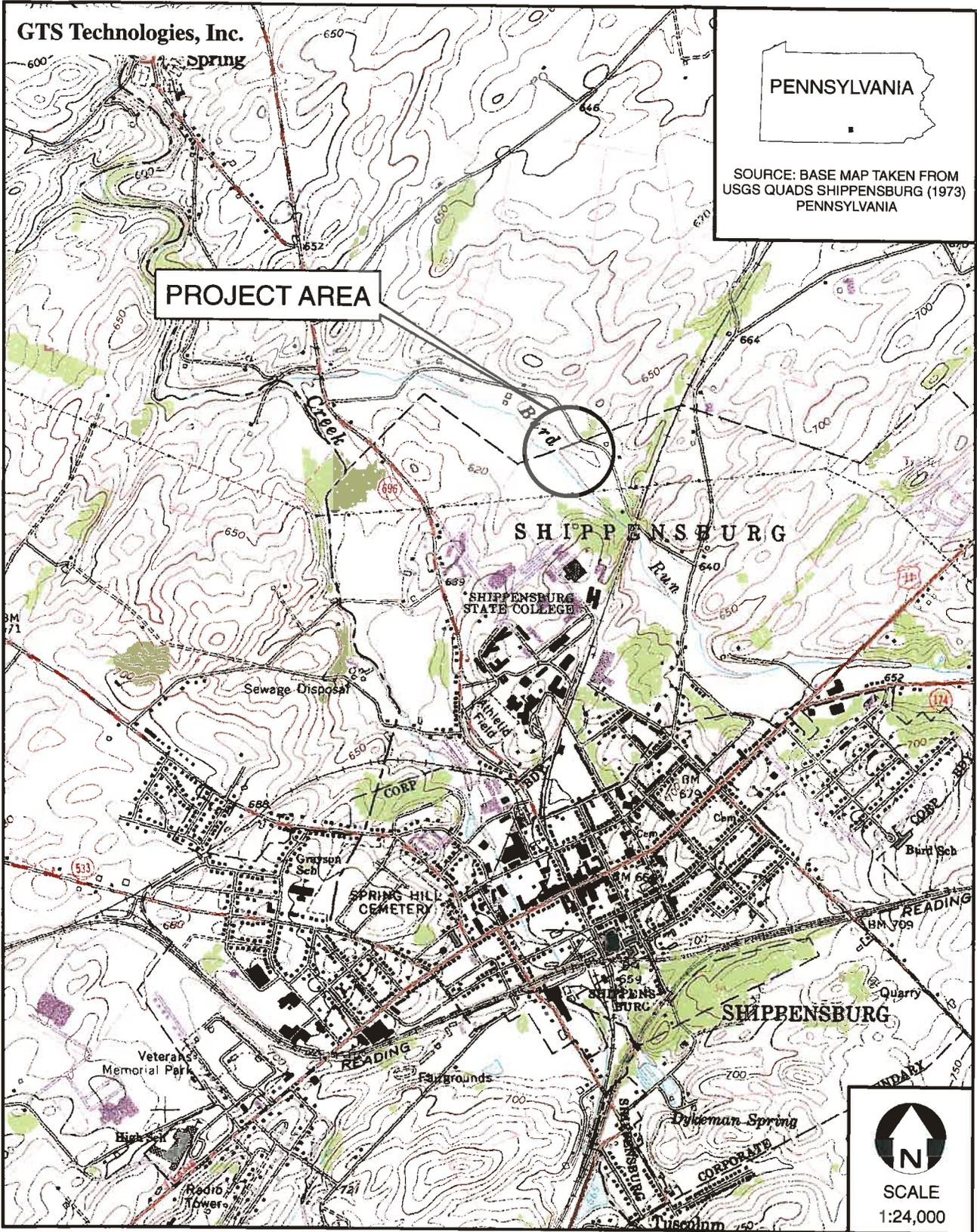
 8/5/13
Meredith Glazier Date
Senior Environmental Specialist

cc: Andy Parker, GTS

**APPENDIX A
SITE FIGURES**



GTS Technologies, Inc.



PENNSYLVANIA

SOURCE: BASE MAP TAKEN FROM USGS QUADS SHIPPENSBURG (1973) PENNSYLVANIA

PROJECT AREA

SHIPPENSBURG

SHIPPENSBURG STATE COLLEGE

Sewage Disposal

CORP

GRAYSON SCH

SPRING HILL CEMETERY

SHIPPENSBURG

SHIPPENSBURG

Veterans Memorial Park

High Sch

Radio Tower

READING

Fairgrounds

Dyleman Spring

CORPORATE

Juscolium



SCALE 1:24,000

PROJECT LOCATION MAP

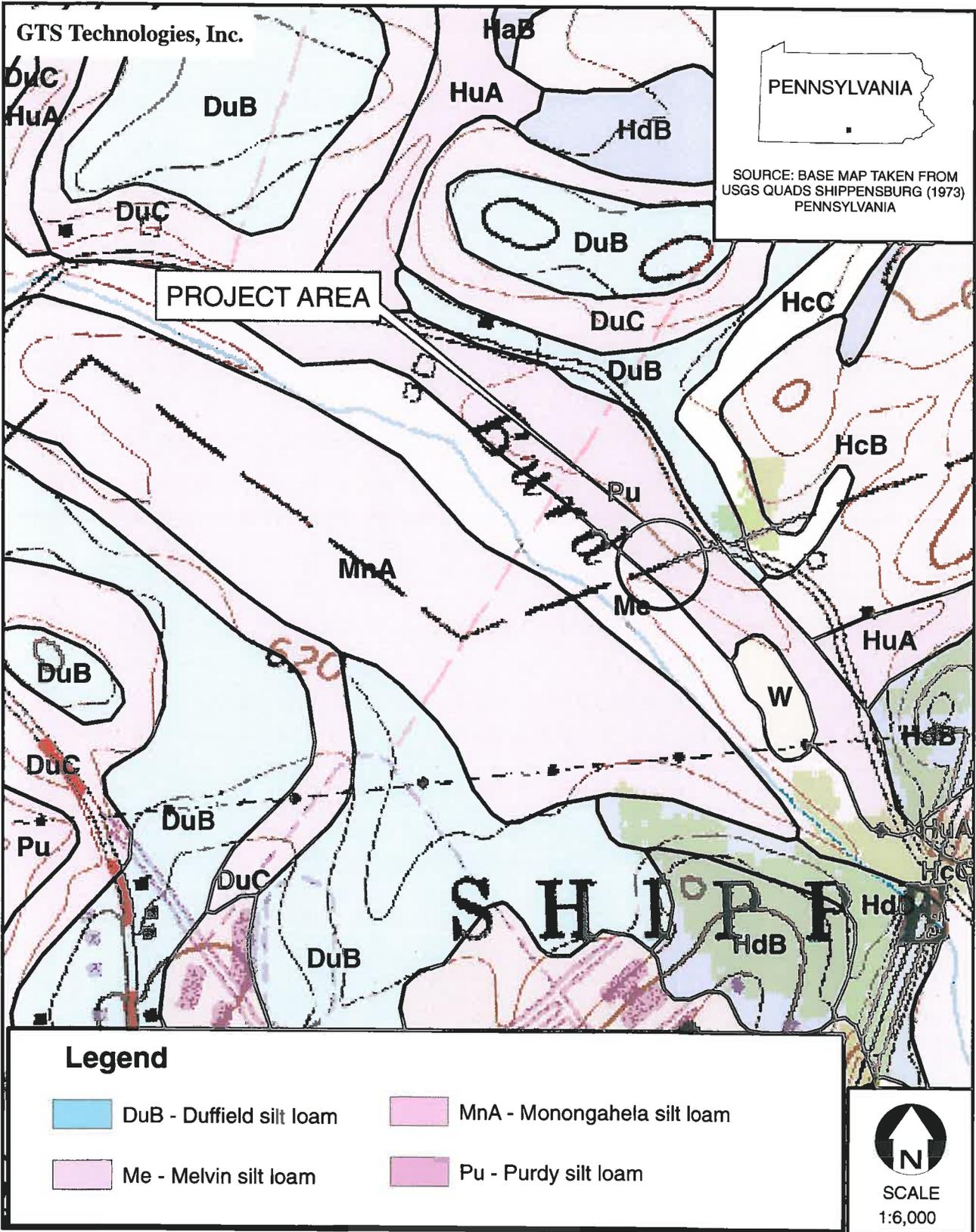
SHIPPENSBURG UNIVERSITY
SHIPPENSBURG TOWNSHIP
CUMBERLAND COUNTY, PENNSYLVANIA

JULY, 2013

FIGURE

2

M:\1300013012\GIS\Figures\13012_loc.mxd



M:\13000013012\GIS\Figures\13012_Soils.mxd

SOILS MAP

SHIPPENSBURG UNIVERSITY
SHIPPENSBURG TOWNSHIP
CUMBERLAND COUNTY, PENNSYLVANIA

JULY, 2013

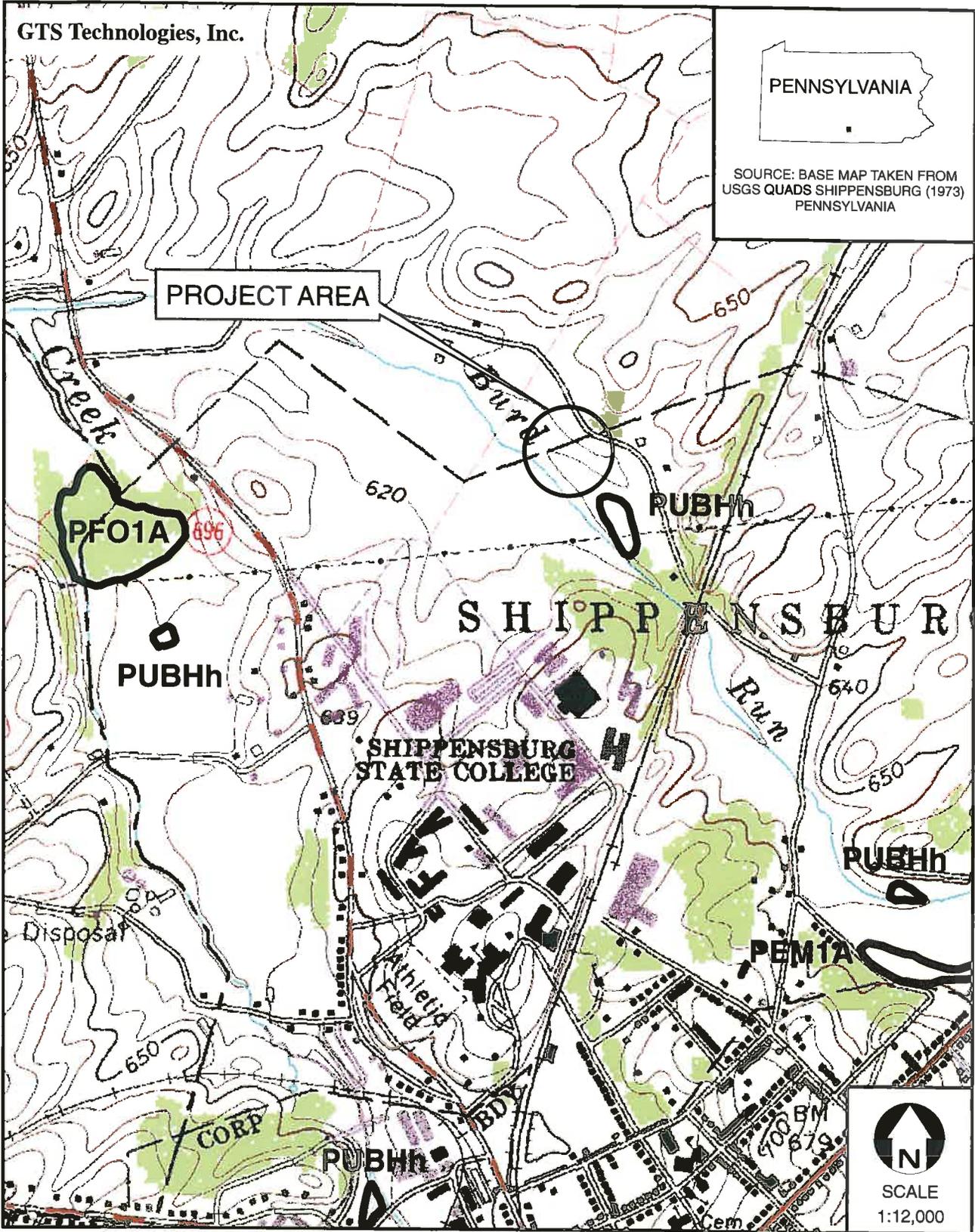
FIGURE
3

GTS Technologies, Inc.

PENNSYLVANIA

SOURCE: BASE MAP TAKEN FROM
USGS QUADS SHIPPENSBURG (1973)
PENNSYLVANIA

PROJECT AREA



M:\130001\3012\GIS\Figures\13012_NWI.mxd



SCALE
1:12,000

NATIONAL WETLAND INVENTORY (NWI) MAP

SHIPPENSBURG UNIVERSITY
SHIPPENSBURG TOWNSHIP
CUMBERLAND COUNTY, PENNSYLVANIA

JULY, 2013

FIGURE

4



LEGEND



EXISTING WETLAND



GTS
TECHNOLOGIES
441 Friendship Road Harrisburg, PA 17111
(717)236-3006
www.gistech.com
ENGINEERS • SURVEYORS • GEOLOGISTS • ENVIRONMENTAL CONSULTANTS

JOB NUMBER:	XXXX
FILE NAME:	13012-ee-wet.dwg
DRAWN BY:	MEL
CHECKED BY:	MEG
DATE:	07/25/2013
REVISED:	07/31/2013

WETLAND LOCATION MAP
SHIPPENSBURG UNIVERSITY
SHIPPENSBURG TOWNSHIP
CUMBERLAND COUNTY, PENNSYLVANIA



SCALE
1"=100'

FIGURE
5

APPENDIX B
WETLAND DATA FORMS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Shippensburg University Stockpile City/County: Cumberland Cty Sampling Date: 7/11/13
 Applicant/Owner: Shippensburg University State: PA Sampling Point: P-1
 Investigator(s): Meredith Blazer Section, Township, Range: Shippensburg Township
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): <1
 Subregion (LRR or MLRA): _____ Lat: 40.067708 Long: -77.520500 Datum: _____
 Soil Map Unit Name: Purdy silt loam (Pu) NWI classification: PEN2C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: _____ _____ _____	

HYDROLOGY

Wetland Hydrology Indicators:	
<u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Water Marks (B1) _____ Sediment Deposits (B2) _____ Drift Deposits (B3) _____ Algal Mat or Crust (B4) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ 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 <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1-3" in spots</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>to surface</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>to surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____ _____	
Remarks: _____ _____ _____	

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: P1

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

Sapling Stratum (Plot size: _____)	_____ = Total Cover
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____

Shrub Stratum (Plot size: _____)	_____ = Total Cover
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____

Herb Stratum (Plot size: _____)	_____ = Total Cover
1. <i>Lysimachia nummularia</i> 20 ✓ FACW	_____
2. <i>Schoenoplectus tabernaemontani</i> 10 ✓ OBL	_____
3. _____ 5 _____ OBL	_____
4. <i>Persicaria hydropiper</i> 5 _____ FACW	_____
5. <i>Eutrochium maculatum</i> 5 _____ OBL	_____
6. <i>Carex lunda</i> 5 _____ FACW	_____
7. <i>Cirsium arvense</i> 5 _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____

Woody Vine Stratum (Plot size: _____)	_____ = Total Cover
1. <i>Pithecolobium quinquefolia</i> 5 ✓ FACW	_____
2. <i>Toxicodendron radicans</i> 20 ✓ FAC	_____
3. _____	_____
4. _____	_____
5. _____	_____

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 <u>20</u>	x 1 = <u>20</u>
FACW species <u>25</u>	x 2 = <u>50</u>
FAC species <u>20</u>	x 3 = <u>60</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75</u> (A)	<u>170</u> (B)

Prevalence Index = B/A = 2.3

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

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

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Shippensburg University Stockpile City/County: Cumberland Cty Sampling Date: 7/1/13
 Applicant/Owner: Shippensburg University State: PA Sampling Point: P-2
 Investigator(s): Meredith Glicker Section, Township, Range: Shippensburg Township
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): <1
 Subregion (LRR or MLRA): _____ Lat: 40.067708 Long: -77.520500 Datum: _____
 Soil Map Unit Name: Purdy silt loam (Pu) NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:
no hydrologic evidence of wetland

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

Sampling Point: P2

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Plectranthus occidentalis</i>	5	✓	FACW
2. <i>Acer negundo</i>	5	✓	FAC
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

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

Sapling Stratum (Plot size: _____)

10 = Total Cover

1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>35</u>	x 4 = <u>140</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>70</u> (A)	<u>240</u> (B)

Prevalence Index = B/A = 3.4

Shrub Stratum (Plot size: _____)

_____ = Total Cover

1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Herb Stratum (Plot size: _____)

_____ = Total Cover

1. <i>Fallopia japonica</i>	10	✓	FACW
2. <i>Solidago canadensis</i>	5	✓	FACW
3. <i>Securigera varia</i>	10	✓	NL
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Woody Vine Stratum (Plot size: _____)

25 = Total Cover

1. <i>Parthenocissus quinquefolia</i>	20	✓	FACW
2. <i>Toxicodendron radicans</i>	5	✓	FAC
3. <i>Lonicera japonica</i>	20	✓	FAC
4. _____			
5. _____			

45 = Total Cover

Hydrophytic Vegetation Present? Yes _____ No

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

SOIL

Sampling Point: P2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10yr 4/3	100					silty gravel	
4-10	10yr 4/3	90	10yr 5/4	10			silty gravel	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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)
 - Umbric Surface (F13) (MLRA 136, 122)
 - Piedmont Floodplain Soils (F19) (MLRA 148)
- Indicators for Problematic Hydric Soils³:**
- 2 cm Muck (A10) (MLRA 147)
 - 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)

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

Restrictive Layer (if observed):
 Type: @ 10" compacted layer
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:
auger refusal @ 10", compacted layer

APPENDIX C
SITE PHOTOGRAPHS



Photograph 1: Facing southeast towards the Shippensburg University stone stockpile.



Photograph 2: Facing east at the the base of the stockpile and Wetland 2.



Photograph 3: Facing south into Wetland 1, which continues past the silt fence boundary.



Photograph 4: Detail of Wetland 2 at data point 1.



Photograph 5: Facing northwest into Wetland 2 from the northeast side of the stockpile.



Photograph 6: Facing southeast from the northern end of Wetland 2.