

CHAPTER 105 WATER OBSTRUCTIONS AND ENCROACHMENT GENERAL PERMIT REGISTRATION

SECTION A. APPLICANT INFORMATION

<input type="checkbox"/> FERC Natural Gas Activity Docket Number _____ Type of Facility _____ Has a Water Quality Certification (WQC) request been sent to DEP? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Activity Subject to FERC approval and/or Oil & Gas Exploration, Production, Storage or Transmission if the activity is regulated by FERC and provide the FERC docket number.	
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Applicant's Name / Client	DEP Client ID# (if known)	Employer ID# (EIN)	
Client Information - Please select Client Type / Code from drop down box under the correct entity shown to the right. (or may be written in) →	Government	Non-Government	Individual
Mailing Address	City	State	ZIP + 4
Contact Person – Last Name First MI Suffix	Telephone (732) 938-1169	Email Address	

SECTION B. CONSULTANT INFORMATION (If applicable) N/A

Contact Person – Last Name First MI Suffix	Consultants Title	Consulting Firm	
Mailing Address	City	State	ZIP + 4
Telephone (484) 775-0485	Fax ()	Email	Employer ID# (EIN)

SECTION C. PROJECT INFORMATION

Project / Site Name	DEP Site ID# (if known or leave blank)		
Client Relationship - Please select Site-to-Client Relationship / Code from drop down box to the right. (or may be written in) →	Double-click on shaded area below to select correct Site-to-Client Relationship / Code ↓		
County	Municipality <input type="checkbox"/> City <input type="checkbox"/> Borough <input type="checkbox"/> Township	Note: Municipal & County Notification is Required	
Site Location / Address	City	State	ZIP + 4
Collection Method: <input type="checkbox"/> EMAP <input type="checkbox"/> HGIS <input type="checkbox"/> GISDR* <input type="checkbox"/> ITPMP <input type="checkbox"/> GPS <input type="checkbox"/> WAAS <input type="checkbox"/> LORAN Check the horizontal reference datum (or projection datum) employed in the collection method. EMAP and HGIS (PNDI) have known datum and do not require checking here. <input type="checkbox"/> NAD27 <input type="checkbox"/> NAD83 <input type="checkbox"/> WGS84 (GEO84) LAT.: _____ LONG.: _____			

NOTE: A Submerged Lands License Agreement (SLLA) with an annual fee, if applicable, may also be required for your project. You will be notified if an SLLA is required.

The [Aquatic Resources Impact Table \(SECTION E. PROPOSED IMPACTS\)](#) must be completed or equivalent submitted for this registration to be complete.

SECTION D. REGISTRATION CHECKLIST AND REQUIREMENTS

Please place an "X" next to each item (1-9) to ensure it is completed and/or provided.

Unless otherwise specified, all items are **required** to ensure a complete Registration package.

****Provide ONE (1) ORIGINAL and ONE (1) COPY of the Registration package****

**Please provide a copy of the Registration form to the Municipality & County in which the work will be performed.
Proof of receipt is not required to be provided to DEP.**

1. REGISTERING A GENERAL PERMIT (GP) check all that apply

Federal, State, county or municipal agencies or municipal authorities:

EXEMPT from fees

<input type="checkbox"/> GP-1	Fish Habitat Enhancement Structures.....	Per Project	\$ 50	= \$ _____
<input type="checkbox"/> GP-2	Small Docks and Boat Launching Ramps	Per Dock / Ramp _____ (#) X	\$ 175	= \$ _____
<input type="checkbox"/> GP-3	Bank Rehabilitation, Bank Protection and Gravel Bar Removal.....	Per Project _____ (#) X	\$ 250	= \$ _____
<input type="checkbox"/> GP-4	Intake and Outfall Structures.....	Per Structure _____ (#) X	\$ 200	= \$ _____
<input type="checkbox"/> GP-5	Utility Line Stream Crossings	Per Individual Utility _____ (#) X _____ (#) X	\$ 250	= \$ _____
<input type="checkbox"/> GP-6	Agricultural Crossings and Ramps	Per Crossing / Ramp _____ (#) X	\$ 50	= \$ _____
<input type="checkbox"/> GP-7	Minor Road Crossings ²	Per Crossing _____ (#) X	\$ 350	= \$ _____
<input type="checkbox"/> GP-8	Temporary Road Crossings ²	Per Crossing _____ (#) X	\$ 175	= \$ _____
<input type="checkbox"/> GP-9	Agricultural Activities.....	Per Project	\$ 50	= \$ _____
<input type="checkbox"/> GP-10	Abandoned Mine Reclamation	Per Project	\$ 500	= \$ _____
<input type="checkbox"/> GP-11	Maintenance, Testing, Repair, Rehabilitation, or Replacement of Water Obstructions and Encroachments ¹		\$ 750	+
<input type="checkbox"/>	Temporary Disturbance (\$400/0.1ac).....	_____ acres x \$4,000 =	\$ _____	+
<input type="checkbox"/>	Permanent Disturbance (\$800/0.1ac).....	<u>0.1</u> acres x \$8,000 =	\$ _____	= \$ _____
<input type="checkbox"/> GP-15	Private Residential Construction in Wetlands ¹		\$ 750	+
<input type="checkbox"/>	Temporary Disturbance (\$400/0.1ac).....	_____ acres x \$4,000 =	\$ _____	+
<input type="checkbox"/>	Permanent Disturbance (\$800/0.1ac).....	_____ acres x \$8,000 =	\$ _____	= \$ _____

GP(s) FEE subtotal (b) \$ _____

	Applicant Entry	DEP Use Only
2. Location Map (USGS quad map) with project site marked:	<input type="checkbox"/>	<input type="checkbox"/>
3. Color Photographs with dates, locations, and descriptions: <input type="checkbox"/> GP-3 <input type="checkbox"/> GP-11 <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>
4. Project Description: (Example: Linear pipeline project using multiple GP-5's and GP-8's; One GP-7 for an access road to my property) _____ _____ _____	<input type="checkbox"/>	<input type="checkbox"/>
5. Site Specific and/or Standard Drawings are (required for all) project's GP activities. For Activities that qualify for GP-7 or GP-11 see E&S Plan Plans, specifications, and reports for bridges and culverts across a stream which are to be used by the general public such as an access to an industrial, commercial or residential development, etc., shall be prepared by a registered professional engineer and shall be affixed with their seal and certification which shall read as follows on the drawings: If the project includes a bridge or culvert replacement or the proposed work will change the waterway opening, please complete and provide the <u>Bridge and/or Culvert Replacement Projects or Projects That Change the Waterway Opening (3150-PM-BWEW0552B)</u> worksheet. If the project consists of similar work (replacement or change in waterway opening) on more than one structure, provide the data requested for each structure included in this Registration package. <i>"I (name) do hereby certify pursuant to the penalties of 18 Pa. C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."</i>	<input type="checkbox"/>	<input type="checkbox"/>
6. Proposed Project Purpose depicting the site of the projects GP activities and impacts. Briefly discuss the need for the authorization. <small>see attached</small>	<input type="checkbox"/>	<input type="checkbox"/>
7. Erosion & Sediment Control Plan (E&S Plan) (Required for all GP's but specifically required with submission with a registration of GP-11 or GP's for oil and gas related activities submitted to DEP.)	<input type="checkbox"/>	<input type="checkbox"/>
8. Pennsylvania Natural Diversity Inventory (PNDI): PNDI Search Receipt and clearance letters, if available. See additional requirements for submission with Avoidance Measures and/or Potential Impacts.	<input type="checkbox"/>	<input type="checkbox"/>
9. Activities which impact wetlands: (For State Regulated Impacts) Please place an "X" next to the appropriate box indicating the information provided: <ul style="list-style-type: none"> ➤ N/A because no wetland impacts are proposed or no compensatory mitigation is necessary. <input type="checkbox"/> ➤ A wetland delineation with complete data sheets in accordance with the 1987 Corps of Engineers Wetland Delineation Manual AND the appropriate Regional Supplements to the Corps of Engineers Wetland Delineation Manual for use in Pennsylvania..... <input type="checkbox"/> ➤ If direct or indirect wetland impacts are greater than 0.05 acre, a compensatory mitigation plan in accordance with the Department's Replacement criteria which provides compensation for both affected acreage, and functions at a minimum of one to one ratio. <input type="checkbox"/> ➤ If compensatory mitigation onsite is determined not feasible: A check, number _____, in the amount of \$ _____ payable to the National Fish and Wildlife Foundation, N.A. 1237, as compensatory mitigation for _____ acres of impact in wetlands, in accordance with the Pennsylvania Wetland Replacement Project..... <input type="checkbox"/> <p style="text-align: center;">(Additional Mitigation May Be Required by U.S. Army Corps)</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
NOTE: If the Pennsylvania Wetland Replacement Fund is proposed to be used as compensatory mitigation for waters of the Commonwealth the U.S. Army Corps of Engineers may also require additional mitigation if the proposed activity impacts waters of the United States.		



Applicant's Name / Client _____

AQUATIC RESOURCE IMPACT TABLE
FOR PENNSYLVANIA CHAPTER 105 WATER OBSTRUCTION AND ENCROACHMENT APPLICATION / REGISTRATION

DEP USE ONLY			Project Information									PADEP / 105		
PADEP Permit Number	Single Complete Crossing No.	Crossing Number	Fee	Structure / Activity unique identifier	Aquatic Resource Type	Latitude dd nad83	Longitude dd nad83	Waters Name	PA Code Chapter 93 Designation	Work Proposed	DEP Impact Type temp / perm	Watercourse Impact Top of Bank to Top of Bank	Floodway Impact Top of Bank Landward	Wetland Impact Dimension *
												Length and Width in feet	Length and Width in feet	Length and Width in feet
												-	-	150 -
												-	-	No - Impact
												-	-	-
												-	-	17 -
												-	-	-
												-	-	-
												-	-	-

PADEP Impact Type: temporary or permanent.

Permanent Impacts are those areas affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result from the placement or construction of a water obstruction or encroachment and include areas necessary for the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water.

Temporary Impacts are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water (these are considered permanent impacts).

* Wetland shapes are irregular. Measurements provided are for the polygons' greatest lengths and widths.

3150-PM-BWEW0500 Rev. 3/2018
Form

SECTION F. CERTIFICATION

I certify under penalty of law that the information provided in this permit registration is true and correct to the best of my knowledge and information and that I possess the authority to undertake the proposed action. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (If any of the information and/or plans is found to be in error, falsified, and/or incomplete, this authorization/verification may be subject to modification, suspension, or revocation in accordance with applicable regulations.) I further certify that this project complies with all the conditions of the general permit.



Signature of Applicant / Owner

DS
WS
AW

6/26/2018

Date

Mark F. Valori

Typed / Printed Name

Vice President

Typed / Printed Title

This General Permit shall not be effective until the owner has had their E&S Plan reviewed by the appropriate Regional Office or District, and, where required, obtained an SLLA from DEP.

THIS ACKNOWLEDGED COPY OF THIS GENERAL PERMIT REGISTRATION PACKAGE AND THE E&S PLAN MUST BE AVAILABLE AT THE PROJECT SITE DURING CONSTRUCTION.

SECTION G. DECISION / DISPOSITION – COMPLETED BY DEP

Decision Review:

DEP / District Reviewer Signature

GP _____

Reviewer's Typed / Printed Name

GP _____

NOTE: See Aquatic Resource Impact Table for any additional authorizations.

Disposition Status

Comments

- ACKNOWLEDGED** Date _____
SLLA Required Yes Attached No
- INCOMPLETE / DEFICIENCY** Date _____
- EXTENSION REQUEST** Date _____
- WITHDRAWN** Date _____

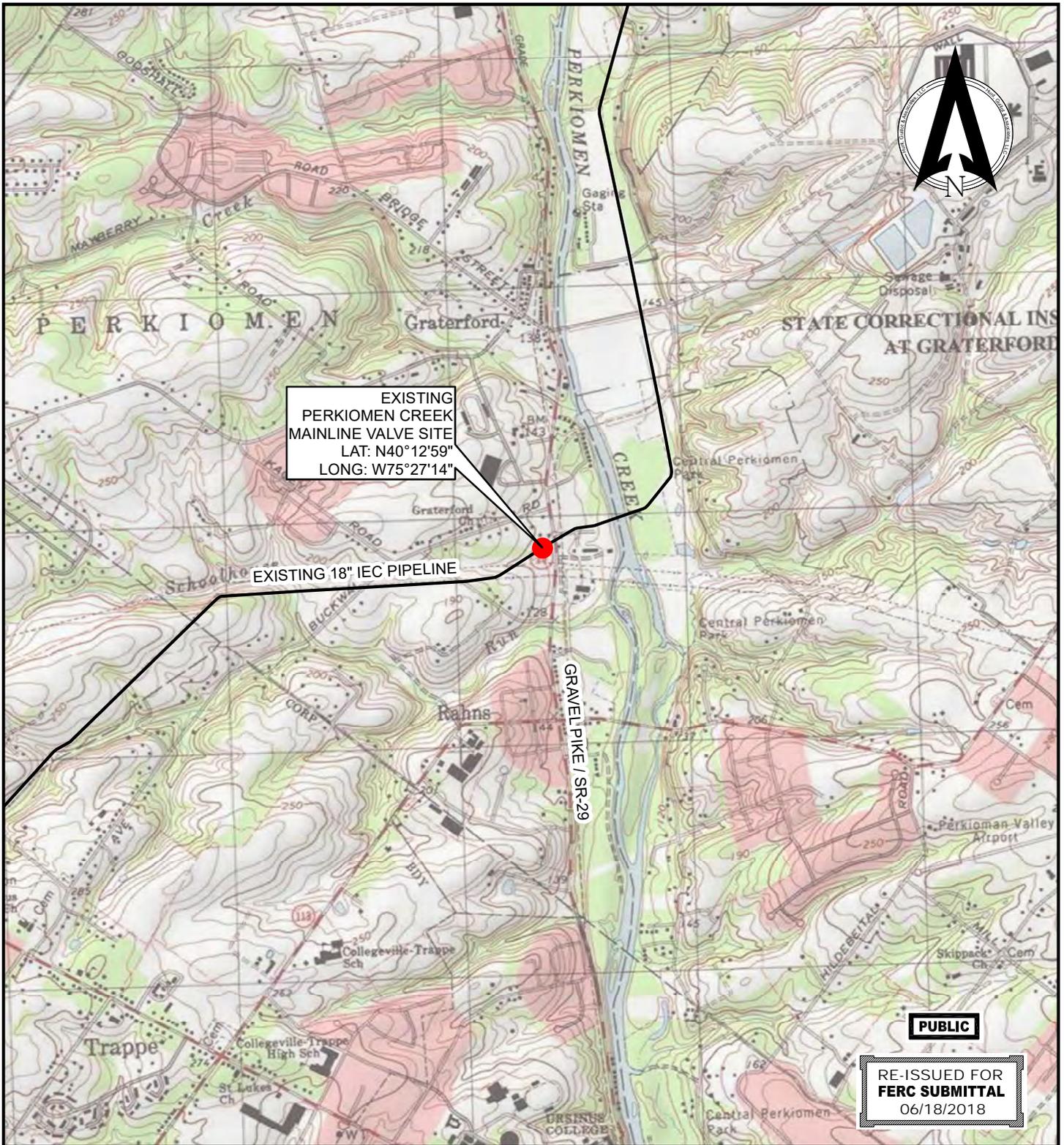
NOTE: If the GP registration information is incomplete a copy of this registration form and requested additional information will be sent to the applicant. A copy of the returned registration form and additional information must be re-submitted within 60 calendar days unless extended by the extension date listed above.

FEDERAL AUTHORIZATION

- Non-reporting PASPGP verification / authorization attached.
- Reporting – A copy of this General Permit registration package has been sent to the U.S. Army Corps of Engineers. Separate federal authorization may be required

NOTE: Please be advised that if the reporting box is checked you do not have Federal authorization for this project and such authorization may be required prior to starting your project. In accordance with Section 404 of the Clean Water Act, a Department of the Army authorization is required for the discharge of dredged and/or fill material into waters of the United States, including jurisdictional wetlands. Section 10 of the Rivers and Harbors Act also requires Department of the Army authorization for any work in, over, or under a navigable water of the United States. In accordance with procedures established with the U.S. Army Corps of Engineers, you will be contacted directly by the Corps regarding Federal Authorization.

D-2: Location Maps



EXISTING
PERKIOMEN CREEK
MAINLINE VALVE SITE
LAT: N40°12'59"
LONG: W75°27'14"

EXISTING 18" IEC PIPELINE

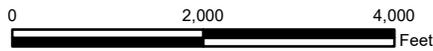


PUBLIC

RE-ISSUED FOR
FERC SUBMITTAL
06/18/2018

LEGEND

- EXISTING MAINLINE VALVE SITE
- EXISTING PIPELINE



NOTES

DRG 7.5 MIN. QUAD MAP:
-040075b4 (COLLEGEVILLE, PA)



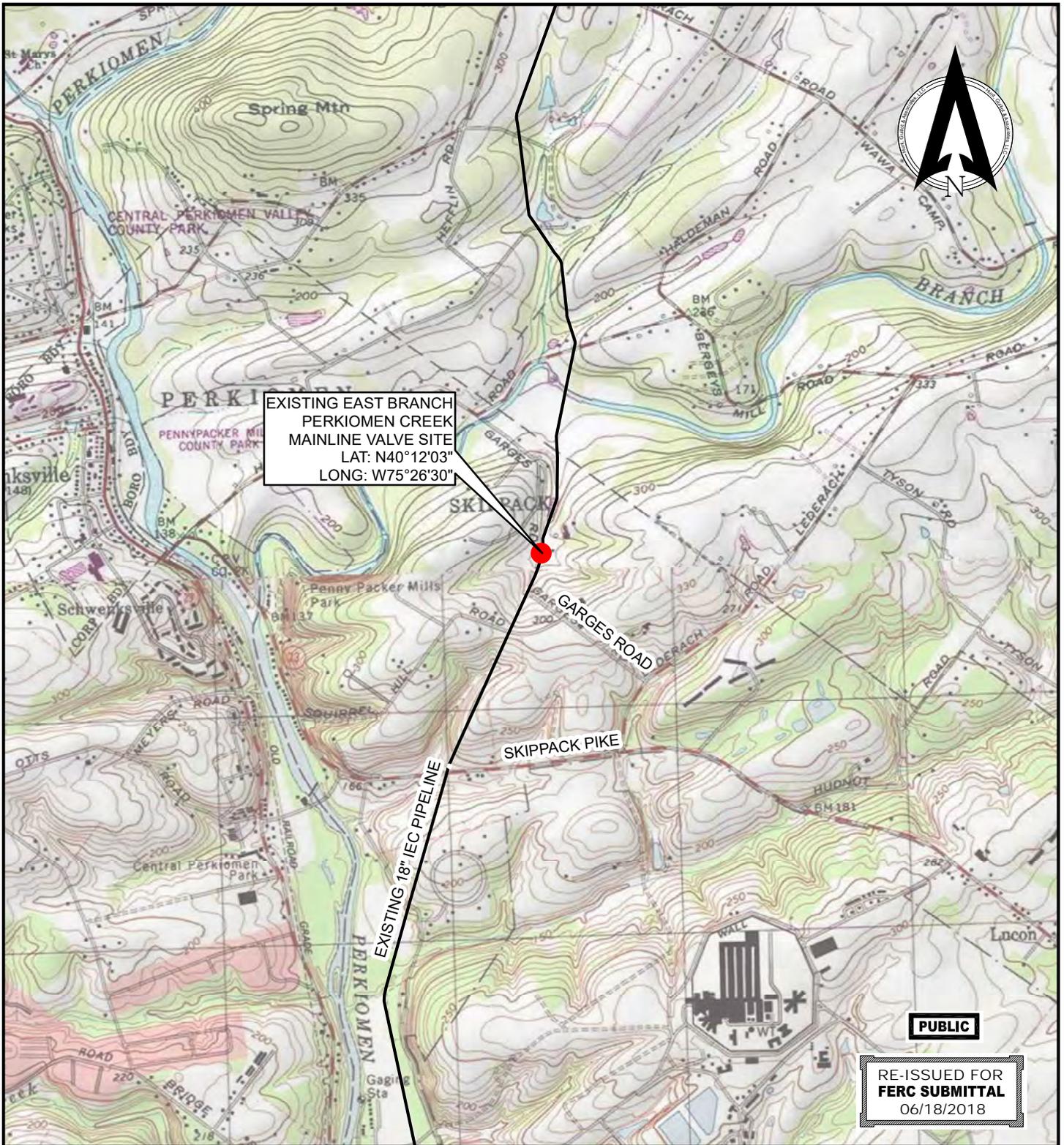
HUNT, GUILLOT & ASSOCIATES, LLC
ONE METROPLEX DRIVE, SUITE 100
BIRMINGHAM, AL 35209
PHONE: 205-970-4977
FIRM # PA 4004148



ADELPHIA GATEWAY, LLC
PROJECT LOCATION MAP
PERKIOMEN CREEK
BLOWDOWN M.P. 33.97
MONTGOMERY COUNTY,
PENNSYLVANIA

SCALE 1" = 2000' DRAWING NUMBER RR01-FIGURE 1-24a REV 1

REV	DESCRIPTION	CHK	DATE	APP	DATE	DRAWN BY	DESIGNED BY	CHECKED BY	APPROVED BY	HGA JOB NO.	PLOT SCALE	MODEL ID
1	RE-ISSUED FOR FERC	MEH	06/18/2018	RCH	06/18/2018	MSF	PLH	MEH	RCH	8.A17022.01.0	1:1	8.A17022
0	ISSUED FOR FERC	MEH	12/29/2017	RCH	12/29/2017							



EXISTING EAST BRANCH PERKIOMEN CREEK MAINLINE VALVE SITE
 LAT: N40°12'03"
 LONG: W75°26'30"



PUBLIC

RE-ISSUED FOR
FERC SUBMITTAL
 06/18/2018

LEGEND

- EXISTING MAINLINE VALVE SITE
- EXISTING PIPELINE



NOTES

DRG 7.5 MIN. QUAD MAP:
 -040075c4 (PERKIOMENVILLE, PA)



HUNT, GUILLOT & ASSOCIATES, LLC
 ONE METROPLEX DRIVE, SUITE 100
 BIRMINGHAM, AL 35209
 PHONE: 205-970-4977
 FIRM # PA 4004148



ADELPHIA GATEWAY, LLC
PROJECT LOCATION MAP
EAST BRANCH PERKIOMEN CREEK
BLOWDOWN M.P. 36.68
MONTGOMERY COUNTY,
PENNSYLVANIA

SCALE 1" = 2000'	DRAWING NUMBER RR01-FIGURE 1-25a	REV 1
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REV	DESCRIPTION	CHK	DATE	APP	DATE	DRAWN BY	DESIGNED BY	CHECKED BY	APPROVED BY	HGA JOB NO.	PLOT SCALE	MODEL ID
1	RE-ISSUED FOR FERC	MEH	06/18/2018	RCH	06/18/2018	MSF	PLH	MEH	RCH	8.A17022.01.0	1:1	8.A17022
0	ISSUED FOR FERC	MEH	12/29/2017	RCH	12/29/2017							

6/18/2018 8:49:13 AM phumphrey

D-3: Color Photographs

PHOTOLOG

Project Name: Adelphia Gateway Project	Location: Perkiomen Creek Gate, Wetland DP1 Montgomery County, PA
--	---

Date: 3/1/2018	Photo: 1
--------------------------	--------------------

Coordinates:
40.216388°
-75.453608°

Comment:
Photo of PEM wetland facing east.



PHOTOLOG

Project Name: Adelphia Gateway Project	Location: Perkiomen Creek Gate, Upland DP2 Montgomery County, PA
--	--

Date: 3/1/2018	Photo: 2
--------------------------	--------------------

Coordinates:
40.216286°
-75.453873°

Comment:
Photo of uplands facing north.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Perkiomen Creek Gate, Wetland DP3 Montgomery County, PA

Date: 3/1/2018
Photo: 3

Coordinates:
40.216435°
-75.453259°

Comment:
Photo of PEM wetland and wetland ditch facing southwest.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Perkiomen Creek Gate, Upland DP4 Montgomery County, PA

Date: 3/1/2018
Photo: 4

Coordinates:
40.216439°
-75.453222°

Comment:
Photo of uplands facing north.



PHOTOLOG

Project Name: Adelphia Gateway Project	Location: East Perkiomen Wetland DP1 Montgomery County, PA
--	--

Date: 3/1/2018	Photo: 1
--------------------------	--------------------

Coordinates: 40.250648° -75.441680°
--

Comment:
Photo of PEM wetland and wetland ditch facing south.



PHOTOLOG

Project Name: Adelphia Gateway Project	Location: East Perkiomen Wetland DP2 Montgomery County, PA
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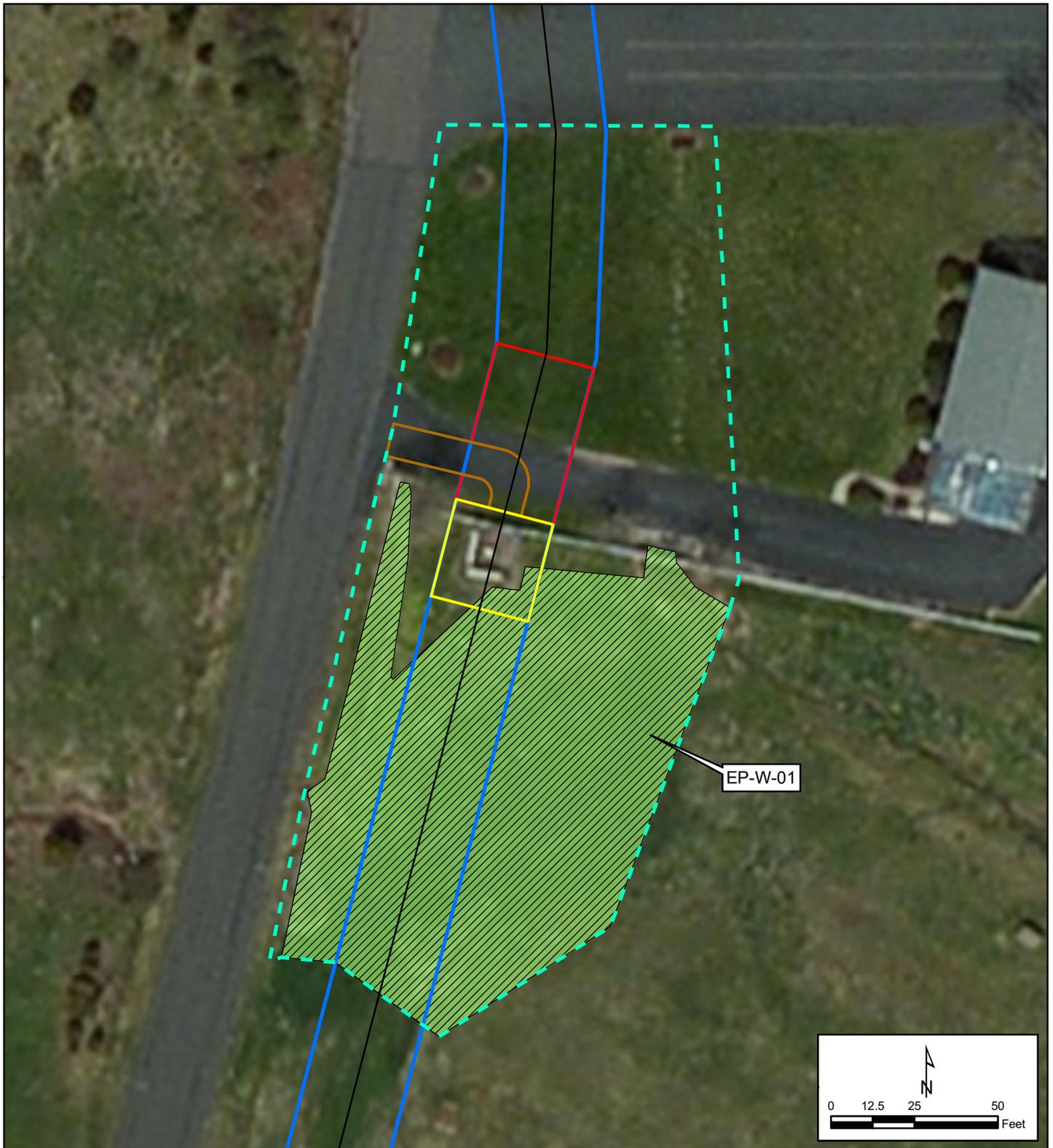
Date: 3/1/2018	Photo: 2
--------------------------	--------------------

Coordinates: 40.250708° -75.441732°
--

Comment:
Photo of uplands facing north.



D-5: Site Specific Drawings



EP-W-01



LEGEND

- Existing Pipeline
- ▭ East Perkiomen MLV Site
- ▭ PEM Wetland
- ▭ Field-delineated
- ▭ ROW
- ▭ East Perkiomen TWS
- ▭ PSS Wetland
- ▭ Desktop-delineated
- ▭ Survey Corridor
- ▭ Access Road
- ▭ PFO Wetland



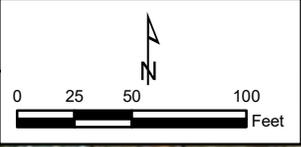
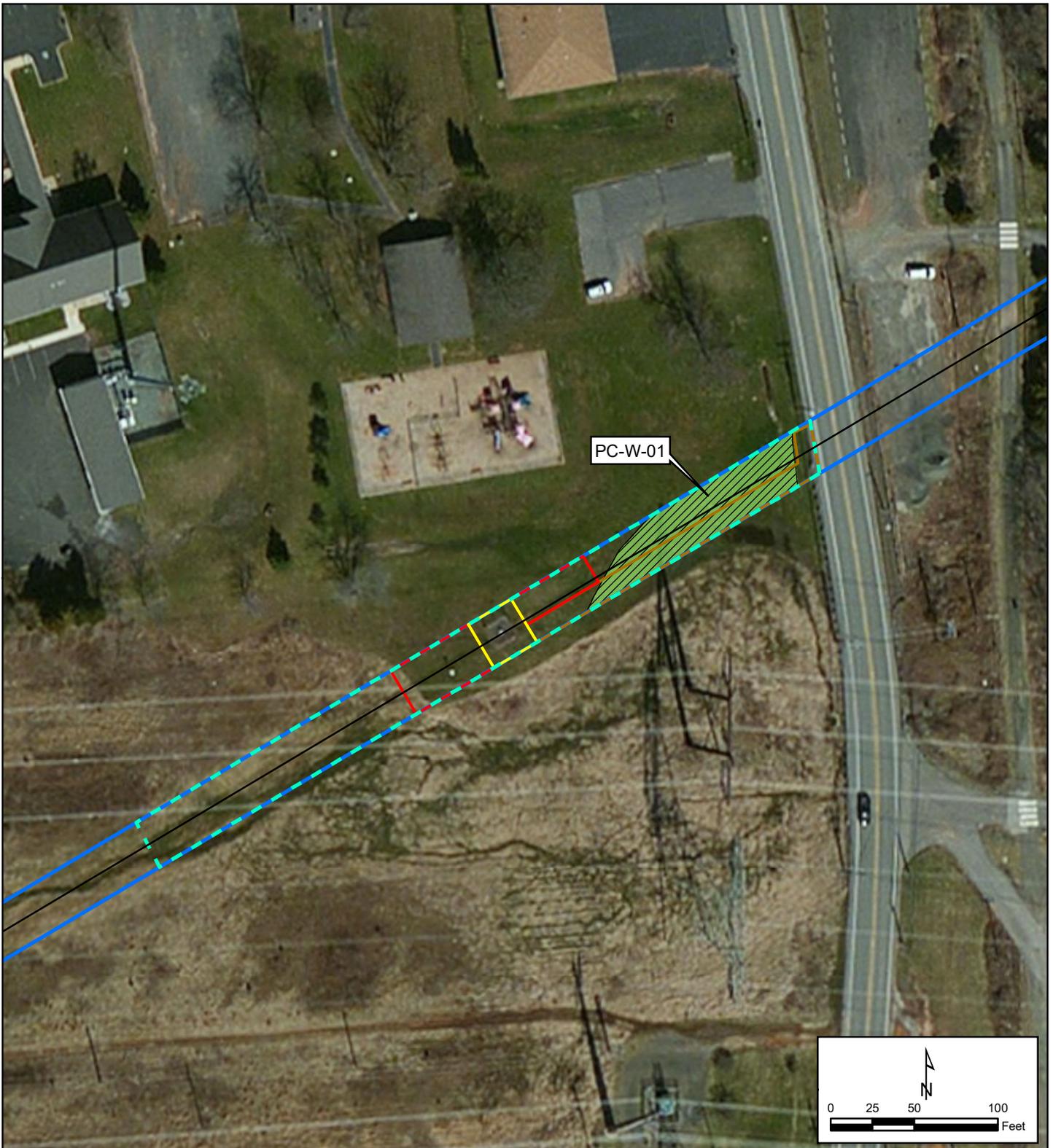
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						DESIGNED BY	DD	9/24/2018
						CHECKED BY	XXX	XX/XX/18
						APPROVED BY	XXX	XX/XX/18
						NV5 JOB NO.	527317-0000050.00	
						PLOT SCALE	1:1	
						MODEL ID	XXXXXX	
REV	DESCRIPTION	CHK	DATE	APP	DATE			



**Adelphia Gateway Project
East Perkiomen Wetland
Montgomery County, Pennsylvania**

SCALE AS SHOWN	DRAWING NUMBER 527317_0000050_00_East_Perkiomen	REV 1
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darryl.delfino 9/24/2018 10:55:32 AM



LEGEND

- Existing Pipeline
- ▭ Perkiomen MLV Site
- ▭ PEM Wetland
- ▭ Field-delineated
- ▭ ROW
- ▭ Perkiomen TWS
- ▭ PSS Wetland
- ▭ Desktop-delineated
- ▭ Survey Corridor
- ▭ Access Road
- ▭ PFO Wetland



						DRAWN BY	DD	9/24/2018
						DESIGNED BY	DD	9/24/2018
						CHECKED BY	XXX	XX/XX/18
						APPROVED BY	XXX	XX/XX/18
						NV5 JOB NO.	527317-0000050.00	
						PLOT SCALE	1:1	
						MODEL ID	XXXXXX	
REV	DESCRIPTION	CHK	DATE	APP	DATE			



**Adelphia Gateway Project
Perkiomen Wetland
Montgomery County, Pennsylvania**

SCALE	DRAWING NUMBER	REV
AS SHOWN	527317_0000050_00_Perkiomen	1

darryl.delfino 9/24/2018 11:50:17 AM

D-6: Proposed Project Purpose

Proposed Project Purpose

The Adelpia Gateway Project is designed to increase available natural gas pipeline capacity to the Greater Philadelphia industrial region with the potential to serve additional markets in the Northeast while continuing to provide uninterrupted service to two existing power plants at the northern end of the system, the Lower Mount Bethel Power Plant and the Martins Creek Power Plant. The Project would achieve this objective by using and enhancing Interstate Energy Company's existing natural gas and oil pipeline system located in eastern Pennsylvania. Necessary enhancements include the construction of eight new blowdown assemblies at existing mainline valves (MLV) along an existing 18-inch pipeline, including the proposed Perkiomen Creek and East Perkiomen Blowdowns.

Installation of the Perkiomen Creek Blowdown requires a temporary wetland crossing to access the site. Adelpia would restore the area to pre-construction conditions.

With the exception of some temporary work space required to construct the facility, the East Perkiomen Blowdown would be constructed and operated entirely within the existing pipeline's permanent, maintained right-of-way. All temporary work space used for the installation of the Blowdown would be restored to its pre-construction conditions following construction. To install the new East Perkiomen Blowdown, Adelpia would clear, grade, and excavate, as necessary, to access the existing pipeline. Adelpia would then remove small sections of existing pipe on either side of the existing MLV and install the Blowdown in its place. Adelpia would then backfill the excavated areas with the same material that was removed from the trench and restore the area to pre-construction conditions. Due to the location of the existing MLV at which the East Perkiomen Blowdown would be located, Project activities would result in both temporary and permanent wetland impacts at the site. Figures in Adelpia's Wetland and Waterbody Delineation Report show the location of proposed work at the Perkiomen Creek and East Perkiomen Blowdown Sites.

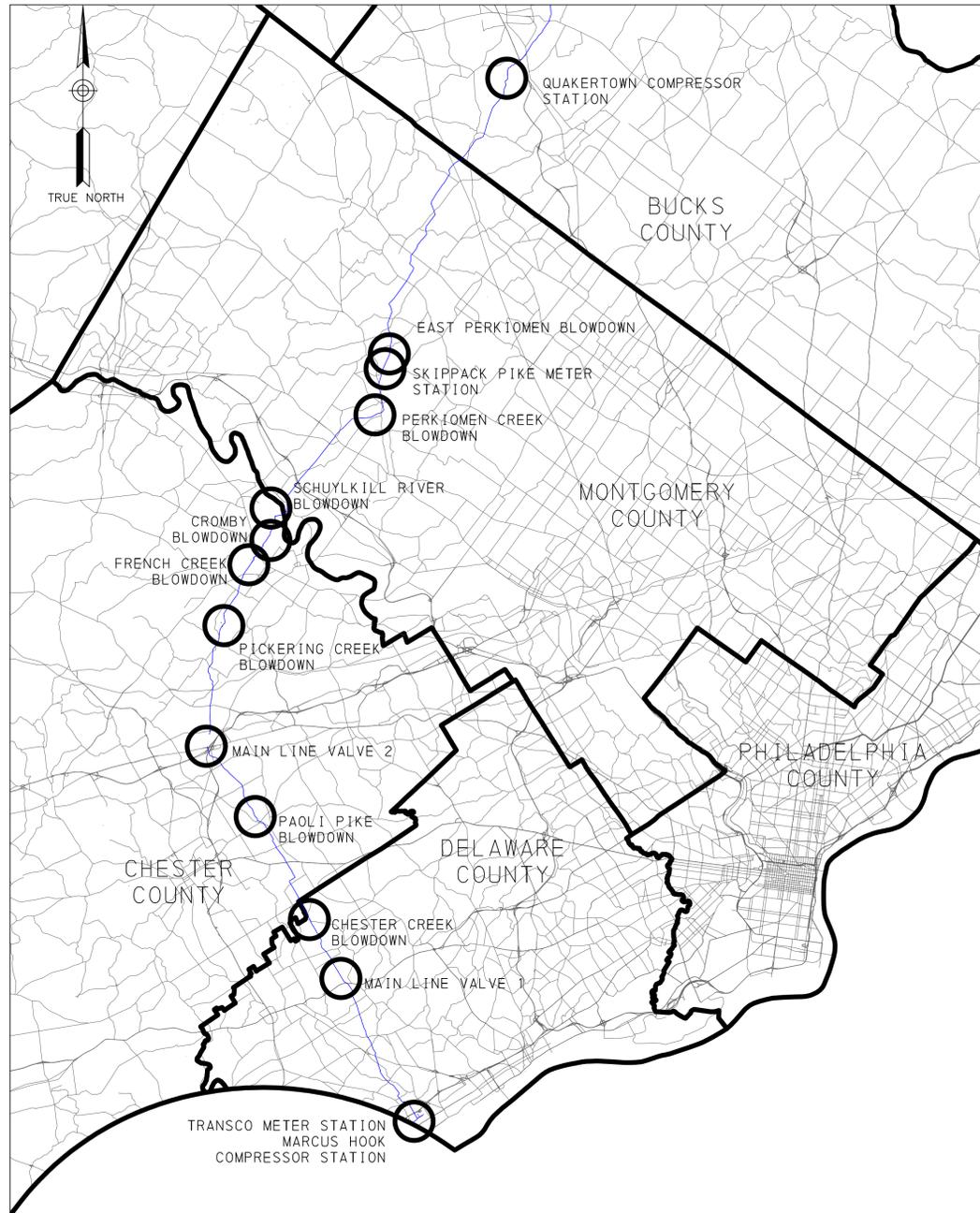
D-7: Erosion & Sediment Control Plan

ADELPHIA GATEWAY PROJECT

EROSION AND SEDIMENTATION CONTROL PLAN AND POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

Revised Submission - 1/18/2019
GP114618312

SITE LOCATION MAP
NOT TO SCALE



SHEETS NOT
INCLUDED IN
THIS SUBMITTAL

DRAWING INDEX		
SHEET NO.	SHEET TITLE	COUNTY
ES-1	COVER/INDEX SHEET	ALL
ES-2	GENERAL NOTES SHEET 1 OF 4	ALL
ES-3	GENERAL NOTES SHEET 2 OF 4	ALL
ES-4	GENERAL NOTES SHEET 3 OF 4	ALL
ES-5	GENERAL NOTES SHEET 4 OF 4	ALL
ES-6	DETAILS SHEET 1 OF 2	ALL
ES-7	DETAILS SHEET 2 OF 2	ALL
ES-8	MARCUS HOOK COMPRESSOR STATION	DELAWARE
ES-9	TRANSCO METER STATION	DELAWARE
ES-10	MAIN LINE VALVE 1	DELAWARE
ES-11	CHESTER CREEK BLOWDOWN	DELAWARE
ES-12	PAOLI PIKE BLOWDOWN	CHESTER
ES-13	MAIN LINE VALVE 2	CHESTER
ES-14	PICKERING CREEK BLOWDOWN	CHESTER
ES-15	FRENCH CREEK BLOWDOWN 1 OF 2	CHESTER
ES-16	FRENCH CREEK BLOWDOWN 2 OF 2	CHESTER
ES-17	CROMBY BLOWDOWN	CHESTER
ES-18	SCHUYLKILL RIVER BLOWDOWN 1 OF 2	CHESTER
ES-19	SCHUYLKILL RIVER BLOWDOWN 2 OF 2	CHESTER
ES-20	PERKIOMEN CREEK BLOWDOWN	MONTGOMERY
ES-21	SKIPPACK PIKE METER STATION	MONTGOMERY
ES-22	EAST PERKIOMEN BLOWDOWN	MONTGOMERY
ES-23	QUAKERTOWN COMPRESSOR STATION	BUCKS

<p>CONFIDENTIAL THESE DESIGNS AND DRAWINGS ARE CONFIDENTIAL & ARE THE EXCLUSIVE PROPERTY OF: NVS, INC., PHILADELPHIA, PENNSYLVANIA. NO COPY OR REPRODUCTION MAY BE MADE WITHOUT WRITTEN APPROVAL.</p>	<p>ADELPHIA GATEWAY</p>	<p>REGISTERED PROFESSIONAL ENGINEER MICHAEL JAMES CONNOR No. 078570-E PENNSYLVANIA</p>	<p>DATE: 12/4/18</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>CHK</th> <th>DATE</th> <th>APP</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p style="text-align: center;">REVISION</p>	REV	DESCRIPTION	CHK	DATE	APP	DATE							<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>DRAWN BY</td><td>DB</td><td>11/16/18</td></tr> <tr><td>DESIGNED BY</td><td>ML</td><td>11/16/18</td></tr> <tr><td>CHECKED BY</td><td>MC</td><td>11/16/18</td></tr> <tr><td>APPROVED BY</td><td>RH</td><td>12/4/18</td></tr> <tr><td>NVS JOB NO.</td><td colspan="2">27317-0000050</td></tr> <tr><td>PLOT SCALE</td><td colspan="2"> </td></tr> <tr><td>MODEL ID</td><td colspan="2"> </td></tr> </table>	DRAWN BY	DB	11/16/18	DESIGNED BY	ML	11/16/18	CHECKED BY	MC	11/16/18	APPROVED BY	RH	12/4/18	NVS JOB NO.	27317-0000050		PLOT SCALE			MODEL ID			<p>NVS, Inc. 1315 Walnut Street, Suite 900 Philadelphia, PA 19107 T: 215-751-1133</p>	<p>EROSION & SEDIMENT CONTROL PLAN ADELPHIA GATEWAY PROJECT COVER/INDEX SHEET</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">SCALE</td> <td style="width: 25%;">DRAWING NUMBER</td> <td style="width: 25%;">REV</td> </tr> <tr> <td>N/A</td> <td>ES-1</td> <td> </td> </tr> </table>	SCALE	DRAWING NUMBER	REV	N/A	ES-1	
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SCALE	DRAWING NUMBER	REV																																													
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STANDARD E&S NOTES:

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. EACH STAGE SHALL BE COMPLETED AND IMMEDIATELY STABILIZED BEFORE ANY FOLLOWING STAGE IS INITIATED. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE CONSERVATION DISTRICT OR BY THE PA DEP PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAP(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
10. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE RESPECTIVE COUNTY CONSERVATION AGENCY FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
11. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
12. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
13. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
14. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
15. SEDIMENT TRACKED ONTO ANY ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORKDAY, OR AS NEEDED THROUGHOUT THE WORKDAY, OR AS DIRECTED BY THE LOCAL MUNICIPALITY OR THE CONSERVATION DISTRICT AND DISPOSED AS A MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED OR SWEEPED INTO ANY ROAD SIDE DITCH, STORM SEWER OR SURFACE WATER.
16. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
17. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES -- 6 TO 12 INCHES ON COMPACTED SOILS -- PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
18. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE,

- SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
19. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
 20. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
 21. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
 22. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
 23. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
 24. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
 25. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
 26. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
 27. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
 28. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO \$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
 29. CONCRETE WASH WATER SHALL BE HANDLED PER CHAPTER 3 OF THE PA DEP EROSION AND SEDIMENT CONTROL POLLUTION CONTROL MANUAL. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATER OR GROUNDWATER SYSTEMS.
 30. ANY DAMAGE THAT OCCURS IN WHOLE OR PART AS A RESULT OF BASIN OR TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITTEE IN A PERMANENT MANNER SATISFACTORY TO THE MUNICIPALITY, LOCAL CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
 31. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
 32. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORM WATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
 33. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
 34. WASTE MATERIALS, SCRAP OR EXCESS CONSTRUCTION MATERIALS SHALL BE COLLECTED, STORED, AND DISPOSED OF IN ACCORDANCE WITH THE SOLID WASTE MANAGEMENT ACT (35 P.S. §§ 6018.101-6018.1003), THE MUNICIPAL WASTE PLANNING, RECYCLING AND WASTE REDUCTION ACT (53 P.S. §§ 4000.101-4000.1904), THE CLEAN STREAMS LAW (35 P.S. §§ 691.1-691.1001) AND RELATED RULES AND REGULATIONS. (TITLE 25, CHAPTER 105, SECTION 46a).
 35. WETLAND BOUNDARIES WITH ACTIVE WORK AREAS WILL BE CLEARLY MARKED/FLAGGED PRIOR TO THE COMMENCEMENT OF EARTH DISTURBANCE ACTIVITIES.
 36. SUBSOIL EXCAVATED AS PART OF THE PROJECT AND SEDIMENT REMOVED FROM E&S BMPS WILL BE COMBINED AND USED TO BACKFILL THE TRENCH. TYPICALLY, EXCESS SOIL IS MINIMAL AND WILL EITHER BE USED TO CREATE A CROWN OVER THE TRENCH TO COUNTERACT SETTLING OR WILL BE SPREAD EVENLY ACROSS THE RIGHT-OF-WAY (R.O.W.). WHICH WILL HAVE A NEGLIGIBLE EFFECT ON THE OVERALL GRADE. ALSO, ANY EXCESS EXCAVATED MATERIALS OR MATERIALS UNSUITABLE FOR BACKFILL WILL BE DISPOSED OF IN ACCORDANCE WITH THE APPLICABLE REGULATIONS.

37. IT IS ACCEPTABLE FOR AN E&S BMP TO BE TEMPORARILY REMOVED FROM AN EQUIPMENT CROSSING PATHWAY DURING PERIODS OF ACTIVE CONSTRUCTION. ANY E&S BMP THAT IS TEMPORARILY REMOVED MUST BE PROPERLY REINSTALLED PRIOR TO THE END OF EACH WORK DAY.
38. TEMPORARY CROSSINGS WILL BE PERMANENTLY REMOVED FROM WETLANDS AFTER SITE RESTORATION.
39. TIMBER MAT WIDTHS AT TEMPORARY CROSSINGS MUST BE SUFFICIENT TO SUPPORT CONTRACTOR EQUIPMENT AND/OR AS APPROVED BY THE ENVIRONMENTAL INSPECTOR (EI). LENGTH OF TEMPORARY CROSSING IS DEPENDENT ON THE WETLAND CROSSING LENGTH FROM START TO END.
40. A GENERAL EROSION AND SEDIMENT CONTROL CONSTRUCTION SEQUENCE FOR EARTH DISTURBING ACTIVITIES ASSOCIATED WITH CONSTRUCTION HAS BEEN DEVELOPED AND INCLUDED IN THE PLAN DRAWINGS. IT SHOULD BE NOTED THAT CONSTRUCTION ACTIVITIES MAY OCCUR SIMULTANEOUSLY; HOWEVER, DEVIATION FROM THE SEQUENCE MUST BE APPROVED BY THE LOCAL CONSERVATION DISTRICT AND/OR REGIONAL OFFICE OF THE DEP PRIOR TO IMPLEMENTATION.
41. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE CONSTRUCTION SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
42. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN THE FOLLOWING MANNER: THE ENVIRONMENTAL INSPECTOR (EI) WILL WORK WITH THE CONTRACTOR TO MOVE THE WATER FROM THE SPRING/SEEP TO A VEGETATED AREA OF THE R.O.W. AN ENERGY DISSIPATION DEVICE WILL BE INSTALLED TO ENSURE THE FLOW DOES NOT CREATE R.O.W. EROSION. IN THE EVENT THE SURROUNDING VEGETATION IS NOT SUFFICIENT TO MANAGE THE FLOW WITHOUT CREATING AN EROSION SITUATION, THE ENVIRONMENTAL INSPECTOR (EI) WILL COORDINATE WITH THE CONTRACTOR, AND THE LOCAL CONSERVATION DISTRICT AND/OR REGIONAL OFFICE OF THE DEP TO PREVENT EROSION AND SEDIMENTATION. IF THE SPRING/SEEP DISCHARGE MUST TRAVERSE THE R.O.W., THEN CULVERTS, TIMBER MATS, OR FRENCH DRAINS WILL BE INSTALLED TO CARRY THE WATER ACROSS THE R.O.W. TO PREVENT EROSION, WHILE AT THE SAME TIME ALLOWING CONSTRUCTION IN THE AREA TO CONTINUE. ADDITIONAL BMPS WILL BE INSTALLED AROUND THE SPRING/SEEP TO PROTECT BOTH THE ON R.O.W. AND OFF R.O.W. AREAS FROM EROSION AND SEDIMENTATION. THE EI MAY REQUIRE THE CONTRACTOR TO INSTALL TIMBER MATS AT SPRING/SEEP AREAS (NON WETLANDS) TO MINIMIZE IMPACTS TO THE R.O.W. DURING SITE RESTORATION OF THE R.O.W., THE SPRING/SEEP PATH WILL BE RESTORED TO THE EXTENT POSSIBLE TO PREVENT EROSION AND SEDIMENTATION ON/OFF THE R.O.W., AND APPROPRIATE PERMANENT BMPS WILL BE INSTALLED.
43. ALL EXISTING ROADWAY DITCH AND STREAM CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL ROCKS, ACCUMULATED SEDIMENT, AND CONSTRUCTION MATERIAL/WASTES.
44. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE ROADWAY DITCH OR STREAM CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
45. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H: 1V OR STEEPER. WITHIN 100 FEET OF A SURFACE WATER, AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS. TIMBER MATS IN WETLANDS WILL BE CLEANED IN SUCH A MANNER AS TO MINIMIZE (PREVENT) THE INTRODUCTION OF UPLAND SOILS INTO THE WETLAND.
46. STREET SWEEPING: REASONABLE METHODS WHICH ARE SANCTIONED BY THE DEP AS ALTERNATIVES TO INSTALLATION OF TIRE WASH STATIONS ON PUBLIC ROAD ACCESS POINTS FOR GATHERING PIPELINE PROJECTS IN HQ/EV OR SILTATION IMPAIRED WATERSHEDS INCLUDE:
 - USE OF A VACUUM TRUCK SWEEPER OR SWEEPER WITH A CATCH BIN ATTACHMENT FOR PAVED SURFACE PUBLIC ROADS;
 - FOR DIRT OR GRAVEL SURFACE PUBLIC ROADS, RIGOROUS MANUAL REMOVAL OF MUD/DIRT FROM VEHICLE/EQUIPMENT TIRES PRIOR TO EXITING CONSTRUCTION SITE; SUPPLEMENTED BY IMMEDIATE REMOVAL, BY MANUAL MEANS, OF SOIL WHICH MAY BECOME DISCHARGED ONTO PUBLIC ROADWAYS. DUST CONTROL AND/OR COMPACTION VIA ROLLING OF THE DIRT PUBLIC ROAD SURFACE WILL BE IMPLEMENTED AS NEEDED.

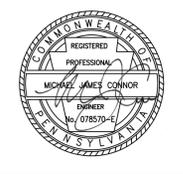
FREQUENCY OF MECHANICAL AND/OR MANUAL CONTROLS WILL BE DEPENDENT UPON CONSTRUCTION TRAFFIC INTENSITY. WEATHER CONDITIONS, AND SOIL MOISTURE CONDITIONS. AT A MINIMUM FOR PAVED ROADS, ANY DAY IN WHICH CONSTRUCTION TRAFFIC IS EXITING THE ROCK CONSTRUCTION ENTRANCE THE VACUUM TRUCK SWEEPER OR SWEEPER WITH A CATCH BIN ATTACHMENT SHALL CLEAN THE ROADWAY AT THE END OF THE WORK DAY AND PRIOR TO ANY FORECASTED RAIN EVENT. THE REQUIREMENT IS TO NOT INTRODUCE SEDIMENT LOAD FROM CONSTRUCTION TRAFFIC ONTO PUBLIC ROAD SURFACES AND INTO ROAD DITCHES WHICH WILL FLOW INTO THE HQ/EV OR SILTATION IMPAIRED WATER RESOURCES THAT ARE THE SUBJECT OF THE INCREASED PROTECTION.

SITE STABILIZATION SCHEDULE

TEMPORARY SEEDING

EXCLUDING AREAS OF ACTIVE CONSTRUCTION, TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED IN DISTURBED AREAS WHERE THE SOIL WILL BE EXPOSED FOR A PERIOD GREATER THAN FOUR (4) DAYS. SEED MIXTURE FOR TEMPORARY VEGETATION SHALL CONSIST OF 100% ANNUAL RYEGRASS. SEED SHALL BE APPLIED AT THE RATE OF 40 LB/ACRE OR AS RECOMMENDED BY A LOCAL RECOGNIZED SEED SUPPLIER AS APPROVED BY THE OWNER. PRIOR TO SEEDING, APPLY 1 TON OF AGRICULTURAL GRADE LIMESTONE PER ACRE PLUS 10-10-10 FERTILIZER AT THE RATE OF 500 LB/ACRE (UNLESS APPLICATION RATES HAVE BEEN DETERMINED OTHERWISE BY FIELD PH TESTING) AND WORK INTO SOIL.

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DATE: 12/4/18

REV	DESCRIPTION	CHK	DATE	APP	DATE
REVISION					

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CHECKED BY	MC	11/16/18
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PLOT SCALE		
MODEL ID		



EROSION & SEDIMENT CONTROL PLAN
GENERAL NOTES
 SHEET 1 OF 4

SCALE	DRAWING NUMBER	REV
N/A	ES-2	

12/20/18 NV5

PERMANENT SEEDING

SITE PREPARATION AND ESTABLISHMENT OF PERMANENT VEGETATION SHALL BE CONDUCTED AS FOLLOWS:

1. INSTALL ANY NECESSARY SURFACE WATER CONTROL MEASURES.
2. IN LOCATIONS WHERE WOOD MATS ARE REMOVED, AERATE THE SOIL TO DECOMPACT TOP 6" OF GROUND. IF EXISTING VEGETATION HAS BEEN KILLED DUE TO MATTING, SCARIFY AND SEED ACCORDING TO STEPS BELOW.
3. GRADED AREAS SHOULD BE SCARIFIED OR OTHERWISE LOOSENEED TO A DEPTH OF 3-5 INCHES TO PERMIT BONDING OF TOPSOIL. DISTRIBUTE TOPSOIL THROUGHOUT DISTURBED AREAS TO A DEPTH OF 4-6 INCHES. SPREADING SHOULD BE DONE IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH MINIMUM TILLAGE.
4. HYDROSEED OR FOLLOW STEPS 3 THROUGH 6 BELOW.
5. PERFORM AGRICULTURAL OPERATIONS AT RIGHT ANGLES TO SLOPES.
6. AGRICULTURAL LIME APPLICATION RATES CAN BE DETERMINED BY FIELD PH TESTING. TESTING MAY BE PERFORMED AT A RATE OF 1 TEST PER ACRE (MIN.). IN THE ABSENCE OF TESTING, APPLY AT 6 TONS/ACRE.
7. APPLY DRY 10-20-20 FORMULATION OF FERTILIZER AT THE RATE OF 1,000 LB/ACRE OR AT A RATE DETERMINED BY FIELD TESTING.
8. WORK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCHES USING APPROPRIATE EQUIPMENT.
9. SEED MIXTURE - SEE LINE LIST FOR LANDOWNER REQUIREMENT AND PROJECT RESTORATION PLAN. IN ABSENCE OF A SPECIFIED MIXTURE, SEED MIXTURE SHALL BE IN ACCORDANCE WITH THE SEEDING TABLE PROVIDED; OR IN ACCORDANCE WITH TABLE 11.4 AND TABLE 11.5 OF THE DEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL (TECHNICAL GUIDANCE NO. 363-2134-008) AS APPROVED BY THE OWNER.
10. IF NOT HYDROSEEDING. APPLY MULCH.

MULCHING

THE PURPOSE OF MULCH IS TO REDUCE RUNOFF AND EROSION, PREVENT SURFACE COMPACTION OR CRUSTING, CONSERVE MOISTURE, AID IN ESTABLISHING PLANT COVER, AND CONTROL WEEDS. MULCH SHALL BE APPLIED ON ANY AREA SUBJECT TO EROSION, OR WHICH HAS UNFAVORABLE CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. THE PRACTICE MAY BE USED ALONE OR IN CONJUNCTION WITH OTHER STRUCTURAL AND VEGETATIVE CONSERVATION PRACTICES, SUCH AS WATERWAYS, PONDS, SEDIMENTATION TRAPS OR CRITICAL AREA PLANTING. ON SEDIMENT PRODUCING AREAS WHERE THE PERIOD OF EXPOSURE IS GREATER THAN FOUR (4) MONTHS, MULCH MATERIALS SHALL BE APPLIED ACCORDING TO THE FOLLOWING GUIDELINES:

1. STRAW MULCH SHALL BE APPLIED AT THE RATE OF THREE (3) TONS PER ACRE. CHEMICALLY TREATED OR SALTED STRAW IS NOT ACCEPTABLE AS MULCH.
2. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION BY AT LEAST ONE OF THE FOLLOWING METHODS.
 - A. CRIMPED INTO THE SOIL USING TRACTOR DRAWN EQUIPMENT (STRAIGHT BLADED COULTER OR SIMILAR). THIS METHOD IS LIMITED TO SLOPES NO STEEPER THAN 3:1. MACHINERY SHOULD BE OPERATED ON THE CONTOUR. (CRIMPING OF HAY OR STRAW BY RUNNING IT OVER WITH TRACKED MACHINERY IS NOT RECOMMENDED)
 - B. ASPHALT, EITHER EMULSIFIED OR CUT-BACK, CONTAINING NO SOLVENTS OR OTHER DILUTING AGENTS TOXIC TO PLANT OR ANIMAL LIFE, UNIFORMLY APPLIED AT THE RATE OF 31 GALLONS PER 1000 SQ. FT.
 - C. SYNTHETIC BINDERS (CHEMICAL BINDERS) MAY BE USED AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH PROVIDED SUFFICIENT DOCUMENTATION IS PROVIDED TO SHOW THAT IT IS NON-TOXIC TO NATIVE PLANT AND ANIMAL SPECIES.
 - D. LIGHTWEIGHT PLASTIC, FIBER, OR PAPER NETS MAY BE STAPLED OVER THE MULCH ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

MULCHED AREAS SHALL BE CHECKED PERIODICALLY AND AFTER EACH RUNOFF EVENT (E.G. RAIN, SNOWMELT, ETC.) FOR DAMAGE UNTIL THE DESIRED PURPOSE OF THE MULCHING IS ACHIEVED. DAMAGED PORTIONS OF THE MULCH OR TIE-DOWN MATERIAL SHALL BE REPAIRED UPON DISCOVERY.

PERMANENT SEEDING TABLE (NON-LAWN AREAS)

SCIENTIFIC NAME	COMMON NAME	REQUIRED VARIETIES	MINIMUM PURITY (%)	MINIMUM GERMINATION (%)	SEED RATE (LB/1000 SF)	SEEDING RATE (LB/ACRE)
LOLIUM PERENNE	PERENNIAL RYEGRASS	A MIXTURE OF AT LEAST 2 FINE-LEAF, TURF-TYPE VARIETIES ADAPTED TO LOCAL CONDITIONS	98	90	0.8	35
FESTUCA RUBRA	RED FESCUE	"PENNLAWN"	98	85	0.8	35
LOTUS CORNICULATUS	BIRDSFOOT TREFOIL (BIRDSFOOT DEER-VETCH)	"VIKING", "EMPIRE", "LEO", OR "NORCEN" (PLUS 5X LEGUME INOCULATION RATE)	98	80	0.7	30

PLUS, DEPENDING ON THE SEASON AND AVAILABILITY, ALSO ADD ONE OF THE FOLLOWING "NURSE CROP" SPECIES:

AVENA SATIVA	OATS APRIL 1 TO SEPT 1	COMMON SEED	98	85	0.7	32	
SECALE CEREALE	WINTER RYE APRIL 1 TO OCTOBER 1	"AROOSTOCK" OR COMMON SEED	98	85	1.3	56	
SECALE CEREALE	WINTER RYE OCTOBER 1 TO APRIL 1	"AROOSTOCK" OR COMMON SEED	98	85	2.6	112	
					TOTAL:	3 TO 5	132 TO 212

* IF THE ABOVE SEEDING DATES CANNOT BE OBSERVED, USE ONE OF THE APPROPRIATE TEMPORARY SEEDING MIXTURE SPECIES IDENTIFIED IN TABLE 11.4 OF THE PADEP E&S MANUAL.

** "AROOSTOCK" VARIETY OF WINTER RYE IS RECOMMENDED FOR LATE SEEDING WHERE WINTERS ARE COLD.

IN WETLAND AREAS, EXCAVATED TOPSOIL WITH THE VEGETATIVE ROOT MASS SHALL BE CAREFULLY REMOVED AND STOCKPILED SEPARATELY FROM THE SUBSOIL. LIME AND FERTILIZER ARE NOT TO BE APPLIED TO THE BACKFILL TRENCH. ANNUAL RYEGRASS MAY BE APPLIED AT THE RATE OF 40 LB/ACRE WHERE NEEDED TO AREAS WITHOUT STANDING WATER IF TEMPORARY STABILIZATION IS REQUIRED; OTHERWISE, THE WETLAND AREAS WILL BE PERMANENTLY SEEDED IN ACCORDANCE WITH THE PROJECT RESTORATION PLAN. STRAW MULCH SHOULD BE APPLIED AT THE RATE OF 3 TONS/ACRE AND WITHOUT BINDING AGENTS.

PERMANENT SEEDING TABLE (LAWN AREAS)

SCIENTIFIC NAME	COMMON NAME	REQUIRED VARIETIES	MINIMUM PURITY (%)	MINIMUM GERMINATION (%)	SEED RATE (LB/1000 SF)	SEEDING RATE (LB/ACRE)	
LOLIUM PERENNE	PERENNIAL RYEGRASS	A MIXTURE OF AT LEAST 2 FINE-LEAF, TURF-TYPE VARIETIES ADAPTED TO LOCAL CONDITIONS	98	90	0.9	42	
FESTUCA RUBRA	RED FESCUE	"PENNLAWN"	98	85	1.4	65	
POA PRATENSIS	KENTUCKY BLUEGRASS MIXTURE	A COMBINATION OF IMPROVED CERTIFIED VARIETIES WITH NO ONE VARIETY EXCEEDING 50% OF THE TOTAL BLUEGRASS COMPONENT	97	80	2.3	107	
					TOTAL:	4.6	214

GENERAL EROSION AND SEDIMENTATION CONTROL CONSTRUCTION SEQUENCE

GENERAL E&S CONSTRUCTION SEQUENCE NOTES

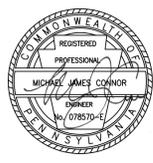
1. A GENERAL E&S CONSTRUCTION SEQUENCE FOR EARTH DISTURBING ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF A PIPELINE MODIFICATION HAS BEEN DEVELOPED AND INCLUDED IN THE PLAN SET. IT SHOULD BE NOTED THAT CONSTRUCTION ACTIVITIES MAY OCCUR SIMULTANEOUSLY; HOWEVER, DEVIATIONS FROM THE SEQUENCE MUST BE APPROVED BY THE LOCAL CONSERVATION DISTRICT AND/OR REGIONAL OFFICE OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP).
2. E&S BMP DETAILS AND CONSTRUCTION SPECIFICATIONS CAN BE FOUND ON THE TYPICAL DETAILS PROVIDED ON THE DETAIL DRAWING SHEETS.
3. ADDITIONAL INFORMATION ON WATERBODY AND WETLAND CROSSING METHODS ARE ALSO DESCRIBED IN THE "WETLAND CROSSING CONSTRUCTION SEQUENCE AND GENERAL NOTES"
4. THE OWNER WILL ASSIGN AN ENVIRONMENTAL INSPECTOR (EI) TO THE PROJECT. THE ROLE OF THE ENVIRONMENTAL INSPECTOR (EI) WILL BE TO ENSURE COMPLIANCE WITH THE MITIGATION AND CONSTRUCTION PROCEDURES IDENTIFIED IN THE FERC APPLICATION; FEDERAL, STATE, AND LOCAL PERMITS ISSUED FOR THE PROJECT; AND SITE SPECIFIC CONSTRUCTION PLANS. THE EI WILL BE REQUIRED TO ADHERE TO THE SITE SPECIFIC CONSTRUCTION PLANS AND THE E&S PLAN, INCLUDING NOTES, DESCRIBED HEREIN.

E&S CONSTRUCTION SEQUENCE

1. AT LEAST SEVEN (7) DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR CONTRACTOR SHALL NOTIFY A REPRESENTATIVE FROM THE RESPECTIVE LOCAL CONSERVATION DISTRICTS AND REGIONAL OFFICE OF THE PADEP.
2. A COPY OF THE APPROVED E&S PLAN MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
3. AT LEAST THREE (3) DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE CONTRACTOR SHALL NOTIFY PENNSYLVANIA ONE CALL SYSTEM, INC. AT 1-800-242-1776.
4. MAKE ALL PROPER NOTIFICATION REQUIREMENTS TO LOCAL STATE, OR FEDERAL AGENCIES PRIOR TO THE START OF CONSTRUCTION ACTIVITIES OR PRIOR TO SPECIFIC CONSTRUCTION ACTIVITIES, AS APPROPRIATE.

5. PRIOR TO COMMENCEMENT OF ANY EARTH DISTURBANCE ACTIVITY INCLUDING CLEARING AND GRUBBING, CLEARLY DELINEATE SENSITIVE AREAS INCLUDING WATERBODIES/WETLANDS, RIPARIAN FOREST BUFFER BOUNDARIES (IF ANY), THE 50-FOOT VEGETATIVE BUFFER AT HQ WATERBODIES, THE LIMITS OF CLEARING, PIPELINE CENTERLINE WITHIN THE LIMITS OF DISTURBANCE, KNOWN CROSSINGS OF FOREIGN LINES AND UTILITIES, CONSTRUCTION ENTRANCES, TREES THAT ARE TO BE CONSERVED WITHIN THE PROJECT AREA, CULTURAL RESOURCE SITES, AND RARE SPECIES HABITAT, AS APPLICABLE. AVOIDANCE AREAS WILL BE MARKED WITH APPROPRIATE FENCING, SIGNAGE, AND/OR FLAGGING BASED ON ENVIRONMENTAL SURVEYS, LANDOWNER REQUIREMENTS, AND PERMIT CONDITIONS.
6. INSTALL STABILIZED ROCK CONSTRUCTION ENTRANCES WHERE VEHICLES WILL ENTER CONSTRUCTION AREAS FROM PUBLIC ROADS AT THE DIRECTION OF THE ENVIRONMENTAL INSPECTOR (EI) BASED ON SITE CONDITIONS AND CLEARING ACCESS NEEDS.
7. PERFORM ALL OTHER NECESSARY IMPROVEMENTS TO ACCESS ROADS WHERE NECESSARY INCLUDING, BUT NOT LIMITED TO MINIMAL GRADING, ADDING STONE, AND PROTECTION OF EXISTING CULVERTS.
8. INSTALL COMPOST FILTER SOCK, SEDIMENT BARRIERS, OR OTHER COUNTY CONSERVATION DISTRICT APPROVED SEDIMENT BARRIERS/BMPS PRIOR TO CLEARING AN AREA.
9. IMPLEMENT INITIAL LAND CLEARING ALONG PIPELINE IN ACCORDANCE WITH STREAM/WETLAND CONSTRUCTION SEQUENCES OUTLINED BELOW. LAND CLEARING WILL BE CONCURRENT WITH STEP #10.
10. INSTALL BMPS FOR TEMPORARY EQUIPMENT CROSSINGS OF WETLANDS AND WATERBODIES, AS NECESSARY. THE SPECIFIC TYPE OF TEMPORARY EQUIPMENT STREAM CROSSING IS IDENTIFIED ON THE SITE SPECIFIC DRAWINGS BUT CAN BE ALTERED BASED ON FIELD CONDITIONS. FOR WETLAND CROSSINGS, INSTALL WETLAND/TIMBER MATS PER TYPICAL DETAILS TO PROVIDE A TRAVEL LANE. THE PLACEMENT OF COMPOST FILTER SOCK MAY NEED TO BE TEMPORARILY ADJUSTED DUE TO THE TEMPORARY EQUIPMENT CROSSING. SEE THE "STREAM CROSSING CONSTRUCTION SEQUENCE AND GENERAL NOTES" AND "WETLAND CROSSING CONSTRUCTION SEQUENCE AND GENERAL NOTES."
11. IMPLEMENT INITIAL LAND GRUBBING AND, WHERE NECESSARY, GRADING. TREES WILL NOT BE REMOVED/GRUBBED WITHIN 50 FEET OF STREAMS UNTIL CONSTRUCTION THROUGH THAT AREA.
12. IF TRENCH EXCAVATION CANNOT COMMENCE WITHIN FOUR (4) DAYS OF INITIAL LAND GRUBBING, TEMPORARY STABILIZATION MEASURES WILL BE IMPLEMENTED IMMEDIATELY.
13. COMMENCE TRENCH EXCAVATION. IF TRENCH EXCAVATION TAKES PLACE IN AN AGRICULTURAL WETLAND, OR RESIDENTIAL AREA, THEN SEGREGATION OF TOPSOIL AND SUBSOIL WILL BE PERFORMED. INSTALL STREAM CROSSINGS AND WETLAND AS THEY ARE ENCOUNTERED. IMMEDIATELY AFTER COMPLETION OF THE STREAM CROSSING, STABILIZE DISTURBED STREAM BANKS.
14. IF WATER IS ENCOUNTERED DURING EXCAVATION, INSTALL A PUMPED WATER FILTER BAG AND COMPOST FILTER SOCKS IN PREPARATION OF DEWATERING ACTIVITIES. THE LOCATION OF THE DEWATERING DEVICE AND/OR STRUCTURE AND SECONDARY STRUCTURES WILL BE AS SHOWN ON DRAWINGS OR AS DETERMINED BY THE EI BASED UPON ACTUAL FIELD CONDITIONS. EFFORTS WILL BE MADE TO PLACE THE DEWATERING FILTERS INTO A WELL-VEGETATED UPLAND AREA GREATER THAN 50 FEET FROM ANY WETLAND OR WATERBODY; THESE AREAS WILL NOT BE CLEARED OR GRUBBED. THE ENVIRONMENTAL INSPECTOR (EI) WILL MONITOR TRENCHES HOLDING WATER AND BEGIN DEWATERING ACTIVITIES AS NEEDED SO THAT SEDIMENT LADEN WATER IS NOT DISCHARGED DIRECTLY FROM THE EXCAVATED TRENCH TO RESOURCES. THE EI WILL MONITOR WEATHER REPORTS, ADVISE THE CONTRACTOR IN INSTANCES WHERE PRECIPITATION EVENTS MAY CAUSE EXCESSIVE TRENCH WATER, AND COORDINATE CREWS AS APPROPRIATE TO HANDLE TRENCH WATER.
15. BACKFILL TRENCH WITH SUITABLE EXCAVATED MATERIAL IN AREAS WHERE TOPSOIL HAS BEEN SEGREGATED, THE SUBSOIL WILL BE REPLACED FIRST, AND THE TOPSOIL WILL BE SPREAD OVER THE AREA FROM WHICH IT WAS REMOVED. FINAL GRADES SHALL BE AS CLOSE AS PRACTICABLE TO THE PRE-CONSTRUCTION CONTOURS, UNLESS PROPOSED CONTOURS ARE SHOWN ON THE PLAN.
16. AFTER FINAL GRADE IS ESTABLISHED, INSTALL/IMPLEMENT APPROPRIATE BMPS TO ALL DISTURBED AREAS INCLUDING, BUT NOT LIMITED TO: SURFACE ROUGHNING/SCARIFICATION, PERMANENT SEEDING, AND MULCHING. SEED AND SOIL AMENDMENTS SHALL BE APPLIED AS DEFINED WITHIN THIS PLAN. WHERE REQUIRED AND AFTER SEEDING AND SOIL AMENDMENTS, INSTALL EROSION CONTROL BLANKET/FABRIC. EROSION CONTROL BLANKET/FABRIC SHALL BE APPLIED WITHIN 100 FEET OF STREAM BANKS IN HQ WATERSHEDS (UNLESS LOCATED WITHIN A WETLAND) AND ON SLOPES WHICH ARE 3H:1V OR STEEPER, AS DEPICTED ON THE PLANS. REMOVE TEMPORARY CROSSINGS OF STREAMS AND WETLANDS ONCE EQUIPMENT ACCESS ACROSS ASSOCIATED FEATURE IS NO LONGER NECESSARY.
17. IF FINAL GRADING CANNOT BE COMPLETED WITHIN TEN (10) DAYS OF BACKFILL AND PERMANENT SEEDING WITHIN FOUR (4) DAYS OF FINAL GRADING, TEMPORARY STABILIZATION MEASURES WILL BE IMPLEMENTED IMMEDIATELY.
18. THE OWNER WILL CONTINUE TO CONDUCT INSPECTIONS UNTIL THE PROJECT AREA HAS REACHED PERMANENT STABILIZATION. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM PERENNIAL 70% VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS. TEMPORARY E&S BMPS MAY BE REMOVED AFTER THE ENTIRE DISTURBED AREA TRIBUTARY TO EACH BMP REACHES PERMANENT STABILIZATION. REMOVE ALL REMAINING TEMPORARY CROSSINGS OF STREAMS AND WETLANDS. IMMEDIATELY STABILIZE ANY DISTURBANCES ASSOCIATED WITH THE REMOVAL OF THE BMPS.
19. THE LENGTH OF TIME TO START, COMPLETE, AND STABILIZE BLOWDOWN AND MAIN LINE VALVE SITES SHOULD NOT EXCEED 30 DAYS

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DATE: 12/4/18

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REVISION					

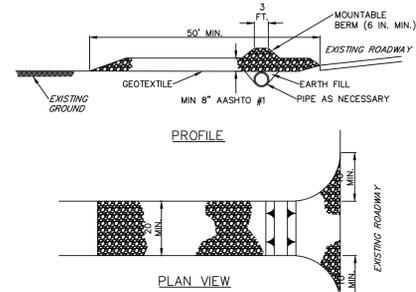
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CHECKED BY	MC	11/16/18
APPROVED BY	RH	12/4/18
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PLOT SCALE		
MODEL ID		

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EROSION & SEDIMENT CONTROL PLAN
GENERAL NOTES
SHEET 2 OF 4

SCALE	DRAWING NUMBER	REV
N/A	ES-3	

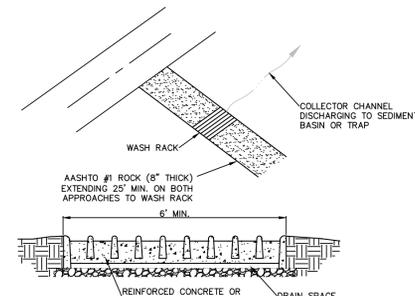
02/2008 REV 2



NOTES:
 REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.
 RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.
 MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.
 MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

ROCK CONSTRUCTION ENTRANCE

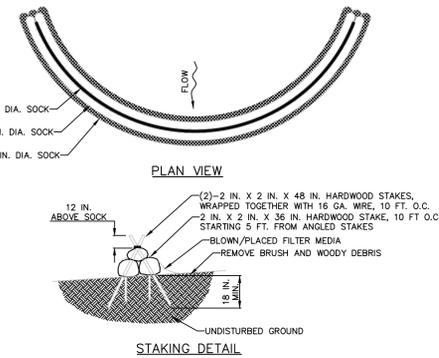
NOT TO SCALE



NOTES:
 WASH RACK SHALL BE 20 FEET (MIN.) WIDE OR TOTAL WIDTH OF ACCESS.
 WASH RACK SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICULAR TRAFFIC.
 A WATER SUPPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES EXITING THE SITE.
 MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. ALL SEDIMENT DEPOSITED ON ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

ROCK CONSTRUCTION ACCESS WITH WASH RACK

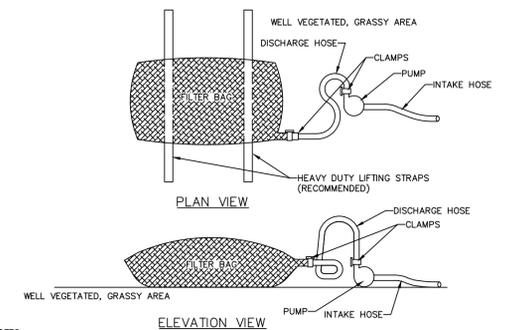
NOT TO SCALE



DESIGN NOTES:
 1. COMPOST SOCK SEDIMENT TRAP SHALL BE SIZED TO PROVIDE 2000 CUBIC FEET OF STORAGE CAPACITY FOR EACH ACRE TRIBUTARY TO THE TRAP.
 2. MINIMUM BASE WIDTH IS EQUAL TO THE HEIGHT.
 3. SEDIMENT ACCUMULATION SHALL NOT EXCEED 1/3 THE TOTAL HEIGHT OF THE TRAP.
 4. SOCKS SHALL BE OF LARGER DIAMETER AT THE BASE OF THE TRAP AND DECREASE IN DIAMETER FOR SUCCESSIVE LAYERS AS SHOWN ON THE PLAN VIEW.
 5. ENDS OF THE TRAP SHALL BE A MINIMUM OF 1 FOOT HIGHER IN ELEVATION THAN THE MID-SECTION, WHICH SHALL BE LOCATED AT THE POINT OF DISCHARGE.
NOTES:
 SOCK MATERIAL SHALL MEET THE STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.
 COMPOST SOCK SEDIMENT TRAPS SHALL NOT EXCEED THREE SOCKS IN HEIGHT AND SHALL BE STACKED IN PYRAMIDAL FORM AS SHOWN ABOVE. MINIMUM TRAP HEIGHT IS ONE 24" DIAMETER SOCK. ADDITIONAL STORAGE MAY BE PROVIDED BY MEANS OF AN EXCAVATED SUMP 12" DEEP EXTENDING 1 TO 3 FEET UPSLOPE OF THE SOCKS ALONG THE LOWER SIDE OF THE TRAP.
 COMPOST SOCK SEDIMENT TRAPS SHALL PROVIDE 2,000 CUBIC FEET STORAGE CAPACITY WITH 12" FREEBOARD FOR EACH TRIBUTARY DRAINAGE ACRE. (SEE MANUFACTURER FOR ANTICIPATED SETTLEMENT).
 THE MAXIMUM TRIBUTARY DRAINAGE AREA IS 5.0 ACRES. SINCE COMPOST SOCKS ARE "FLOW-THROUGH," NO SPILLWAY IS REQUIRED.
 COMPOST SOCK SEDIMENT TRAPS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/3 THE HEIGHT OF THE SOCKS.
 PHOTODEGRADABLE AND BIODEGRADABLE SOCKS SHALL NOT BE USED FOR MORE THAN 1 YEAR.

COMPOST SOCK SEDIMENT TRAP

NOT TO SCALE



NOTES:
 LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

 A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.
 BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5% CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL. BAGS SHALL BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.
 NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HO OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.
 THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.
 THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.
 FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

PUMPED WATER FILTER BAG

NOT TO SCALE

TABLE 4.1
Compost Sock Fabric Minimum Specifications

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPFP)	Heavy Duty Multi-Filament Polypropylene (HDMFPFP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability %					
Original Strength	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years
Two-ply systems					
Inner Containment Netting	HDPE biaxial net				
	Continuously wound				
Outer Filtration Mesh	Fusion-welded junctures				
	3/4" X 3/4" Max. aperture size				
Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch)					
3/16" Max. aperture size					
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					
Filtrex & JMD					

NOTES:
 COMPOST FILTER SOCK SHALL BE MINIMUM 5 MIL HDPE BIODEGRADABLE FABRIC OR AS APPROVED BY OWNER MEETING COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS IDENTIFIED IN TABLE 4.1.

COMPOST FILTER SOCK

NOT TO SCALE

(SHEET 2 OF 3)

TABLE 4.2
COMPOST STANDARDS

ORGANIC MATTER CONTENT	80%-100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5-8.0
MOISTURE CONTENT	35%-55%
PARTICLE SIZE	98% PASS THROUGH 1" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAX

REF: FIGURE 4.2 MAXIMUM PERMISSIBLE SLOPE LENGTH ABOVE COMPOST FILTER SOCKS, PA DEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, 2012

MAXIMUM SLOPE LENGTHS FOR COMPOST FILTER SOCK

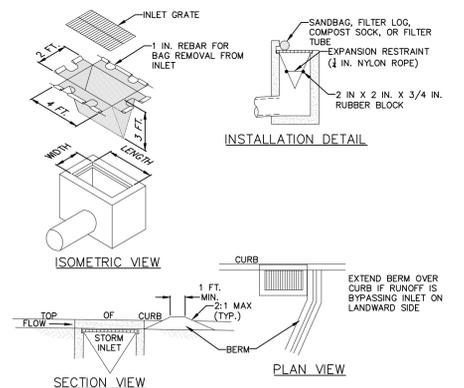
% SLOPE	12" DIAMETER	18" DIAMETER	24" DIAMETER	32" DIAMETER
2 (OR LESS)	510	700	1000	1300
5	270	340	500	650
10	150	250	300	400
15	100	200	250	350
20	70	150	200	250
25	50	100	150	180
30	40	90	100	125
35	40	70	90	100
40	30	60	70	90
45	30	40	60	80
50	20	30	40	50

NOTES:
 COMPOST SHALL BE WELL DECOMPOSED, WEED-FREE ORGANIC MATTER DERIVED FROM AGRICULTURAL, FOOD, STUMP GRINDINGS, AND YARD OR WOOD/BARK MATTER SOURCES. THE COMPOST SHOULD BE AEROBICALLY COMPOSTED. THE COMPOST SHOULD POSSESS NO OBJECTIONABLE ODORS AND SHOULD BE REASONABLY FREE (< 1% BY DRY WEIGHT) OF MAN-MADE FOREIGN MATTER. THE COMPOST PRODUCT SHOULD NOT RESEMBLE THE RAW MATERIAL FROM WHICH IT IS DERIVED. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS ARE NOT ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.
 THE PHYSICAL PARAMETERS OF THE COMPOST SHOULD COMPLY WITH THE STANDARDS IN TABLE 4.2. THE STANDARDS CONTAINED IN PENNDOT PUBLICATION 40B ARE AN ACCEPTABLE ALTERNATIVE.

COMPOST FILTER SOCK

NOT TO SCALE

(SHEET 3 OF 3)

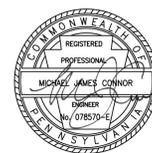


NOTES:
 MAXIMUM DRAINAGE AREA = 1/2 ACRE.
 INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.
 ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.
 AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.
 INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED OR RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.
 DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

FILTER BAG INLET PROTECTION

NOT TO SCALE

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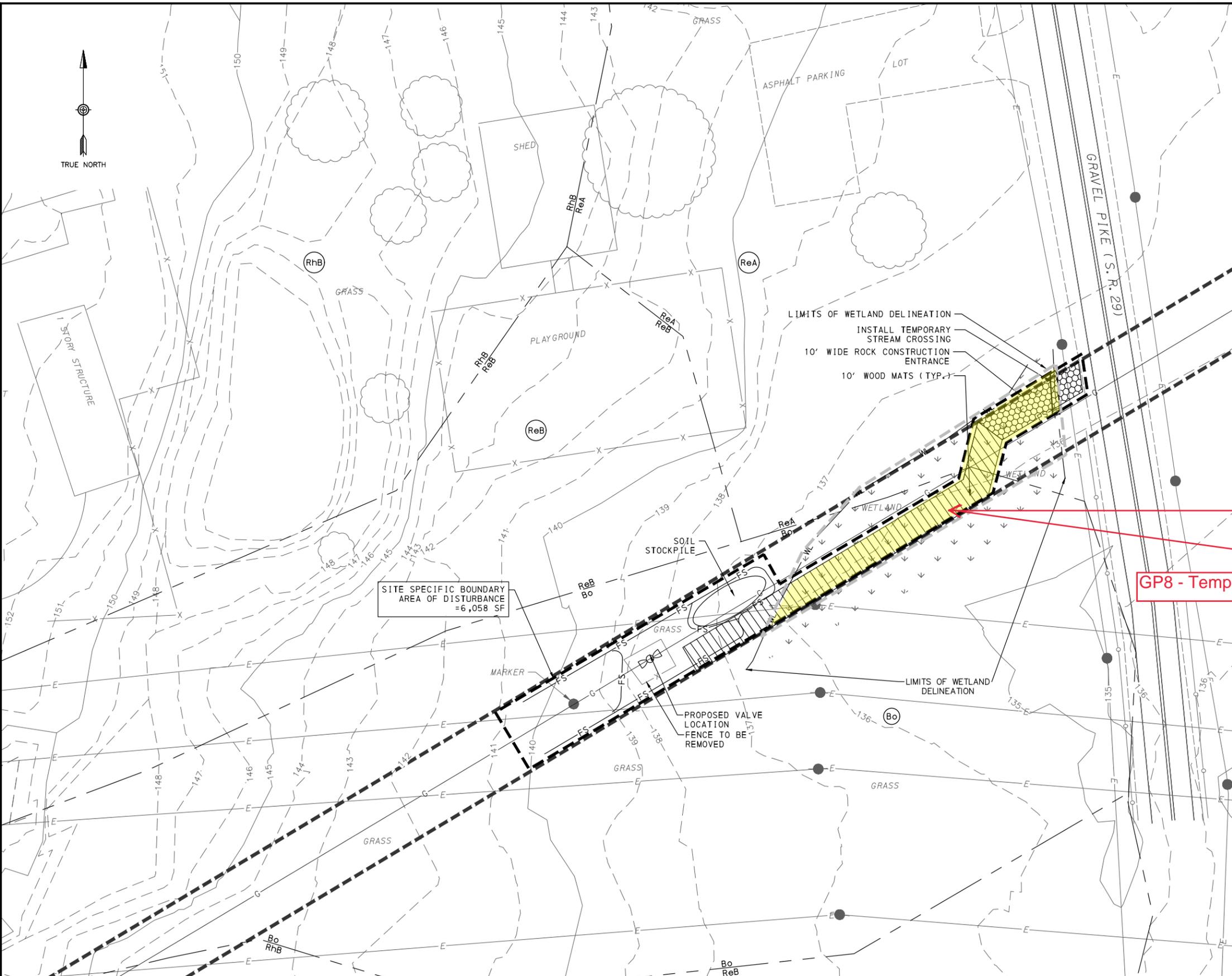
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PLOT SCALE		
MODEL ID		

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EROSION & SEDIMENT CONTROL PLAN DETAILS SHEET 1 OF 2		
SCALE	DRAWING NUMBER	REV
N/A	ES-6	

LEGEND

- 324 --- EXISTING 1' CONTOUR
- 325 --- EXISTING 5' CONTOUR
- 324 --- PROPOSED 1' CONTOUR
- 325 --- PROPOSED 5' CONTOUR
- X --- EXISTING TREE LINE
- X --- EXISTING FENCE LINE
- E --- EXISTING OVERHEAD ELECTRIC
- ● --- EXISTING UTILITY POLE
- W --- EXISTING WATER LINE
- G --- EXISTING GAS LINE
- --- EXISTING EASEMENT
- P --- EXISTING PROPERTY LINE
- WL --- EXISTING WETLAND BOUNDARY
- > --- EXISTING WETLAND AREA
- --- 100-YEAR FLOOD PLAIN
- --- SOIL BOUNDARY
- (We) --- SOIL TYPE
- --- LIMIT OF DISTURBANCE/ PERMIT BOUNDARY
- --- CHAPTER 105 REGULATED LOCATION
- --- WOOD MATS
- --- ROCK CONSTRUCTION ENTRANCE
- --- EROSION CONTROL BLANKET
- --- INLET PROTECTION
- --- TREE PROTECTION
- FS --- COMPOST FILTER SOCK (12" DIA.)
- FS --- 18" --- COMPOST FILTER SOCK (18" DIA.)
- FS --- 24" --- COMPOST FILTER SOCK (24" DIA.)
- --- PROPOSED VALVE LOCATION



GP114618312 Wetland Area

GP8 - Temporary Road Crossing

NOTES

1. PIPELINE AND EASEMENT LOCATION PROVIDED BY INTERSTATE ENERGY COMPANY.
2. SEE SHEET 5 FOR GENERAL NOTES, NOTE 2 FOR SOURCE DATA REFERENCES FOR SOILS, FLOODWAYS, CONTOURS, AND MAPPING.

Revised Submission - 1/18/2019
GP114618312

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15 0 30 60
SCALE: 1"=30'
DATE: 12/4/18

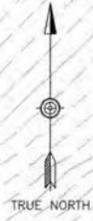
REV	DESCRIPTION	CHK	DATE	APP	DATE
REVISION					

DRAWN BY	DB	11/16/18
DESIGNED BY	ML	11/16/18
CHECKED BY	MC	11/16/18
APPROVED BY	RH	12/4/18
NV5 JOB NO.	27317-0000050	
PLOT SCALE		
MODEL ID		



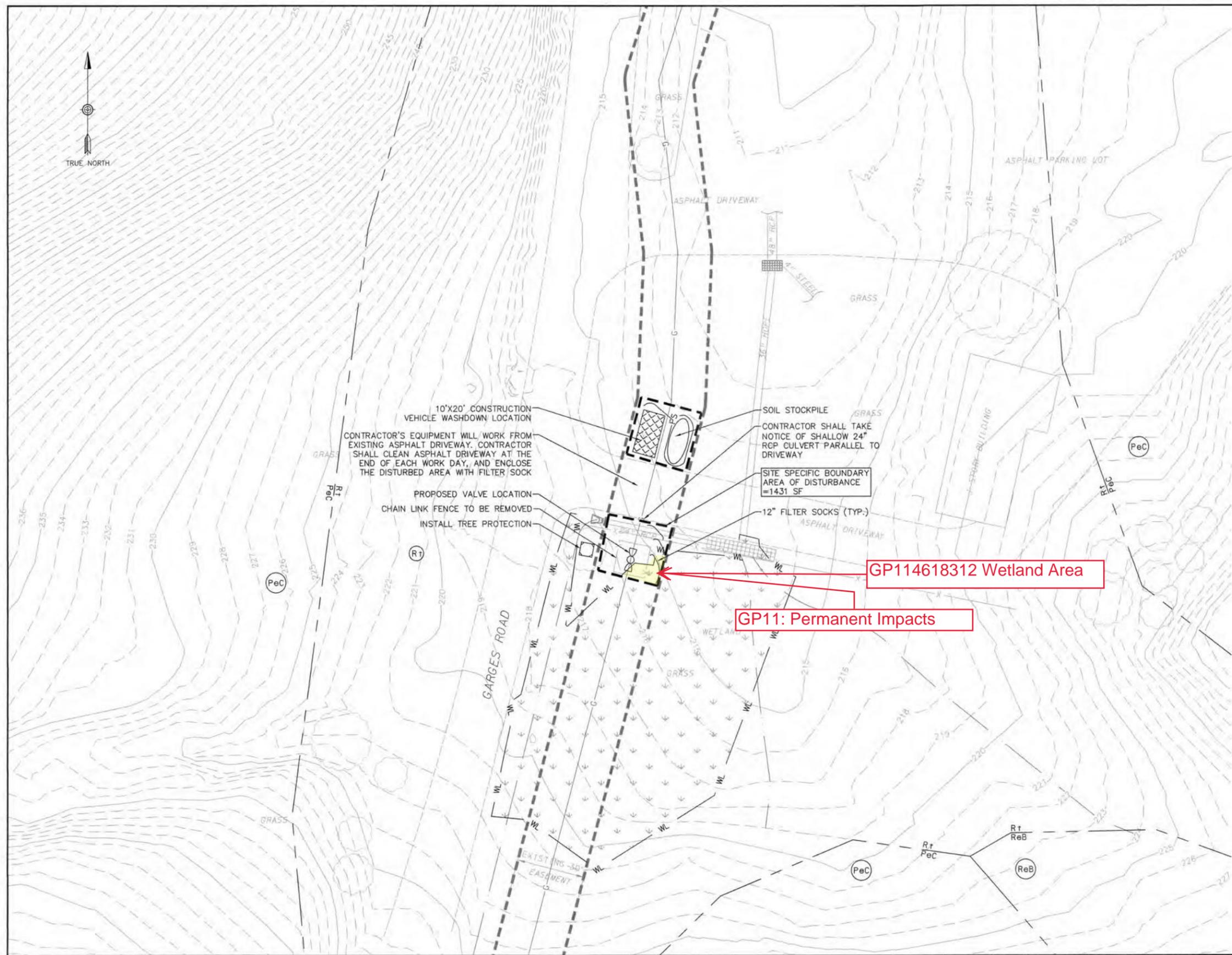
NV5, Inc.
1315 Walnut Street, Suite 900
Philadelphia, PA 19107
T: 215-751-1133

EROSION & SEDIMENT CONTROL PLAN		
PERKIOMEN CREEK BLOWDOWN		
GP 114618312 E&S Drawing		
MONTGOMERY COUNTY		
SCALE 1"=30'	DRAWING NUMBER ES-20	REV



LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE LINE
- EXISTING OVERHEAD ELECTRIC
- EXISTING UTILITY POLE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING EASEMENT
- EXISTING PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- EXISTING WETLAND AREA
- 100-YEAR FLOOD PLAIN
- SOIL BOUNDARY
- SOIL TYPE
- LIMIT OF DISTURBANCE/ PERMIT BOUNDARY
- WOOD MATS
- ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- INLET PROTECTION
- TREE PROTECTION
- COMPOST FILTER SOCK (12" DIA.)
- COMPOST FILTER SOCK (18" DIA.)
- PROPOSED VALVE LOCATION



10'X20' CONSTRUCTION VEHICLE WASHDOWN LOCATION
 CONTRACTOR'S EQUIPMENT WILL WORK FROM EXISTING ASPHALT DRIVEWAY. CONTRACTOR SHALL CLEAN ASPHALT DRIVEWAY AT THE END OF EACH WORK DAY, AND ENCLOSE THE DISTURBED AREA WITH FILTER SOCK

SOIL STOCKPILE
 CONTRACTOR SHALL TAKE NOTICE OF SHALLOW 24" RCP CULVERT PARALLEL TO DRIVEWAY

SITE SPECIFIC BOUNDARY AREA OF DISTURBANCE =1431 SF

PROPOSED VALVE LOCATION
 CHAIN LINK FENCE TO BE REMOVED
 INSTALL TREE PROTECTION

12" FILTER SOCKS (TYP.)

GP114618312 Wetland Area

GP11: Permanent Impacts

NOTES

1. PIPELINE AND EASEMENT LOCATION PROVIDED BY INTERSTATE ENERGY COMPANY.
2. SEE SHEET 5 FOR GENERAL NOTES, NOTE 2 FOR SOURCE DATA REFERENCES FOR SOILS, FLOODWAYS, CONTOURS, AND MAPPING.

Revised Submission - 1/18/2019
 GP114618312

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SCALE: 1"=20'
FINAL
 DATE: 8/1/18

REV	DESCRIPTION	CHK	DATE	APP	DATE
REVISION					

DRAWN BY	DB	8/1/18
DESIGNED BY	ML	8/1/18
CHECKED BY	MC	8/1/18
APPROVED BY	RH	7/23/18
NV5 JOB NO.	27317-000050	
PLOT SCALE		
MODEL ID		



EROSION & SEDIMENT CONTROL PLAN		
EAST PERKIOMEN BLOWDOWN		
GP 114618312 E&S Drawing		
SCALE	DRAWING NUMBER	REV
1"=20'	22	

D-8: PNDI Search Receipt and Clearance Letters

PNDI Search Receipt and Clearance Letters

Adelphia submitted its PNDI consultations manually (i.e., via U.S. Postal Service, not online); therefore, there is no PNDI receipt. Attached are the agencies' responses to the PNDI request.



Pennsylvania Natural Diversity Inventory MANUAL PROJECT SUBMISSION FORM

This form provides site information necessary to perform an Environmental Review for special concern species and resources listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat Code or the Pennsylvania Game and Wildlife Code.

Applicant Information

Name: Interstate Energy Company
Address: 214 Shoemaker Road, Pottstown, PA
Phone Number: 610-327-5325 Email: info@ie c.energy.com

Contact Person Information - if different from applicant

Name: Sara Holmes (NV5)
Address: 813 N. Dupont St., Wilmington, DE 19805
Phone Number: 727-565-9895
Email: sara.holmes@nv5.com

Project Information

Project Name: IEC Pipeline Modification Project
Project Reference Point: Latitude: 40°19'4.92"N Longitude: 75°24'43.90"W Datum: WGS84
Municipality: Upper Salford Township County: Montgomery
 Attach a portion of a U.S.G.S. 7 ½ Minute Quadrangle Map with Project Boundaries clearly marked.
U.S.G.S. Quad Name:
Provide GIS shapefiles showing the project boundary (strongly recommended)

Project Description

Proposed Project Activity (including ALL earth disturbance areas and current conditions) See cover letter.

- Total Acres of Property: 48.2 Acreage to be Impacted: 13.0
1. Will the entire project occur in or on an existing building, parking lot, driveway, road, maintained road shoulder, street, runway, paved area, railroad bed, or maintained lawn? Yes N
 2. Are there any waterways or waterbodies (intermittent or perennial rivers, streams, creeks, tributaries, lakes or ponds) in or near the project area, or on the land parcel? If so, how many feet away is the project?
Yes No
 3. Are wetlands located in or within 300 feet of the project area? Yes If No, is this the result of a wetland delineation? Yes. Wetland data are attached.
 4. How many acres of tree removal, tree cutting or forest clearing will be necessary to implement all aspects of this project? 0.0

Dept. of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market St., PO Box 8552
Harrisburg, PA 17105
Email: RA-HERITAGEREVIEW@state.pa.us
fax: 717-772-0271

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning & Habitat Protection
2001 Elmerton Avenue
Harrisburg, PA 17110-9797
RA-PGC_PNDI@pa.gov

PA Fish and Boat Commission

Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

US Fish and Wildlife Service

Pennsylvania Field Office
110 Radnor Rd; Suite 101
State College, PA 16801
no faxes please

Katie Shafer

From: Sara Holmes
Sent: Thursday, September 13, 2018 11:09 AM
To: Katie Shafer
Subject: FW: Another PNDI Receipt Question

Sara Holmes | Environmental Compliance Program Specialist | FERC Permitting Project Manager | **NV5**
1315 Walnut St., Suite 900 | Philadelphia, PA 19107 | C: 727.565.9895

[Electronic Communications Disclaimer](#)

From: Dewar, Nathaniel [mailto:c-ndewar@pa.gov]
Sent: Tuesday, July 10, 2018 2:38 PM
To: Sara Holmes <Sara.Holmes@nv5.com>
Subject: RE: Another PNDI Receipt Question

Hi Sara,

Using the standard process, you would submit the agency response letters with the permit application, in place of the PNDI receipt. So yes, the response letters will suffice.

Nathan

From: Sara Holmes [mailto:Sara.Holmes@nv5.com]
Sent: Tuesday, July 10, 2018 2:26 PM
To: Dewar, Nathaniel <c-ndewar@pa.gov>
Subject: Another PNDI Receipt Question

Hi, Nathan –

I have another PNDI receipt question that I'm hoping you can help me with. Some PADEP Chapter 105 permit applications state that *"PNDI reviews can still be obtained... using the standard process of requesting a project review directly from each jurisdictional agency....instead of generating a PNDI Receipt instantly through the PA Conservation Explorer. **The standard PNDI review process user is responsible for securing PNDI Receipts from each jurisdictional agency.... PNDI Receipts from each jurisdictional agency will be included with the application/registration package. The PNDI review is not complete or satisfied unless PNDI Receipts are included from all four jurisdictional agencies...**"*.

In our earlier email you said that a receipt isn't available, bc I submitted the project manually (i.e., the standard process). What do I need to provide as a PNDI Receipt in my permit application? Will the response letters from the agencies suffice?

Thanks in advance,
Sara

Sara Holmes | Environmental Compliance Program Specialist | FERC Permitting Project Manager | **NV5**
1315 Walnut St., Suite 900 | Philadelphia, PA 19107 | C: 727.565.9895

[Electronic Communications Disclaimer](#)

From: Dewar, Nathaniel [<mailto:c-ndewar@pa.gov>]
Sent: Monday, June 25, 2018 10:07 AM
To: Sara Holmes <Sara.Holmes@nv5.com>
Subject: RE: PNDI Receipt

Hi Sara,

That project was submitted as a manual project, so there is no available receipt. Your 'My Projects' only lists projects that you submitted online. Is there specific information you are looking for?

Nathan

From: Sara Holmes [<mailto:Sara.Holmes@nv5.com>]
Sent: Monday, June 25, 2018 9:54 AM
To: Dewar, Nathaniel <c-ndewar@pa.gov>
Subject: RE: PNDI Receipt

Hi, Nathaniel - the PNDI number is 648586. Thanks for getting back to me so quickly.
Sara

Sara Holmes | Environmental Compliance Program Specialist | FERC Permitting Project Manager | **NV5**
1315 Walnut St., Suite 900 | Philadelphia, PA 19107 | C: 727.565.9895

[Electronic Communications Disclaimer](#)

From: Dewar, Nathaniel [<mailto:c-ndewar@pa.gov>]
Sent: Monday, June 25, 2018 9:52 AM
To: Sara Holmes <Sara.Holmes@nv5.com>
Subject: RE: PNDI Receipt

Hi Sara,

Do you have a PNDI number or a project name for the missing project?

Respectfully,
Nathan Dewar

Nathan Dewar | Natural Resource GIS Specialist II
PA Department of Conservation and Natural Resources
Pennsylvania Natural Heritage Program
Bureau of Forestry
400 Market Street | Harrisburg, PA 17105-8764
Phone: 717-214-7512 | Fax: 717-772-0271
E-Mail: c-ndewar@pa.gov

From: Sara Holmes [<mailto:Sara.Holmes@nv5.com>]

Sent: Monday, June 25, 2018 9:47 AM

To: NR, HeritageGIS <RA-HeritageGIS@pa.gov>

Subject: PNDI Receipt

Hello,

I'm trying to find a PNDI receipt for a project I consulted for through the PNDI system. Unfortunately, the project is not showing up in My Projects. Will you please advise?

Thank you,

Sara

Sara Holmes | Environmental Compliance Program Specialist | FERC Permitting Project Manager | **NV5**
1315 Walnut St., Suite 900 | Philadelphia, PA 19107 | C: 727.565.9895

[Electronic Communications Disclaimer](#)

APPENDIX 4

Agency Response Letters

January 31, 2018

PNDI Number: 64858

Sara Holmes

NV5

1315 Walnut Street, Suite 900

Philadelphia, PA 19107

Email: sara.holmes@nv5.com (hard copy will not follow)

**Re: Mainline Valve and Blowdown Assembly Sites
Chester, Delaware and Montgomery Counties, PA**

PADCNR PNDI Review Receipt Number
for GP111518315

Dear Sara Holmes,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **648586** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

GP111518315

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

DCNR recommends the following steps to help prevent the spread of invasive species:

- The area of disturbance should be minimized to the fullest extent that would allow for construction. This will help to lessen the area of soil and vegetation disturbance associated with this project.
- If possible, please clean boot treads, construction equipment, and vehicles thoroughly (especially the undercarriage and wheels) before they are brought on site. This will remove invasive plant seeds and invasive earthworms/cocoons that may have been picked up at other sites.
- Do not transport unsterilized leaves, mulch, compost, or soil to the site from another location. Avoid using seed mixes that include invasive plant species (e.g. crown vetch) to re-vegetate the area. Please also use weed-free straw or hay mixes when possible. More information about invasive species in Pennsylvania can be found at the following link: <http://www.dcnr.pa.gov/Conservation/WildPlants/InvasivePlants/Pages/default.aspx>

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Jaci Braund, Ecological Information Specialist, by phone (717-214-3813) or via email (c-jbraund@pa.gov).

Sincerely

A handwritten signature in black ink on a light gray rectangular background. The signature reads "Greg Podnieszinski" in a cursive script.

Greg Podnieszinski, Section Chief
Natural Heritage Section

conserve

sustain

enjoy



Pennsylvania Fish & Boat Commission

Division of Environmental Services
Natural Gas Section
595 E Rolling Ridge Dr.
Bellefonte, PA 16823

All highlighted text is associated with GP111518315

February 27, 2018

IN REPLY REFER TO

SIR# 48929

PFBC PNDI Review Receipt Number for
GP111518315

NV5
Sara Holmes
813 N. Dupont Street
Wilmington, Delaware 19805

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No.
Adelphia Gateway Project
BUCKS County: - CHESTER County: - DELAWARE County: - MONTGOMERY
County: - NORTHAMPTON County:**

Dear Sara Holmes:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search “potential conflict” or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the PNDI database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

Eastern Redbelly Turtle (*Pseudemys rubriventris*, Threatened)

The eastern redbelly turtle is one of Pennsylvania’s largest native aquatic turtles. This turtle species is known to inhabit relatively large, deep streams, rivers, ponds, lakes, and marshes with permanent water and ample basking sites. Redbelly turtles are restricted to the southcentral and southeastern regions of the Commonwealth. The existence of this turtle species is threatened by habitat destruction, poor water quality and competition with aggressive non-native turtle species that share its range and habitat (e.g. red-eared slider, *Trachemys scripta elegans*).

Based on the review of this information and the proximity of the project to known element occurrences of the species of concern listed above, potential habitat could be present within the proposed disturbance area. Therefore, additional evaluations are necessary to confirm whether or not the project site contains habitat and to determine the potential for adverse impacts to this species. We request completion of a **habitat assessment** to characterize and determine if potential habitat exists within the vicinity of the

Our Mission:

www.fish.state.pa.us

To protect, conserve and enhance the Commonwealth’s aquatic resources and provide fishing and boating opportunities.

proposed project area. **This habitat assessment is requested for the following areas described in your project submittal:**

- Proposed Martins Creek Station Site;
- Existing Schuylkill River Mainline Valve Site;
- Existing French Creek Mainline Valve Site;
- Existing Pickering Creek Mainline Valve Site; and
- Existing Chester Creek Mainline Valve Site.

A qualified biologist, who possesses the necessary Scientific Collector's Permit issued by the Pennsylvania Fish and Boat Commission, must conduct this habitat assessment. A list of biologists recognized as qualified by the Pennsylvania Fish and Boat Commission to perform this assessment is enclosed.

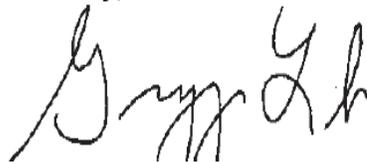
Furthermore, additional locations were determined to have no impact to species of concern:

- Proposed Quakertown Compressor Station Site;
- Skippack Meter Station Site;
- Existing East Branch Perkiomen Creek Mainline Valve Site;
- Existing Perkiomen Creek Mainline Valve Site;
- Existing Cromby Station Mainline Valve Site;
- Existing Paoli Pike Mainline Valve Site; ← GP111518315
- Optional Mainline Valve Site near Springlawn Road;
- Optional Mainline Valve Site near Baltimore Pike;
- Proposed Parkway and Tilghman Laterals and associated above ground facilities;
- Proposed Marcus Hook Station Site and associated above ground facilities.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Greg Lech at 610-847-8772 and refer to the SIR # 48929. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,



Greg Lech
Natural Gas Section

GPL/dn



2001 Elmerton Avenue
Harrisburg, PA 17110-9797

Wildlife Habitat Management
717-787-6818

February 21, 2018

PGC ID Number: 201706150601 - REVISION

Ms. Sara Holmes
NV5
813 North Dupont Street
Wilmington, Delaware 19805
Sara.holmes@nv5.com

PCG PNDI Review Receipt Number for
GP111518315

Re: *Interstate Energy Corporation* - IEC Pipeline Modification Project
PNDI Manual Project Submission
Various Townships, Northampton, Bucks, Montgomery, Chester and Delaware Counties,
Pennsylvania

Dear Ms. Holmes,

Thank you for submitting your Pennsylvania Natural Diversity Inventory (PNDI) Large Project Environmental Review request. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

Potential Impact Anticipated

PNDI records indicate species or resources of concern are located within the vicinity portions of the project. The PGC has received and thoroughly reviewed the information that you provided to this office, as well as PNDI data, and has determined that potential impacts to the following species may be associated with portions of your project:

Scientific Name	Common Name	PA Status
<i>Falco peregrinus</i>	Peregrine Falcon	ENDANGERED

According to the updated information provided, the project proponent is considering modifications to the existing pipeline system in various locations. The components that are now being considered and were provided for PNDI review are the Martin’s Creek Terminal Site, Quakertown Station Site, Skippack Interconnect Site, Marcus Hook Laterals (which is comprised of the Parkway Lateral and Tilghman Lateral), Marcus Hook Station Site, and the Mainline Valve and Blowdown Assembly Sites (which includes the installation of 1 new mainline valve and 8 new blowdown assemblies).

Based on the PNDI review, information submitted concerning the nature of the project, the immediate location, and our detailed resource information, the PGC has determined that no impact

is likely for all of the Sites being considered except the Existing Cromby Station Mainline Valve Site which is included in the Mainline Valve and Blowdown Assembly Sites portion of the project. At this time, no further coordination with the PGC will be necessary for the portions of the project where impacts are not anticipated. ← GP111518315

As previously stated, the PNDI review did reveal the presence of peregrine falcons within the vicinity of the Existing Cromby Station Mainline Valve Site. Therefore, the following measures should be implemented to avoid impacts to these species.

- *Peregrine falcons*: All project-related activities associated with the Existing Cromby Station Mainline Valve Site shall be completed between August 1 and February 14 to avoid impacts to the nesting pair. No project-related activities shall occur during nesting season, February 15 through July 31.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an “Update” (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Please be sure to include the above-referenced PGC ID Number on any future correspondence with the PGC regarding this project.

Sincerely,



Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner



OAB/oab

cc: Metz
Morgan
Boyd
Brauning
Gross
Barber
Librandi Mumma
H:\OIL&GAS_PNDI_Reviews\Southeast Region



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

May 7, 2019

Sara Holmes
NV5
1315 Walnut Street, Suite 900
Philadelphia, PA 19107

RE: USFWS Project #2017-1465 ← USFWS PNDI Review Receipt Number for
PNDI Review #multiple GP111518315

Dear Ms. Holmes:

This responds to your letters of August 17 and 18, 2018, which provided the U.S. Fish and Wildlife Service (Service) with information regarding the Adelphia Gateway project located in Northampton, Bucks, Montgomery, Chester, and Delaware Counties, Pennsylvania. The project area is within the known range of the bog turtle (*Clemmys muhlenbergii*), a species that is federally listed as threatened. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

To determine the potential effects of the proposed project on bog turtles and their habitat, Scott Angus, a recognized qualified bog turtle surveyor, conducted Phase 1 bog turtle habitat assessments in December 2017 and April 2018. According to the reports, wetlands extend to within 300 feet of the proposed limit of disturbance at five project locations. Following the methods described under “Bog Turtle Habitat Survey” (Phase 1 survey) of the Guidelines for Bog Turtle Surveys (revised April 2006), Mr. Angus determined that, the subject wetlands do not have the combination of soils, vegetation, and hydrology typical of habitat occupied by bog turtles in proximity to sites referred to as Schuylkill River Gate Blowdown, Perkiomen Gate Blowdown, and East Perkiomen Gate Blowdown. We concur with your habitat determinations and conclude that implementation of the proposed project will not affect the bog turtle at the above sites. Mr. Angus did identify, or presume, potential bog turtle habitat in proximity to two project sites referred to as Paoli Pike Gate Blowdown and Chester Creek Gate Blowdown discussed below.

Chester Creek Gate Blowdown

Due to limited property access, the Phase 1 bog turtle survey could not be completed in the entire wetland area. No direct wetland disturbance is proposed; however, if the species is present within about 300 feet of the limit of disturbance they may seasonally (April to October) utilize adjacent upland and stream habitats. Based on the on-site observations made and remote data, rather than conduct the surveys necessary to determine if bog turtles are present you propose to implement measures to avoid the risk of take¹ if the species is present, as described in the attachment to this letter.

Paoli Pike Gate Blowdown

Given the proximity of the project to known bog turtle occurrences in the watershed, and identified or presumed suitable habitat, wetlands and streams are likely to be used as a dispersal/travel corridor. To avoid the risk of take at this site and Chester Creek Gate Blowdown, you propose that project construction will either take place entirely between November 1 and March 31, when bog turtles are closer to their hibernation areas in wetland habitat or, if this time-of-year restriction cannot be implemented, a combination of searches for the species and exclusionary fencing. These measures are detailed in the attachment to this letter and agreed to in a May 6, 2019, electronic mail message to Robert Anderson of my staff.

With the implementation of either the time-of-year restriction or pre-construction survey, this project is not likely to adversely affect the bog turtle, or any other federally listed or proposed species. If you are unable to implement the time-of-year restriction or pre-construction survey, or project plans change, further consultation with the Service will be required, pursuant to the Endangered Species Act.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

If you have any questions regarding this matter, please contact Robert Anderson of my staff at 814-234-4090.

Sincerely,



Sonja Jahrsdoerfer
Project Leader

¹ As defined in the Act, take means “. . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” “Harm” in the definition of take means an act which kills or injures wildlife. Such act may include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering (50 CFR part 17.3).

Preconstruction Survey Bog Turtle Avoidance Measures

The following are bog turtle (*Clemmys* (= *Glyptemys*) *muhlenbergii*) habitat avoidance measures for work associated with construction at the Paoli Pike Gate Blowdown and Chester Creek Gate Blowdown in proximity to identified, or presumed, suitable bog turtle habitat where insufficient information is available to infer species absence. If all construction is completed between November 1 and March 31 and no excavation in wetland is proposed, the following measures are not necessary.

- 1) If the exclusionary fencing is entirely erected between November 1 and March 31, it will not be necessary to perform a pre-construction survey.
- 2) During the period between April 1 and October 31, one pre-construction bog turtle clearance search of the proposed project area of effect will be completed prior to any earth disturbance activity, fencing installation, or other construction. Where survey access permission from landowners is granted, the search area will extend to include an area 10 feet beyond the planned Limit of Disturbance and any temporary staging areas. The search area will be limited to the Limit of Disturbance in areas where landowners have not granted survey permission. The pre-construction bog turtle clearance search must be performed by a qualified bog turtle biologist, who will be obtained from the most current list of “U.S. Fish and Wildlife Service and Pennsylvania Fish and Boat Commission Recognized Qualified Bog Turtle Surveyors.” The bog turtle clearance search must be completed immediately prior to the installation of the habitat protection fence described below.
- 3) Except as otherwise noted within these avoidance measures, the pre-construction bog turtle clearance search shall be conducted according to the most current survey protocol provided by the U.S. Fish and Wildlife Service and the Pennsylvania Fish and Boat Commission. All Phase 2 survey procedures are applicable except that one pre-construction clearance search per wetland rather than the minimum of four searches per wetland shall be acceptable, and the time of year for performing the search has been extended.
- 4) If the pre-construction bog turtle clearance search occurs after June 15, herbaceous vegetation within the survey area shall be cut to a height of 4 to 6 inches prior to the survey in order to promote search effectiveness. Vegetation shall be cut using a hand-held trimmer/weed cutter and then carefully raked away from the area to be searched. The qualified surveyor shall conduct the vegetation clearing.
- 5) Immediately following the pre-construction bog turtle clearance search, a 30-inch high silt barrier fence shall be erected at the edge of the Limit of Disturbance as habitat protection fencing in accordance with the approved Erosion and Sediment Pollution Control Plan. The habitat protection fence shall be constructed in upland habitat between identified suitable bog turtle habitat and the limit of disturbance to deter bog turtles from circumventing the barrier. No other construction activities may begin until installation of this habitat protection fencing is completed. The habitat protection fence will act as a barrier to prevent possible bog turtles from migrating out of wetlands and waterways into the construction area and to prevent construction activity and sediment from entering the wetland and waterway. The habitat protection fencing will be installed as indicated as soon as practicable following the turtle

search and clearance by the qualified biologist. The fencing will be installed only after receiving approval to do so from the qualified bog turtle surveyor following completion of their site search for bog turtles.

- 6) Installation of all habitat protection fencing and silt barrier fence for erosion and sediment control shall be the responsibility of the contractor, and shall be installed and removed by hand. The qualified bog turtle surveyor shall be present during the erection of the habitat protection fence to ensure that it is properly installed at the correct location and depth. Immediately following the fence installation, it shall be inspected by the qualified bog turtle surveyor to ensure that no trench, which could act as a pit-fall trap to turtles, occurs on either side of the fencing. After installation, the habitat protection fence will be inspected and logged daily by the contractor to insure that no holes are present that turtles can crawl through. If at any time there are holes in the habitat protection fence, OR any turtle (alive, injured, or dead) is observed within the Limit of Disturbance, construction will stop immediately and Permit Condition 10 below will be followed.
- 7) All work associated with the project shall be conducted in accordance with the Erosion and Sediment Pollution Control Plan approved by the County Conservation District.
- 8) All equipment and machinery shall avoid wetland/watercourse habitat upstream and downstream of the proposed construction area. Orange construction fence will be installed to delineate these avoidance areas and will act as a visual warning to prevent construction equipment and personnel from entering and disturbing the potential bog turtle habitat outside the Limit of Disturbance. A qualified person such as an environmental inspector or wetland professional shall identify and clearly delineate all wetland areas for the contractors by either attaching orange construction fence onto the habitat protection fence or install it immediately in front of the habitat protection fence within the LOD.
- 9) No material shall be excavated, deposited, or positioned so as to lower the water table or impede the flow of water to any wetland areas; that is, implementation of the project shall not directly or indirectly affect the water quality and quantity of any wetland areas.
- 10) The Qualified Bog Turtle Surveyor shall forward the results of the pre-construction bog turtle survey in writing to the U.S. Fish and Wildlife Service and the Pennsylvania Fish and Boat Commission via mail, facsimile, or e-mail within 48 hours of installation of the habitat protection fence.
- 11) During construction, if any turtle is observed at a location outside the Limit of Disturbance and habitat protection fence, then construction may continue so long as there are no holes in the habitat protection fence. However, if any turtle (alive, injured, or dead) is observed at any time within the Limit of Disturbance, OR if a hole is observed in the habitat protection fence, then construction will cease immediately and the following steps will be taken:
 - a. The contractor will immediately inform the pre-designated site manager who will immediately contact the qualified bog turtle surveyor. The site manager will then immediately implement the following measures:

- b. If the turtle appears dead or immobile, the turtle will be left where it was initially observed. If the turtle appears to be mobile, efforts will be made to temporarily contain the turtle until the qualified bog turtle surveyor can take possession of it. Temporary containment will consist of placing the turtle in a thoroughly clean bucket that has a depth of more than 18 inches. Less than 1 inch of water should be placed in the bucket with the turtle to keep the animal cool and hydrated. The bucket should be placed in a quiet, well-shaded area, preferably within the wetland. The turtle should be handled as little as possible, and temporary containment must not exceed 6 hours.
 - c. The qualified bog turtle surveyor will identify the species of turtle found and document the location and condition of the turtle. The qualified bog turtle surveyor will also inspect the habitat protection fence and direct any repairs of the fence as needed. If there are holes in the habitat protection fence and/or the turtle is found to be a bog turtle, construction will not resume until the agency consultation procedures described herein are fully implemented, and the habitat protection fence is repaired to re-establish an effective turtle exclusion barrier.
 - d. If the qualified bog turtle surveyor identifies the turtle species as a bog turtle (*Clemmys* (= *Glyptemys*) *muhlenbergii*), then this biologist will immediately notify endangered species biologists at both the U.S. Fish and Wildlife Service and the Pennsylvania Fish and Boat Commission. The elapsed time for contacting both of these jurisdictional agencies from the time of bog turtle discovery should be as soon as possible, but must not exceed 24 hours. Following arrival of the qualified bog turtle surveyor at the project site, the turtle may be handled only by this biologist according to the recommendations of the U.S. Fish and Wildlife Service and/or the Pennsylvania Fish and Boat Commission. The biologist will consult with these agencies concerning safe handling and possible relocation of the turtle. Construction will resume only at the completion of this consultation.
 - e. If the qualified bog turtle surveyor identifies the turtle as a species other than the bog turtle, and the turtle appears healthy, then the qualified surveyor will mark the turtle for future identification and release it unharmed no more than 300 feet from the site of discovery to a safe location outside of the Limit of Disturbance. The site manager will be shown how and where to release the turtle if it is again found outside of the Limit of Disturbance. Construction may continue once the turtle is relocated. The site manager must log all turtle relocations.
 - f. If any turtle found appears injured or dead, consult with the U.S. Fish and Wildlife Service and/or the Pennsylvania Fish and Boat Commission concerning safe handling of an injured turtle, and the taking of possession of the specimen, whether injured or dead, by one of the jurisdictional agencies. Only the qualified bog turtle surveyor will handle the turtle. Construction will resume only at the completion of consultation.
- 12) The contractor will remove the habitat protection fencing and all silt barrier fencing by hand immediately upon completion of all construction activities, including stabilization of earth disturbance areas.

13) The project proponent, or designated representative(s), will submit a brief final report including bog turtle survey results and a summary of the field construction completed, including color photographs, to the U.S. Fish and Wildlife Service and the Pennsylvania Fish and Boat Commission. The final report will be submitted within 30 days after construction is completed and the habitat protection fencing is removed.

D-8: Wetland Delineation Report

**Wetland and Waterbody
Identification and Delineation Report
Supplemental**

**Adelphia Gateway, LLC
Adelphia Gateway Project**

Pennsylvania

Prepared by:
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June 2018

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This Wetland and Waterbody Identification and Delineation Report is a supplement to the Adelphia Gateway Project (Project) Wetland and Waterbody Identification and Delineation Report dated December 2017 and has been prepared to further describe wetlands and waterbodies that may be affected by Adelphia Gateway, LLC's (Adelphia) proposed Project. The December 2017 Report covered wetland and waterbody evaluations at the following Project facilities: the Marcus Hook Compressor Station (Marcus Hook CS) and wareyard; portions of the Parkway Lateral; the Martins Creek Station; the Skippack Meter Station; portions of the Quakertown Compressor Station (Quakertown CS) and associated meter station; and portions of the Tilghman Lateral and its associated interconnects/meter stations. The specific Project facilities evaluated in this report are discussed in Section 4.0.

1.0 Project Description

Adelphia is proposing modifications to its existing natural gas and oil pipeline and associated facilities located in Delaware, Chester, Bucks, Montgomery, and Northampton Counties, Pennsylvania. The Project consists of the following primary components: the approximately 4.4-mile 20-inch Mainline; the approximately 84-mile 18-inch Mainline consisting of the Southern Segment and the Northern Segment that will both transport solely natural gas; two new compressor stations (the Marcus Hook CS and the Quakertown CS); two pipeline laterals, including an approximately 0.20-mile 16-inch pipeline lateral (the Parkway Lateral) and an approximately 4.5-mile 16-inch pipeline lateral (the Tilghman Lateral); four existing meter and regulator (M&R) facilities that do not require any modifications and accordingly do not have any environmental impacts for review in this resource report; eight new M&R facilities at receipt and delivery interconnects located along the 18-inch Mainline and the Laterals; eight new blowdowns located at existing mainline valves (MLV); two new MLVs; and use of an existing disturbed site located within the boundaries of the proposed Marcus Hook CS as a ware yard.

2.0 Regulatory Overview

As Adelphia's consultant, NV5, LLC (NV5) conducted site visits and field surveys on February 27th and 28th; March 1st; April 19th, 20th, and 21st; and May 25th of 2018 to identify and delineate the extent and location of jurisdictional waters and wetlands within the Project study area pursuant to Sections 404 and 401 of the Clean Water Act (CWA). Adelphia is continuing to identify and delineate wetlands and waterbodies that may be along and in proximity to the proposed Project. Section 404 regulates the discharge of dredged or fill material into waters of the United States (WOUS), including wetlands (EPA, no date), and Section 401 allows for individual states to grant or deny federally approved actions that would result in discharges to WOUS through the use of Water Quality Certifications (EPA, 2010). The identified wetlands would also be subject to Pennsylvania Department of Environmental of Environmental Protection Chapter 105

regulations. Chapter 105 includes regulations that govern waterbody obstructions and encroachments and includes the regulation of wetlands in the state of Pennsylvania.

The CWA defines WOUS as:

- all waters that are, were, or could be used in interstate or foreign commerce;
- all waters that cross state lines, including wetlands;
- all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- all impoundments of waters otherwise defined as WOUS;
- tributaries of WOUS;
- the territorial sea; and
- wetlands adjacent to WOUS (other than waters that are themselves wetlands).

Under the CWA, waste treatment systems and prior converted cropland are not considered to be WOUS (EPA, 2017).

The U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE) use the 1987 USACE Wetlands Delineation Manual (Manual) to identify wetlands for the CWA Section 404 permit program. In the Manual, wetlands are defined as, "... those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands generally include swamps, marshes, bogs (Environmental Laboratory, 1987). The Manual organizes the environmental characteristics of a potential wetland into three categories: soils, vegetation, and hydrology. The Manual contains criteria for each category. Using this approach, an area that meets all three criteria is considered a wetland (EPA, no date).

To address regional variation across wetlands in the U.S. that could affect the validity and usefulness of the Manual, the USACE also developed regional supplements to the Manual that provide delineation techniques specifically developed for a particular geographical region (Wakeley, 2002). The Project encompasses an area that is covered by one regional supplement to the Manual: the Eastern Mountains and Piedmont (USACE, no date). NV5 conducted wetland delineations in accordance with the methodologies in the Manual and applicable supplements.

3.0 Records Research

Prior to field surveys, NV5 reviewed 7.5-minute USGS topographic quadrangle maps, the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) web-based Interactive

Mapper, the Pennsylvania Department of Environmental Protection's (PADEP) eMap database, Google Earth imagery, and the U.S. Department of Agriculture's Web Soil Survey to identify potential vernal pools, natural areas, areas with topographical configurations, mapped wetlands, and hydric soils, which may suggest the presence of wetlands and waterbodies.

Records research indicated potential palustrine emergent wetlands in the Paoli Pike Blowdown area. The desktop review did not identify any waterbodies crossed by the Project work areas evaluated. However, the research identified several waterbodies in proximity to the proposed work areas, and wetlands could potentially be present due to proximity.

4.0 Survey Area

NV5 conducted field surveys to verify the mappings and identify the presence of any regulated wetland and waterbody resources not identified during the records research. At field-identified features, NV5 collected GPS data, took representative photographs, and flagged features with high visibility flagging. NV5 conducted wetland and waterbody surveys at the following proposed Project sites:

- MLV 1
- Chester Creek Gate Blowdown
- Paoli Pike Gate Blowdown
- Pickering Creek Gate Blowdown
- French Creek Gate Blowdown
- Cromby Gate Blowdown
- Schuylkill River Gate Blowdown
- Perkiomen Creek Gate Blowdown
- East Perkiomen Gate Blowdown
- Quakertown CS Additional Temporary Workspace (ATWS)
- Transco Meter Station KISH Site

NV5 surveyed the aforementioned sites to the extent permitted by landowner access. Field teams evaluated all access roads and works spaces associated with the facilities listed above with the exception of any areas outside of the existing pipeline right-of-way (ROW) at blowdown and MLV sites, which were restricted due to property access constraints. NV5 has not completed wetland/waterbody surveys for the Parkway and Tilghman Laterals due to access constraints. NV5 will conduct surveys for the remaining portions of these sites upon access approval, and will file the results in a supplemental report. Access roads associated with the MLV sites and the

Quakertown CS ATWS did not require WOUS surveys, because they are pre-existing, paved/graveled roads.

5.0 Survey Findings

NV5 identified wetlands at five of the proposed Blowdown sites (Chester Creek Gate Blowdown, Paoli Pike Gate Blowdown, Schuylkill River Gate Blowdown, Perkiomen Creek Gate Blowdown, and East Perkiomen Gate Blowdown), the Quakertown CS ATWS, and the proposed Transco Meter Station KISH property. Adelphia modified the work areas at three of the of the five blowdown sites (the Chester Creek Gate, Schuylkill River Gate, and Perkiomen Gate Blowdowns) to avoid affecting the identified wetlands during construction and operation of the proposed Project. NV5 did not identify any wetlands at the MLV site. NV5 did not identify any waterbodies in the Project work areas area; however, they did document waterbodies in proximity to the Project area at the Perkiomen Creek Gate Blowdown, the East Perkiomen Gate Blowdown, the Schuylkill River Gate Blowdown, and the Chester Creek Gate Blowdown.

The five wetlands identified at the Blowdown sites were palustrine emergent (PEM) wetlands located within the maintained utility ROW. The wetland delineated at the Quakertown CS ATWS was also dominated by emergent vegetation; however, the wetland at this location also had a palustrine scrub shrub (PSS) component classifying it as a PEM/PSS wetland. The wetland located at the Transco Meter Station KISH site also contained areas of PEM and PSS wetland communities; however, palustrine forested (PFO) wetlands dominated the site. Table 1 summarizes the survey results. Appendix A contains figures of the identified wetlands and waterbodies, Appendix B provides the wetland datasheets, and Appendix C provides a photolog that includes representative photos of each of the surveyed Project sites.

Table 1. Wetlands Identified within the Adelphia Gateway Project Survey Area

Project Site	Wetland ID	Wetland Type	Dominant Vegetation			Hydric Soil Indicators	Hydrology Indicators	Impacts		
			Scientific Name	Common Name	Wetland Indicator Status			Temporary (ac)	Permanent (ac)	Access Road (ac)
Chester Creek Gate Blowdown (work area moved outside of wetland)	CC-W-01	PEM	<i>Phalaris arundinacea</i>	reed canarygrass	FACW	Dark surface, Depleted matrix	Saturation at surface, Water-stained leaves, Oxidized rhizospheres on living roots, Geomorphic position, Microtopographic relief	0.00	0.00	0.00
			<i>Lysimachia nummularia</i>	creeping jenny (also known as moneywort)	FACW					
			<i>Carex annectens</i>	yellowfruit sedge	FACW					
Paoli Pike Gate Blowdown	PP-W-01	PEM	<i>Carex stricta</i>	upright sedge	OBL	Depleted below dark surface, Thick dark surface, Depleted matrix	Saturation at surface, Water-stained leaves, Oxidized rhizospheres on living roots, water table at ground's surface, surface water 1" deep	0.10	0.04	0.00
			<i>Juncus effusus</i>	common rush	FACW					
			<i>Symplocarpus foetidus</i>	skunk cabbage	OBL					
Schuylkill River Gate Blowdown (work area moved outside of wetland)	SR-W-01	PEM	<i>Phalaris arundinacea</i>	reed canarygrass	FACW	Dark surface	Saturation at 6" below surface, Water-stained leaves, Drainage patters	0.00	0.00	0.00
			<i>Ranunculus ficaria</i>	fig buttercup	FAC					
Perkiomen Creek Gate Blowdown (work area moved outside of wetland)	PC-W-01	PEM	<i>Phalaris arundinacea</i>	reed canarygrass	FACW	Dark surface, Depleted matrix, Red parent material	Surface water 1" deep, Saturation at surface, True aquatic plants	0.00	0.00	0.40
East Perkiomen Gate Blowdown	EP-W-01	PEM	<i>Phalaris arundinacea</i>	reed canarygrass	FACW	Depleted matrix, Red parent material	Saturation at surface, Water-stained leaves, Drainage patterns.	0.003	0.005	0.00
Quakertown CS ATWS	QCS-W-01	PEM/PSS	<i>Andropogon gerardii</i>	big bluestem	FAC	Depleted matrix, Depleted dark surface	Saturation at surface, Surface water 2" deep, Drainage patterns	0.73	0.00	0.00
			<i>Scirpus atrovirens</i>	green bulrush	OBL					
			<i>Microstegium vimineum</i>	Nepalese browntop	FAC					
Transco Meter Station KISH site	TC-W -01	PEM/PSS /PFO	<i>Phragmites australis</i>	common reed	FACW	Dark surface, Thick dark surface	Saturation at surface, Surface water 3" deep, Drainage patterns, High water table, Water stained leaves	0.00	0.00	0.00
			<i>Woodwardia areolate</i>	netted chainfern	OBL					
			<i>Alnus serrulata</i>	smooth alder	FACW					
			<i>Acer rubrum</i>	red maple	FAC					
			<i>Fraxinus pennsylvanica</i>	green ash	FACW					

FAC = Facultative
 FACW = Facultative Wetland
 OBL = Obligate Wetland
 PEM = Palustrine Emergent
 PSS = Palustrine Scrub/Shrub
 PFO = Palustrine Forested

6.0 References

- Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
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- Wakeley, J. S. (2002). "Developing a 'Regionalized' Version of the Corps of Engineers Wetlands Delineation Manual: Issues and Recommendations," ERDC/EL TR-02-20, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

Appendix A - Figures

Appendix B - Datasheets

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Chester Creek Gate Blowdown City/County: Chester Sampling Date: 2/27/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Thornbury
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR or MLRA): LRRS Lat: 39.931832° Long: -75.511167° Datum: _____
 Soil Map Unit Name: We Wehadkee NWI classification: NA

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 <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Mowed vegetation within ROW. CC-W-01	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ 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) <input checked="" type="checkbox"/> Geomorphic Position (D2) ___ Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>Surface</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

SOIL

Sampling Point: **DP1**

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-5	10YR 3/1	100					SL	
5-18	10YR 4/1	85	5YR 2.5/1	5	D	M	SL	
			7.5YR 5/8	5	C	PL	SL	
			2.5YR 4/6	5	D	PL	SL	

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**)
- Red Parent Material (F21) (**MLRA 127, 147**)

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**)
- 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:
Depth (inches):

Hydric Soil Present? Yes No

Remarks:

CC_SB1 in GPS

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Chester Creek Gate Blowdown City/County: Chester Sampling Date: 2/27/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP2
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Thornbury
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 7
 Subregion (LRR or MLRA): LRRS Lat: 39.931581° Long: -75.511057° Datum: _____
 Soil Map Unit Name: We Wehadkee NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation in ROW.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators present.	

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

Sampling Point: DP2

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Herb Stratum (Plot size: _____)				
1. <u>Lonicera japonica</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Schedonorus sp.</u>	<u>60</u>	<u>Yes</u>	_____	
3. <u>Glechoma hederacea</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	
4. <u>Rosa multiflora</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>50</u>				20% of total cover: <u>20</u>
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>

Remarks: (If observed, list morphological adaptations below).

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>40</u>	x 4 = <u>160</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>40</u> (A)	<u>160</u> (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

SOIL

Sampling Point: **DP2**

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		
0-6	10YR 4/4	100				L	
6-18	10YR 5/4	100				L	

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		

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

Restrictive Layer (if observed): Type: Depth (inches):	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	---

Remarks:
CC_SB2 in GPS

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP2

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Chester Creek Gate Blowdown City/County: Chester Sampling Date: 2/27/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP3
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Thornbury
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR or MLRA): LRRS Lat: 39.932027° Long: -75.511326° Datum: _____
 Soil Map Unit Name: We Wehadkee NWI classification: NA

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 <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Mowed vegetation in ROW. CC-W-01	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ 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) <input checked="" type="checkbox"/> Geomorphic Position (D2) ___ Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2 inches</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: DP3

	Absolute % Cover	Dominant Species?	Indicator Status																						
Tree Stratum (Plot size: _____)																									
1. _____	_____	_____	_____																						
2. _____	_____	_____	_____																						
3. _____	_____	_____	_____																						
4. _____	_____	_____	_____																						
5. _____	_____	_____	_____																						
6. _____	_____	_____	_____																						
7. _____	_____	_____	_____																						
8. _____	_____	_____	_____																						
	_____ = Total Cover																								
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>																							
Sapling/Shrub Stratum (Plot size: _____)																									
1. _____	_____	_____	_____																						
2. _____	_____	_____	_____																						
3. _____	_____	_____	_____																						
4. _____	_____	_____	_____																						
5. _____	_____	_____	_____																						
6. _____	_____	_____	_____																						
7. _____	_____	_____	_____																						
8. _____	_____	_____	_____																						
	_____ = Total Cover																								
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>																							
Herb Stratum (Plot size: _____)																									
1. <u>Carex annectens</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																						
2. <u>Phalaris arundinacea</u>	<u>50</u>	<u>Yes</u>	<u>FACW</u>																						
3. <u>Microstegium vimineum</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																						
4. <u>Rosa multiflora</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																						
5. <u>Onoclea sensibilis</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>																						
6. <u>Aster sp. (basal leaves)</u>	<u>20</u>	<u>Yes</u>																							
7. _____	_____	_____	_____																						
8. _____	_____	_____	_____																						
9. _____	_____	_____	_____																						
10. _____	_____	_____	_____																						
11. _____	_____	_____	_____																						
12. _____	_____	_____	_____																						
	_____ = Total Cover																								
50% of total cover: <u>52.5</u>		20% of total cover: <u>21</u>																							
Woody Vine Stratum (Plot size: _____)																									
1. _____	_____	_____	_____																						
2. _____	_____	_____	_____																						
3. _____	_____	_____	_____																						
4. _____	_____	_____	_____																						
5. _____	_____	_____	_____																						
	_____ = Total Cover																								
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>																							
<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u>3</u> (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.67</u> (A/B)</p> <hr/> <p>Prevalence Index worksheet:</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:30%; text-align: center;">Total % Cover of:</td> <td style="width:30%; text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td style="text-align: center;"><u>0</u></td> <td style="text-align: center;">x 1 = <u>0</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;"><u>75</u></td> <td style="text-align: center;">x 2 = <u>150</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;"><u>5</u></td> <td style="text-align: center;">x 3 = <u>15</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;"><u>5</u></td> <td style="text-align: center;">x 4 = <u>20</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;"><u>0</u></td> <td style="text-align: center;">x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;"><u>85</u> (A)</td> <td style="text-align: center;"><u>185</u> (B)</td> </tr> </table> <p style="text-align: right;">Prevalence Index = B/A = <u>2.18</u></p> <hr/> <p>Hydrophytic Vegetation Indicators:</p> <p><input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> 2 - Dominance Test is >50%</p> <p><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0¹</p> <p><u> </u> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p><small>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</small></p> <hr/> <p>Definitions of Four Vegetation Strata:</p> <p>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</p> <p>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p>Woody vine – All woody vines greater than 3.28 ft in height.</p> <hr/> <p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>						Total % Cover of:	Multiply by:	OBL species	<u>0</u>	x 1 = <u>0</u>	FACW species	<u>75</u>	x 2 = <u>150</u>	FAC species	<u>5</u>	x 3 = <u>15</u>	FACU species	<u>5</u>	x 4 = <u>20</u>	UPL species	<u>0</u>	x 5 = <u>0</u>	Column Totals:	<u>85</u> (A)	<u>185</u> (B)
	Total % Cover of:	Multiply by:																							
OBL species	<u>0</u>	x 1 = <u>0</u>																							
FACW species	<u>75</u>	x 2 = <u>150</u>																							
FAC species	<u>5</u>	x 3 = <u>15</u>																							
FACU species	<u>5</u>	x 4 = <u>20</u>																							
UPL species	<u>0</u>	x 5 = <u>0</u>																							
Column Totals:	<u>85</u> (A)	<u>185</u> (B)																							
Remarks: (If observed, list morphological adaptations below).																									

SOIL

Sampling Point: **DP3**

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-5	10YR 3/1	100					SL	
5-20	10YR 4/1	85	5YR 2.5/1	5			SL	
			7.5YR 5/8	5			SL	
			2.5YR 4/6	5			SL	

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**)
- Red Parent Material (F21) (**MLRA 127, 147**)

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**)
- 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:
Depth (inches):

Hydric Soil Present? Yes No

Remarks:

CC_SB3 in GPS

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP3

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Chester Creek Gate Blowdown City/County: Chester Sampling Date: 2/27/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP4
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Thornbury
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Convex Slope (%): 0
 Subregion (LRR or MLRA): LRRS Lat: 39.932137° Long: -75.511359° Datum: _____
 Soil Map Unit Name: We Wehadkee NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation in ROW.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators present.	

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

Sampling Point: DP4

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Herb Stratum (Plot size: _____)				
1. <i>Rosa multiflora</i>	20	Yes	FACU	
2. <i>Dichanthelium clandestinum</i>	15	Yes	FAC	
3. <i>Phalaris arundinacea</i>	10	No	FACW	
4. <i>Microstegium vimineum</i>	15	Yes	FAC	
5. <i>Glochoma hederacea</i>	10	No	FACU	
6. <i>Solidago canadensis</i>	10	No	FACU	
7. <i>Lonicera japonica</i>	10	No	FACU	
8. <i>Rubus idaeus</i>	10	No	FAC	
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				
50% of total cover: <u>50</u>				20% of total cover: <u>20</u>
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>

Remarks: (If observed, list morphological adaptations below).

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	<u>0</u>	x 1 =	<u>0</u>	
FACW species	<u>10</u>	x 2 =	<u>20</u>	
FAC species	<u>40</u>	x 3 =	<u>120</u>	
FACU species	<u>50</u>	x 4 =	<u>200</u>	
UPL species	<u>0</u>	x 5 =	<u>0</u>	
Column Totals:	<u>100</u>	(A)	<u>340</u>	(B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

SOIL

Sampling Point: **DP4**

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		
0-18	10YR 4/4	100					SL	

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**)
- Red Parent Material (F21) (**MLRA 127, 147**)

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**)
- 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:
Depth (inches):

Hydric Soil Present? Yes No

Remarks:

CC_SB4 in GPS

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP4

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Cromby Gate Blowdown City/County: Chester Sampling Date: 2/28/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Phoenixville
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR or MLRA): LRRS Lat: 40.151844° Long: -75.533063° Datum: _____
 Soil Map Unit Name: PeB Penn NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation within ROW.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators are present.	

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

Sampling Point: DP1

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)																
4. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: right;">Total % Cover of:</td> <td style="width:50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>10</u></td> <td>x 2 = <u>20</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>40</u></td> <td>x 5 = <u>200</u></td> </tr> <tr> <td>Column Totals: <u>50</u> (A)</td> <td><u>220</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.40</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>10</u>	x 2 = <u>20</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>40</u>	x 5 = <u>200</u>	Column Totals: <u>50</u> (A)	<u>220</u> (B)	Prevalence Index = B/A = <u>4.40</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>10</u>	x 2 = <u>20</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>40</u>	x 5 = <u>200</u>																			
Column Totals: <u>50</u> (A)	<u>220</u> (B)																			
Prevalence Index = B/A = <u>4.40</u>																				
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Herb Stratum</u> (Plot size: _____)																				
1. <i>Schedonorus sp.</i>	20	Yes																		
2. <i>Artemisia vulgaris</i>	40	Yes	UPL																	
3. <i>Symphytotrichum lateriflorum</i>	10	No	FACW																	
4. <i>Danthonia spicata</i>	30	Yes	NI																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>																				
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____	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.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>																				
Remarks: (If observed, list morphological adaptations below).																				

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: East Perkiomen Creek Gate Blowdown City/County: Montgomery Sampling Date: 3/1/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Skippack
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 7
 Subregion (LRR or MLRA): LRRS Lat: 40.250648° Long: -75.441680° Datum: _____
 Soil Map Unit Name: Rt Rowland NWI classification: NA

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 <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Mowed vegetation, ROW cuts through a field. EP-W-01	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ 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) <input checked="" type="checkbox"/> 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>Surface</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: DP1

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)																
4. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: center;">Total % Cover of:</td> <td style="width:50%; text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>100</u></td> <td>x 2 = <u>200</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>200</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>100</u>	x 2 = <u>200</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)	<u>200</u> (B)	Prevalence Index = B/A = <u>2.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>100</u>	x 2 = <u>200</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>100</u> (A)	<u>200</u> (B)																			
Prevalence Index = B/A = <u>2.00</u>																				
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)																
1. _____																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Herb Stratum</u> (Plot size: _____)				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.																
1. <i>Phalaris arundinacea</i>	90	Yes	FACW																	
2. <i>Solidago gigantea</i>	10	No	FACW																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>																				
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____																
1. _____																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
Remarks: (If observed, list morphological adaptations below).																				

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: East Perkiomen Creek Gate Blowdown City/County: Montgomery Sampling Date: 3/1/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP2
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Skippack
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR or MLRA): LRRS Lat: 40.250708° Long: -75.441732° Datum: _____
 Soil Map Unit Name: Rt Rowland NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation, ROW cuts through a field.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators present.	

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

Sampling Point: DP2

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)																
4. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Total % Cover of:</th> <th style="width:50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>95</u></td> <td>x 4 = <u>380</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>95</u> (A)</td> <td><u>380</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.00</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>95</u>	x 4 = <u>380</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>95</u> (A)	<u>380</u> (B)	Prevalence Index = B/A = <u>4.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
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UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>95</u> (A)	<u>380</u> (B)																			
Prevalence Index = B/A = <u>4.00</u>																				
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. <u>Juniperus virginiana</u>	<u>20</u>	<u>No</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>20</u> = Total Cover 50% of total cover: <u>10</u> 20% of total cover: <u>4</u>																				
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	<u>40</u>	<u>Yes</u>	<u>FACU</u>	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.																
2. <u>Oenothera biennis</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
3. <u>Solidago canadensis</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Cerastium fontanum</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Rosa multiflora</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>75</u> = Total Cover 50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u>																				
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
Remarks: (If observed, list morphological adaptations below).																				

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP2

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: French Creek City/County: Chester Sampling Date: 2/28/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: East Pikeland
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 15
 Subregion (LRR or MLRA): LRRS Lat: 40.133346° Long: -75.549027° Datum: _____
 Soil Map Unit Name: PeC Penn NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation within ROW.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators are present.	

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

Sampling Point: DP1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>		
Herb Stratum (Plot size: _____)				
1. <i>Schedonorus sp.</i>	80	Yes		
2. <i>Taraxacum officinale</i>	10	No	FACU	
3. <i>moss sp.</i>	10	No		
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
	<u>100</u> = Total Cover			
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>		
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	<u>0</u>	x 1 =	<u>0</u>	
FACW species	<u>0</u>	x 2 =	<u>0</u>	
FAC species	<u>0</u>	x 3 =	<u>0</u>	
FACU species	<u>10</u>	x 4 =	<u>40</u>	
UPL species	<u>0</u>	x 5 =	<u>0</u>	
Column Totals:	<u>10</u>	(A)	<u>40</u>	(B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

Remarks: (If observed, list morphological adaptations below).

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: MLV 1 City/County: Delaware Sampling Date: 2/27/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Glen Mills
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR or MLRA): LRRS Lat: 39.897990° Long: -75.488493° Datum: _____
 Soil Map Unit Name: GeB Glenelg NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation within ROW.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators are present.	

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

Sampling Point: DP1

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)																
4. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: right;">Total % Cover of:</td> <td style="width:50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>15</u></td> <td>x 2 = <u>30</u></td> </tr> <tr> <td>FAC species <u>35</u></td> <td>x 3 = <u>105</u></td> </tr> <tr> <td>FACU species <u>30</u></td> <td>x 4 = <u>120</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>90</u> (A)</td> <td><u>305</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.39</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>15</u>	x 2 = <u>30</u>	FAC species <u>35</u>	x 3 = <u>105</u>	FACU species <u>30</u>	x 4 = <u>120</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>90</u> (A)	<u>305</u> (B)	Prevalence Index = B/A = <u>3.39</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>15</u>	x 2 = <u>30</u>																			
FAC species <u>35</u>	x 3 = <u>105</u>																			
FACU species <u>30</u>	x 4 = <u>120</u>																			
UPL species <u>10</u>	x 5 = <u>50</u>																			
Column Totals: <u>90</u> (A)	<u>305</u> (B)																			
Prevalence Index = B/A = <u>3.39</u>																				
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Herb Stratum</u> (Plot size: _____)																				
1. <i>Apocynum cannabinum</i>	5	No	FACU	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.																
2. <i>Dichanthelium clandestinum</i>	25	Yes	FAC																	
3. <i>Glechoma hederacea</i>	10	No	FACU																	
4. <i>Symphytotrichum lateriflorum</i>	15	Yes	FACW																	
5. <i>Artemesia vulgaris</i>	10	No	UPL																	
6. <i>Microstegium vimineum</i>	10	No	FAC																	
7. <i>Rosa Multiflora</i>	10	No	FACU																	
8. <i>Rubus allegheniensis</i>	5	No	FACU																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>90</u> = Total Cover 50% of total cover: <u>45</u> 20% of total cover: <u>18</u>																				
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
Remarks: (If observed, list morphological adaptations below).																				

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Paoli Pike Gate Blowdown City/County: Chester Sampling Date: 2/27/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Malvern
 Landform (hillslope, terrace, etc.): Floodplain wetland Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR or MLRA): LRRS Lat: 39.990924° Long: -75.54972° Datum: _____
 Soil Map Unit Name: Ha Hatboro NWI classification: NA

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 <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Maintained (mowed) vegetation within ROW. PP-W-01	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ 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 <input type="checkbox"/> Depth (inches): <u>1"</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>surface</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>Surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: DP1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Herb Stratum (Plot size: _____)				
1. <i>Carex stricta</i>	50	Yes	OBL	
2. <i>Symplocarpus foetidus</i>	15	Yes	OBL	
3. <i>Verbena hastata</i>	5	No	FACW	
4. <i>Juncus effusus</i>	15	Yes	FACW	
5. <i>Veronia noveboracensis</i>	5	No	FACW	
6. <i>Carex annectens</i>	5	No	FACW	
7. <i>Typha latifolia</i>	5	No	OBL	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>50</u>				20% of total cover: <u>20</u>
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>

Remarks: (If observed, list morphological adaptations below).

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	<u>70</u>	x 1 =	<u>70</u>	
FACW species	<u>30</u>	x 2 =	<u>60</u>	
FAC species	<u>0</u>	x 3 =	<u>0</u>	
FACU species	<u>0</u>	x 4 =	<u>0</u>	
UPL species	<u>0</u>	x 5 =	<u>0</u>	
Column Totals:	<u>100</u>	(A)	<u>130</u>	(B)

Prevalence Index = B/A = 1.30

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

SOIL

Sampling Point: **DP1**

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-2	10YR 3/1	100					SCL	
2-22	10YR 5/1	85	5YR 4/6	10	D	M	SCL	
			5YR 5/8	5	C	PL	SCL	

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**)
- Red Parent Material (F21) (**MLRA 127, 147**)

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**)
- 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:
Depth (inches):

Hydric Soil Present? Yes No

Remarks:

Pa_SB1 in GPS

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Paoli Pike Gate Blowdown City/County: Chester Sampling Date: 2/27/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP2
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Malvern
 Landform (hillslope, terrace, etc.): Road embankment Local relief (concave, convex, none): None Slope (%): 30
 Subregion (LRR or MLRA): LRRS Lat: 39.990861° Long: -75.54956° Datum: _____
 Soil Map Unit Name: Ha Hatboro NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation within ROW.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators are present.	

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

Sampling Point: DP2

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: _____)																				
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
_____ = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: center;">Total % Cover of:</td> <td style="width:50%; text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>75</u></td> <td>x 4 = <u>300</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>85</u> (A)</td> <td><u>350</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.12</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>75</u>	x 4 = <u>300</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>85</u> (A)	<u>350</u> (B)	Prevalence Index = B/A = <u>4.12</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>75</u>	x 4 = <u>300</u>																			
UPL species <u>10</u>	x 5 = <u>50</u>																			
Column Totals: <u>85</u> (A)	<u>350</u> (B)																			
Prevalence Index = B/A = <u>4.12</u>																				
Sapling/Shrub Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
_____ = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)																
Herb Stratum (Plot size: _____)																				
1. <i>Apocynum cannabinum</i>	10	No	FACU		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.															
2. <i>Oenothera biennis</i>	15	Yes	FACU																	
3. <i>Phleum pratense</i>	30	Yes	FACU																	
4. <i>Verbascum thapsus</i>	5	No	FACU																	
5. <i>Plantago lanceolata</i>	10	No	UPL																	
6. <i>Dipsacus fullonum</i>	10	No	FACU																	
7. <i>Brassica rapa</i>	5	No	UPL																	
8. <i>rock / gravel</i>	15																			
9. _____																				
10. _____																				
11. _____																				
12. _____																				
_____ = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>																
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
Remarks: (If observed, list morphological adaptations below).																				

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP2

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Perkiomen Creek Gate Blowdown City/County: Montgomery Sampling Date: 3/1/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Perkiomen
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3
 Subregion (LRR or MLRA): LRRS Lat: 40.216388° Long: -75.453608° Datum: _____
 Soil Map Unit Name: Bo Bowmansville NWI classification: NA

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 <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Mowed vegetation within ROW PC-W-01	

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"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1"</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>Surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: DP1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: _____)				
1. <i>Mowed lawn grasses</i>	40	Yes		
2. <i>Phalaris arundinacea</i>	50	Yes	FACW	
3. <i>Poa palustris</i>	10	No	FACW	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of 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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	<u>0</u>	x 1 =	<u>0</u>	
FACW species	<u>60</u>	x 2 =	<u>120</u>	
FAC species	<u>0</u>	x 3 =	<u>0</u>	
FACU species	<u>0</u>	x 4 =	<u>0</u>	
UPL species	<u>0</u>	x 5 =	<u>0</u>	
Column Totals:	<u>60</u>	(A)	<u>120</u>	(B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹

___ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: **DP1**

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-18	2.5YR 4/2	80	2.5YR 5/4	20	C	M	SCL	

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input checked="" type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		

³Indicators 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:

Pe_SB1 in GPS

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Perkiomen Creek Gate Blowdown City/County: Montgomery Sampling Date: 3/1/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP2
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Perkiomen
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR or MLRA): LRRS Lat: 40.216286° Long: -75.453873° Datum: _____
 Soil Map Unit Name: Bo Bowmansville NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation within ROW.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators are present.	

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

Sampling Point: DP2

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Herb Stratum (Plot size: _____)				
1. <u>Mowed lawn grasses</u>	<u>100</u>	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>50</u>				20% of total cover: <u>20</u>
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>

Remarks: (If observed, list morphological adaptations below).

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = <u>0</u>
FACW species _____	x 2 = <u>0</u>
FAC species _____	x 3 = <u>0</u>
FACU species _____	x 4 = <u>0</u>
UPL species _____	x 5 = <u>0</u>
Column Totals: <u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP2

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Perkiomen Creek Gate Blowdown City/County: Montgomery Sampling Date: 3/1/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP3
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR or MLRA): LRRS Lat: 40.216435° Long: -75.453259° Datum: _____
 Soil Map Unit Name: Bo Bowmansville NWI classification: NA

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 <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Mowed vegetation within ROW. PC-W-01	

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"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>8"</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>Surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Swale along edge of wetland flowing from pipe.	

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

Sampling Point: DP3

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
	_____ = Total Cover			
50% of total cover: <u>0</u>	20% of total cover: <u>0</u>			
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
	_____ = Total Cover			
50% of total cover: <u>0</u>	20% of total cover: <u>0</u>			
Herb Stratum (Plot size: _____)				
1. <u>Mowed lawn grasses</u>	<u>55</u>	<u>Yes</u>		
2. <u>Juncus effusus</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>	
3. <u>Althea officinalis</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>	
4. <u>algae sp.</u>	<u>15</u>	<u>Yes</u>		
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
	_____ = Total Cover			
50% of total cover: <u>50</u>	20% of total cover: <u>20</u>			
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	_____ = Total Cover			
50% of total cover: <u>0</u>	20% of total cover: <u>0</u>			
Remarks: (If observed, list morphological adaptations below).				

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	<u>0</u>	x 1 =	<u>0</u>	
FACW species	<u>30</u>	x 2 =	<u>60</u>	
FAC species	<u>0</u>	x 3 =	<u>0</u>	
FACU species	<u>0</u>	x 4 =	<u>0</u>	
UPL species	<u>0</u>	x 5 =	<u>0</u>	
Column Totals:	<u>30</u>	(A)	<u>60</u>	(B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP3

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Perkiomen Creek Gate Blowdown City/County: Montgomery Sampling Date: 3/1/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP4
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Perkiomen
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR or MLRA): LRRS Lat: 40.216439° Long: -75.453222° Datum: _____
 Soil Map Unit Name: Bo Bowmansville NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation within ROW. IEC escort told us theres an independent waterline that crosses the ROW here somewhere that hasn't been located.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators are present.	

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

Sampling Point: DP4

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)																
4. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: right;">Total % Cover of:</td> <td style="width:50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>15</u></td> <td>x 4 = <u>60</u></td> </tr> <tr> <td>UPL species <u>20</u></td> <td>x 5 = <u>100</u></td> </tr> <tr> <td>Column Totals: <u>35</u> (A)</td> <td><u>160</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.57</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>15</u>	x 4 = <u>60</u>	UPL species <u>20</u>	x 5 = <u>100</u>	Column Totals: <u>35</u> (A)	<u>160</u> (B)	Prevalence Index = B/A = <u>4.57</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>15</u>	x 4 = <u>60</u>																			
UPL species <u>20</u>	x 5 = <u>100</u>																			
Column Totals: <u>35</u> (A)	<u>160</u> (B)																			
Prevalence Index = B/A = <u>4.57</u>																				
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Poa pratensis</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	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.																
2. <u>Crab grass</u>	<u>10</u>	<u>No</u>	<u>UPL</u>																	
3. <u>Anagallis arvensis</u>	<u>5</u>	<u>No</u>	<u>UPL</u>																	
4. <u>mowed lawn grasses</u>	<u>65</u>	<u>Yes</u>	<u></u>																	
5. <u>Allium oleraceum</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. <u>Plantago lanceolata</u>	<u>5</u>	<u>No</u>	<u>UPL</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>																				
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
Remarks: (If observed, list morphological adaptations below).																				

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP4

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Pickering Creek City/County: Chester Sampling Date: 2/28/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Charlestown
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 15
 Subregion (LRR or MLRA): LRRS Lat: 40.098993° Long: -75.570876° Datum: _____
 Soil Map Unit Name: GdC Gladstone NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation. ROW lies within maintained grass field.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators are present.	

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

Sampling Point: DP1

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: _____)																				
1. <i>Pinus strobus</i>	15	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)																
2. <i>Picea abies</i>	10	No	NI																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
_____ = Total Cover 50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u>				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: right;">Total % Cover of:</td> <td style="width:50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>10</u></td> <td>x 2 = <u>20</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>55</u></td> <td>x 4 = <u>220</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>65</u> (A)</td> <td><u>240</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.69</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>10</u>	x 2 = <u>20</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>55</u>	x 4 = <u>220</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>65</u> (A)	<u>240</u> (B)	Prevalence Index = B/A = <u>3.69</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>10</u>	x 2 = <u>20</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>55</u>	x 4 = <u>220</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>65</u> (A)	<u>240</u> (B)																			
Prevalence Index = B/A = <u>3.69</u>																				
Sapling/Shrub Stratum (Plot size: _____)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
_____ = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)																
Herb Stratum (Plot size: _____)																				
1. <i>Schedonorus sp.</i>	25	Yes																		
2. <i>Poa pratensis</i>	40	Yes	FACU																	
3. <i>Phalaris arundinacea</i>	10	No	FACW																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
_____ = Total Cover 50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u>				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.																
Woody Vine Stratum (Plot size: _____)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
_____ = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>					Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>															
Remarks: (If observed, list morphological adaptations below).																				

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Quakertown CS TWS City/County: Bucks Sampling Date: 3/1/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Richland
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10
 Subregion (LRR or MLRA): LRRS Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: UdB Udorthents NWI classification: NA

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 <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Mowed vegetation and tires ruts present QCS-W-01	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> 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 <input type="checkbox"/> Depth (inches): <u>2"</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>Surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Surface water is ponded in tire ruts.	

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

Sampling Point: DP1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>
Herb Stratum (Plot size: _____)				
1. <u>Andropogon gerardii</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Scirpus atrovirens</u>	<u>25</u>	<u>Yes</u>	<u>OBL</u>	
3. <u>Microstegium vimineum</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Arthraxon hispidus</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	
5. <u>Vernonia noveboracensis</u>	<u>10</u>	<u>No</u>	<u>FACW</u>	
6. <u>Scirpus cyperinus</u>	<u>10</u>	<u>No</u>	<u>FACW</u>	
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				
50% of total cover: <u>50</u>				20% of total cover: <u>20</u>
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
50% of total cover: <u>0</u>				20% of total cover: <u>0</u>

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	<u>25</u>	x 1 =	<u>25</u>	
FACW species	<u>20</u>	x 2 =	<u>40</u>	
FAC species	<u>55</u>	x 3 =	<u>165</u>	
FACU species	<u>0</u>	x 4 =	<u>0</u>	
UPL species	<u>0</u>	x 5 =	<u>0</u>	
Column Totals:	<u>100</u>	(A)	<u>230</u>	(B)

Prevalence Index = B/A = 2.30

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: **DP1**

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-2	5YR 4/1	90	5YR 5/8	5	C	PL	SCL	
			5YR 4/4	5	D	M	SCL	
2-18	10YR 4/1	90	10YR 5/6	5	C	PL	SCL	
			7.5YR 6/8	5	C	PL	SCL	

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**)
- Red Parent Material (F21) (**MLRA 127, 147**)

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**)
- 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:
Depth (inches):

Hydric Soil Present? Yes No

Remarks:

Tetco_SB1 in GPS
Concretions present

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Quakertown CS TWS City/County: Bucks Sampling Date: 3/1/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP2
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Richland
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10
 Subregion (LRR or MLRA): LRRS Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: UdB Udorthents NWI classification: NA

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

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators present.	

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

Sampling Point: DP2

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)																
4. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: right;">Total % Cover of:</td> <td style="width:50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>25</u></td> <td>x 4 = <u>100</u></td> </tr> <tr> <td>UPL species <u>45</u></td> <td>x 5 = <u>225</u></td> </tr> <tr> <td>Column Totals: <u>70</u> (A)</td> <td><u>325</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.64</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>25</u>	x 4 = <u>100</u>	UPL species <u>45</u>	x 5 = <u>225</u>	Column Totals: <u>70</u> (A)	<u>325</u> (B)	Prevalence Index = B/A = <u>4.64</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>25</u>	x 4 = <u>100</u>																			
UPL species <u>45</u>	x 5 = <u>225</u>																			
Column Totals: <u>70</u> (A)	<u>325</u> (B)																			
Prevalence Index = B/A = <u>4.64</u>																				
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. <i>Fraxinus americana</i>	5	No	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. <i>Ailanthus altissima</i>	10	No	FACU																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>15</u> = Total Cover 50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>																				
<u>Herb Stratum</u> (Plot size: _____)																				
1. <i>Brassica rapa</i>	15	Yes	UPL	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 <input checked="" type="checkbox"/>																
2. <i>Artemisia vulgaris</i>	30	Yes	UPL																	
3. <i>Vicia sp.</i>	30	Yes	_____																	
4. <i>Solidago canadensis</i>	5	No	FACU																	
5. <i>Solidago altissima</i>	5	No	FACU																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>85</u> = Total Cover 50% of total cover: <u>42.5</u> 20% of total cover: <u>17</u>																				
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>																				
Remarks: (If observed, list morphological adaptations below).																				

SOIL

Sampling Point: **DP2**

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-8	7.5YR 4/2	100					CL	
8-20	7.5YR 5/2	50	7.5YR 4/4	40			CL	with gravel
			7.5YR 6/2	5			CL	
			10YR 5/6	5			CL	

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**)
- Red Parent Material (F21) (**MLRA 127, 147**)

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**)
- 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:
Depth (inches):

Hydric Soil Present? Yes No

Remarks:

Tetco_SB2 in GPS

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP2

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Schuylkill River Gate Blowdown City/County: Chester Sampling Date: 2/28/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP1
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Spring City
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR or MLRA): LRRS Lat: 40.160791° Long: -75.528001° Datum: _____
 Soil Map Unit Name: GB Gibraltar NWI classification: NA

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 <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Mowed vegetation within ROW. SR-W-01	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ 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) <input checked="" type="checkbox"/> 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>6"</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: DP1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	_____ = Total Cover			
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>		
Herb Stratum (Plot size: _____)				
1. <i>Ranunculus ficaria</i>	15	Yes	FAC	
2. <i>Rumex crispus</i>	5	No	FAC	
3. <i>Phalaris arundinacea</i>	60	Yes	FACW	
4. <i>Rosa multiflora</i>	10	No	FACU	
5. <i>Scirpus atrovirens</i>	5	No	OBL	
6. <i>Dipsacus fullonum</i>	5	No	FACU	
7. <i>Microstegium vimineum</i>	5	No	FAC	
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	_____ = Total Cover			
	50% of total cover: <u>52.5</u>	20% of total cover: <u>21</u>		
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
	_____ = Total Cover			
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>5</u>	x 1 = <u>5</u>
FACW species <u>60</u>	x 2 = <u>120</u>
FAC species <u>25</u>	x 3 = <u>75</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105</u> (A)	<u>260</u> (B)

Prevalence Index = B/A = 2.48

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: **DP1**

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-6	7.5YR 2.5/1	100					SL	alluvial
6-12	7.5YR 3/1	90	7.5YR 5/8	5	C	PL	L	with gravel
			7.5YR 6/4	5	D	M	L	

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**)
- Red Parent Material (F21) (**MLRA 127, 147**)

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**)
- 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:
Depth (inches):

Hydric Soil Present? Yes No

Remarks:

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP1

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Schuylkill River Gate Blowdown City/County: Chester Sampling Date: 2/28/18
 Applicant/Owner: Adelphia State: PA Sampling Point: DP2
 Investigator(s): NV5- Scott Angus, Ethan Muller Section, Township, Range: Spring City
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR or MLRA): LRRS Lat: 40.160707° Long: -75.528375° Datum: _____
 Soil Map Unit Name: GB Gibraltar NWI classification: NA

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 type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Mowed vegetation within ROW. SR-W-01	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ 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 type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No wetland hydrology indicators are present.	

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

Sampling Point: DP2

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: _____)				
1. <i>Microstegium vimineum</i>	30	Yes	FAC	
2. <i>Digitaria ischaemum</i>	40	Yes	UPL	
3. <i>Cerastium fontanum</i>	10	No	FACU	
4. <i>Trifolium repens</i>	10	No	FACU	
5. <i>Phleum pratense</i>	10	No	FACU	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of 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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>30</u>	x 4 = <u>120</u>
UPL species <u>40</u>	x 5 = <u>200</u>
Column Totals: <u>100</u> (A)	<u>410</u> (B)

Prevalence Index = B/A = 4.10

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

Remarks: (If observed, list morphological adaptations below).

Mowed and disturbed by construction

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		
0-4	7.5YR 2.5/1	100				L	with gravel and brick
	Refusal						brick and gravel

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	
<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

³Indicators 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:

Feature Sketch: Indicate North, CL and Survey Corridor, Photo Locations

Sampling Point: DP2

Feature Photo: Facing - N S E W NE NW SE SW

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Transco KISH City/County: Chester Sampling Date: 5/25/18
 Applicant/Owner: Adephia State: PA Sampling Point: DP-1
 Investigator(s): SA Section, Township, Range: Lower Chichester Twp
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 10%
 Subregion (LRR or MLRA): MLRA 149A Lat: 39.818562° Long: -75.435648° Datum: NAD 84
 Soil Map Unit Name: _____ 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? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>TC-W-01</u>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <table style="width:100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>3"</u> Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>Surface</u> Saturation Present? (includes capillary fringe) Yes <u>X</u> No _____ Depth (inches): <u>Surface</u>	Wetland Hydrology Present? Yes <u>X</u> No _____																															
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																
Remarks:																																

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

Sampling Point: DP-1

	Absolute % Cover	Dominant Species?	Indicator Status																																	
Tree Stratum (Plot size: _____)																																				
1. <u>Acer rubrum</u>	30	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																																
2. <u>Nyssa sylvatica</u>	10	N	FAC																																	
3. <u>Liquidambar styraciflua</u>	5	N	FAC																																	
4. <u>Fraxinus pennsylvanica</u>	30	Y	FACW																																	
5. _____																																				
6. _____																																				
7. _____																																				
8. _____																																				
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:center;">_____</td> <td style="text-align:right;">Multiply by:</td> <td style="text-align:center;">_____</td> </tr> <tr> <td>OBL species</td> <td style="text-align:center;"><u>50</u></td> <td style="text-align:right;">x 1 =</td> <td style="text-align:center;"><u>50</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align:center;"><u>40</u></td> <td style="text-align:right;">x 2 =</td> <td style="text-align:center;"><u>80</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align:center;"><u>45</u></td> <td style="text-align:right;">x 3 =</td> <td style="text-align:center;"><u>135</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align:center;"><u>0</u></td> <td style="text-align:right;">x 4 =</td> <td style="text-align:center;"><u>0</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align:center;"><u>0</u></td> <td style="text-align:right;">x 5 =</td> <td style="text-align:center;"><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align:center;"><u>135</u></td> <td style="text-align:right;">(A)</td> <td style="text-align:center;"><u>290</u></td> </tr> <tr> <td colspan="4" style="text-align:right;">Prevalence Index = B/A = <u>2.15</u></td> </tr> </table>	Total % Cover of:	_____	Multiply by:	_____	OBL species	<u>50</u>	x 1 =	<u>50</u>	FACW species	<u>40</u>	x 2 =	<u>80</u>	FAC species	<u>45</u>	x 3 =	<u>135</u>	FACU species	<u>0</u>	x 4 =	<u>0</u>	UPL species	<u>0</u>	x 5 =	<u>0</u>	Column Totals:	<u>135</u>	(A)	<u>290</u>	Prevalence Index = B/A = <u>2.15</u>			
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Prevalence Index = B/A = <u>2.15</u>																																				
Sapling/Shrub Stratum (Plot size: _____)																																				
1. <u>Lindera benzoin</u>	5	N	FACW	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)																																
2. _____																																				
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Herb Stratum (Plot size: _____)																																				
1. <u>Glyceria striata</u>	30	Y	OBL		Hydrophytic Vegetation Present? Yes <u>X</u> No _____																															
2. <u>Woodwardia areolata</u>	20	Y	OBL																																	
3. <u>Phragmites australis</u>	5	N	FACW																																	
4. _____																																				
5. _____																																				
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Woody Vine Stratum (Plot size: _____)																																				
1. _____																																				
2. _____																																				
3. _____																																				
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Remarks: (If observed, list morphological adaptations below).

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		
0-10	2.5YR 2.5/1	100					Si, L	mucky
10-24	10YR 4/1	95	10YR 5/8	5	C	PL	Si, L	mucky

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- 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: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Transco KISH City/County: Chester Sampling Date: 5/25/18
 Applicant/Owner: Adephia State: PA Sampling Point: DP-2
 Investigator(s): SA Section, Township, Range: Lower Chichester Twp
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10%
 Subregion (LRR or MLRA): MLRA 149A Lat: 39.818562° Long: -75.435648° Datum: NAD 84
 Soil Map Unit Name: _____ 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"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>TC-W-01</u>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) _____ <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: DP-2

	Absolute % Cover	Dominant Species?	Indicator Status															
Tree Stratum (Plot size: _____)																		
1. <u>Gleditsia triacanthos</u>	10	N	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)														
2. <u>Acer platanoides</u>	40	Y	UPL															
3. <u>Morus alba</u>	10	N	FACU															
4. <u>Ailanthus altissima</u>	10	N	FACU															
5. _____																		
6. _____																		
7. _____																		
8. _____																		
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Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
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Column Totals: <u>180</u> (A)	<u>790</u> (B)																	
Sapling/Shrub Stratum (Plot size: _____)																		
1. <u>Rosa multiflora</u>	30	Y	FACU	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)														
2. <u>Ligustrum vulgare</u>	40	Y	UPL															
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
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Herb Stratum (Plot size: _____)																		
1. _____					Hydrophytic Vegetation Present? Yes _____ No ^x _____													
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
9. _____																		
10. _____																		
11. _____																		
12. _____																		
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____																		
Woody Vine Stratum (Plot size: _____)																		
1. <u>Lonicera japonica</u>	40	Y	FACU															
2. _____																		
3. _____																		
4. _____																		
5. _____																		
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____																		
Remarks: (If observed, list morphological adaptations below).																		

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		
0-8	10YR 3/3	100					L	
8-20	7.5YR 5/6	100					L	

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- 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: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Transco KISH City/County: Chester Sampling Date: 5/25/18
 Applicant/Owner: Adephia State: PA Sampling Point: DP-3
 Investigator(s): SA Section, Township, Range: Lower Chichester Twp
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 149A Lat: 39.818562° Long: -75.435648° Datum: NAD 84
 Soil Map Unit Name: _____ 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? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>TC-W-01</u>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) _____ <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>3"</u> Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>Surface</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: DP-3

	Absolute % Cover	Dominant Species?	Indicator Status																						
Tree Stratum (Plot size: _____)																									
1. <u>Acer rubrum</u>	20	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																					
2. <u>Nyssa sylvatica</u>	10	N	FAC																						
3. <u>Liquidambar styraciflua</u>	10	N	FAC																						
4. <u>Fraxinus pennsylvanica</u>	20	Y	FACW																						
5. _____																									
6. _____																									
7. _____																									
8. _____																									
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="width:30%;"></td> <td style="width:30%; text-align:center;">Total % Cover of:</td> <td style="width:30%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td style="text-align:center"><u>10</u></td> <td style="text-align:center">x 1 = <u>10</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align:center"><u>80</u></td> <td style="text-align:center">x 2 = <u>160</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align:center"><u>40</u></td> <td style="text-align:center">x 3 = <u>120</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align:center"><u>0</u></td> <td style="text-align:center">x 4 = <u>0</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align:center"><u>0</u></td> <td style="text-align:center">x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align:center"><u>130</u> (A)</td> <td style="text-align:center"><u>290</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.23</u>		Total % Cover of:	Multiply by:	OBL species	<u>10</u>	x 1 = <u>10</u>	FACW species	<u>80</u>	x 2 = <u>160</u>	FAC species	<u>40</u>	x 3 = <u>120</u>	FACU species	<u>0</u>	x 4 = <u>0</u>	UPL species	<u>0</u>	x 5 = <u>0</u>	Column Totals:	<u>130</u> (A)	<u>290</u> (B)
	Total % Cover of:	Multiply by:																							
OBL species	<u>10</u>	x 1 = <u>10</u>																							
FACW species	<u>80</u>	x 2 = <u>160</u>																							
FAC species	<u>40</u>	x 3 = <u>120</u>																							
FACU species	<u>0</u>	x 4 = <u>0</u>																							
UPL species	<u>0</u>	x 5 = <u>0</u>																							
Column Totals:	<u>130</u> (A)	<u>290</u> (B)																							
Sapling/Shrub Stratum (Plot size: _____)																									
1. <u>Alnus serrulata</u>	10	N	FACW	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)																					
2. _____																									
3. _____																									
4. _____																									
5. _____																									
6. _____																									
7. _____																									
8. _____																									
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Herb Stratum (Plot size: _____)																									
1. <u>Glyceria striata</u>	10	N	OBL		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.																				
2. <u>Onoclea sensibilis</u>	10	N	FACW																						
3. <u>Phragmites australis</u>	40	Y	FACW																						
4. _____																									
5. _____																									
6. _____																									
7. _____																									
8. _____																									
9. _____																									
10. _____																									
11. _____																									
12. _____																									
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																					
Woody Vine Stratum (Plot size: _____)																									
1. _____																									
2. _____																									
3. _____																									
4. _____																									
5. _____																									
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____																									
Remarks: (If observed, list morphological adaptations below).																									

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	7.5YR 3/2	100					L	
4-15	2.5YR 2.5/1	100					Si, L	mucky
15-20	10YR 4/1	95	10YR 5/8	5	C	PL	Si, L	

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- 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: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Transco KISH City/County: Chester Sampling Date: 5/25/18
 Applicant/Owner: Adephia State: PA Sampling Point: DP-4
 Investigator(s): SA Section, Township, Range: Lower Chichester Twp
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 149A Lat: 39.818562° Long: -75.435648° Datum: NAD 84
 Soil Map Unit Name: _____ 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"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>TC-W-01</u>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) _____ <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: DP-4

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. <u>Gleditsia triacanthos</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40</u> (A/B)
2. <u>Acer platanoides</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Morus alba</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Ailanthus altissima</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
5. _____				
6. _____				
7. _____				
8. _____				
<u>110</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>100</u> x 4 = <u>400</u> UPL species <u>40</u> x 5 = <u>200</u> Column Totals: <u>180</u> (A) <u>690</u> (B) Prevalence Index = B/A = <u>3.83</u>
50% of total cover: _____		20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>Rosa multiflora</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>40</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: _____		20% of total cover: _____		
Herb Stratum (Plot size: _____)				
1. <u>Phragmites australis</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	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.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>30</u> = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ^x _____
50% of total cover: _____		20% of total cover: _____		
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
Remarks: (If observed, list morphological adaptations below).				

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		
0-10	7.5YR 3/4	100					S, L	
10-18	7.5YR 5/6	100					S, L	

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- 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: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Appendix C - Photolog

PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
MVL 1, Upland DP1 Delaware County, PA

Date:
2/27/2018

Photo:
1

Coordinates:

39.897990°
-75.488493°

Comment:

Photo of upland maintained ROW facing northwest.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
MVL 1 Option A, Access Road, Delaware County, PA

Date:
2/27/2018

Photo:
2

Coordinates:

39.897807°
-75.488376°

Comment:

Photo of uplands in the vicinity of the access road..



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Chester Creek Gate, Wetland DP1 Chester County, PA

Date:
2/27/2018

Photo:
1

Coordinates:
39.931832°
-75.511167°.

Comment:
Photo of PEM
wetland facing
west.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Chester Creek Gate, Upland DP2 Chester County, PA

Date:
2/27/2018

Photo:
2

Coordinates:
39.931581°
-75.511057°.

Comment:
Photo of uplands
facing west.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Chester Creek Gate, Wetland DP3 Chester County, PA

Date:
2/27/2018

Photo:
3

Coordinates:
39.932027°
-75.511326°

Comment:
Photo of PEM
wetland facing
west.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Chester Creek Gate, Upland DP4 Chester County, PA

Date:
2/27/2018

Photo:
4

Coordinates:
39.932137°
-75.511359°

Comment:
Photo of uplands
facing northwest.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Paoli Pike Gate, Wetland DP1 Chester County, PA

Date: 2/27/2018
Photo: 1

Coordinates:
39.990924°
-75.54972°

Comment:
Photo of PEM wetland facing northwest.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Paoli Pike Gate, Upland DP2 Chester County, PA

Date: 2/27/2018
Photo: 2

Coordinates:
39.990861°
-75.54956°

Comment:
Photo of uplands facing northeast.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Pickering Creek Gate, Wetland DP1 Chester County, PA

Date:
2/28/2018

Photo:
1

Coordinates:
40.098993°
-75.570876°

Comment:
Photo of workspace facing north towards access road.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Pickering Creek Gate, Upland DP2 Chester County, PA

Date:
2/28/2018

Photo:
2

Coordinates:
40.098993°
-75.570876°

Comment:
Photo of uplands within workspace facing southwest.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
French Creek Gate, Wetland DP1 Chester County, PA

Date:
2/28/2018

Photo:
1

Coordinates:
40.133346°
-75.549027°

Comment:
Photo of uplands towards workspace facing north.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
French Creek Gate, Upland DP2 Montgomery County, PA

Date:
2/28/2018

Photo:
2

Coordinates:
40.133346°
-75.549027°

Comment:
Photo of uplands towards proposed access road facing south.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Cromby Gate, Upland DP1 Chester County, PA

Date:
2/28/2018

Photo:
1

Coordinates:
40.151844°
-75.533063°

Comment:
Photo of uplands within workspace facing west.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Cromby Gate, Upland DP2 Chester County, PA

Date:
2/28/2018

Photo:
2

Coordinates:
40.151844°
-75.533063°

Comment:
Photo of uplands within workspace facing east.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Schuylkill River Gate, Wetland DP1 Chester County, PA

Date:
2/28/2018

Photo:
1

Coordinates:
40.160791°
-75.528001°

Comment:
Photo of PEM wetland within workspace facing west.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Schuylkill Creek Gate, Upland DP2 Chester County, PA

Date:
2/28/2018

Photo:
2

Coordinates:
40.160707°
-75.528375°

Comment:
Photo of uplands within workspace and access road facing west.



PHOTOLOG

Project Name: Adelphia Gateway Project	Location: Perkiomen Creek Gate, Wetland DP1 Montgomery County, PA
--	---

Date: 3/1/2018	Photo: 1
--------------------------	--------------------

Coordinates:
40.216388°
-75.453608°

Comment:
Photo of PEM wetland facing east.



PHOTOLOG

Project Name: Adelphia Gateway Project	Location: Perkiomen Creek Gate, Upland DP2 Montgomery County, PA
--	--

Date: 3/1/2018	Photo: 2
--------------------------	--------------------

Coordinates:
40.216286°
-75.453873°

Comment:
Photo of uplands facing north.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Perkiomen Creek Gate, Wetland DP3 Montgomery County, PA

Date: 3/1/2018
Photo: 3

Coordinates:
40.216435°
-75.453259°

Comment:
Photo of PEM wetland and wetland ditch facing southwest.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Perkiomen Creek Gate, Upland DP4 Montgomery County, PA

Date: 3/1/2018
Photo: 4

Coordinates:
40.216439°
-75.453222°

Comment:
Photo of uplands facing north.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
East Perkiomen Gate, Wetland DP1 Montgomery County, PA

Date: 3/1/2018
Photo: 1

Coordinates:
40.250648°
-75.441680°

Comment:
Photo of PEM wetland and wetland ditch facing south.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
East Perkiomen Gate, Wetland DP2 Montgomery County, PA

Date: 3/1/2018
Photo: 2

Coordinates:
40.250708°
-75.441732°

Comment:
Photo of uplands facing north.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Quakertown TWS, Wetland DP1 Bucks County, PA

Date:
3/1/2018

Photo:
1

Coordinates:
40.404158°
-75.349192°

Comment:
Photo of PEM/PSS wetland facing northeast.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Quakertown TWS, Upland DP2 Bucks County, PA

Date:
3/1/2018

Photo:
2

Coordinates:
40.404083°
-75.349172°

Comment:
Photo of uplands facing southwest.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Transco Kish, Wetland DP1 Chester County, PA

Date:
5/24/2018

Photo:
1

Coordinates:

39.818562°
-75.435648°

Comment:

Photo of PFO wetland facing west.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Transco Kish, Wetland DP2 Chester County, PA

Date:
5/24/2018

Photo:
2

Coordinates:

39.818562°
-75.435648°

Comment:

Photo of upland facing northwest.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Transco Kish, Wetland DP3 Chester County, PA

Date:
5/24/2018

Photo:
3

Coordinates:

39.818562°
-75.435648°

Comment:

Photo of PEM/PSS wetland facing southeast.



PHOTOLOG

Project Name:
Adelphia Gateway Project

Location:
Transco Kish, Wetland DP4 Chester County, PA

Date:
5/24/2018

Photo:
4

Coordinates:

39.818562°
-75.435648°

Comment:

Photo of upland facing northwest.

