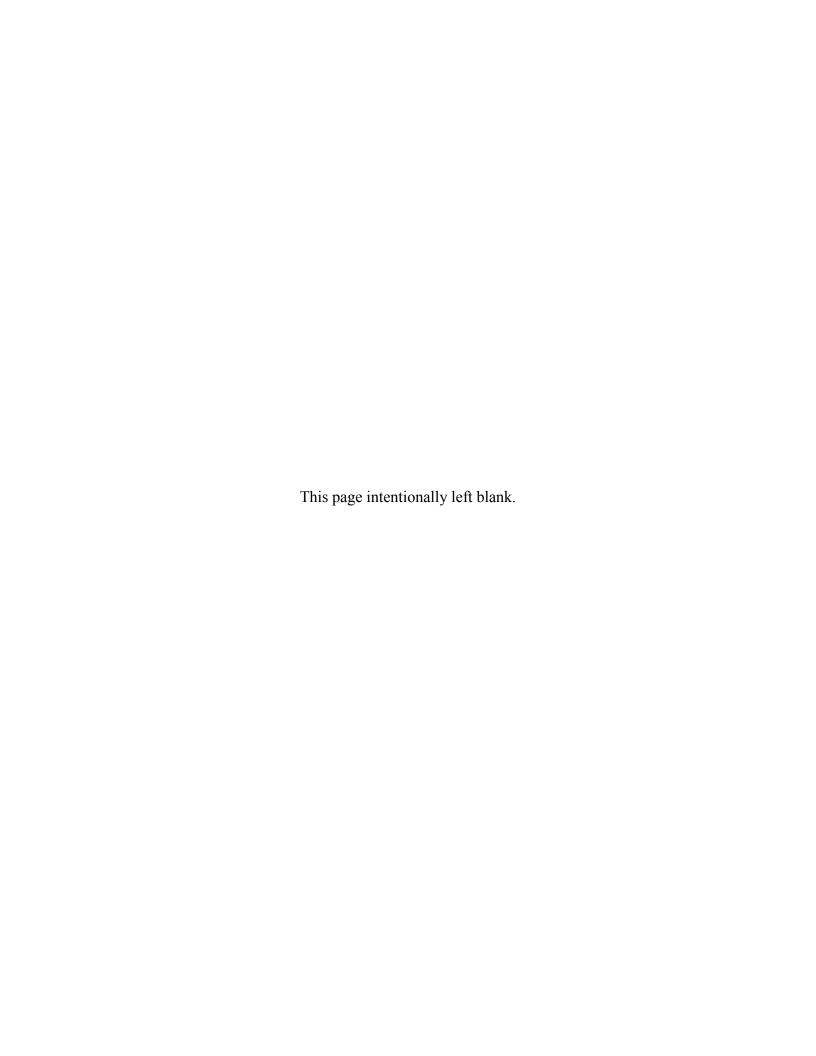
**G Wetland Delineation Report** 



# Naval Air Station Joint Reserve Base Willow Grove Wetland Delineation Report

A Technical Report in Support of the Environmental Impact Statement for the Disposal and Reuse of Naval Air Station Joint Reserve Base Willow Grove Horsham, Pennsylvania

Final

June 2013

#### **Prepared for:**

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## ist of Abbreviations and Acronyms

BRAC Closure Law Defense Base Closure and Realignment Act

BRAC PMO BRAC Program Management Office

BRAC Base Realignment and Closure
CFR Code of Federal Regulations

cm centimeter

°F degrees Fahrenheit

EIS Environmental Impact Statement

FAC Facultative

FACU Facultative Upland
FACW Facultative Wetland

JD Jurisdictional determination

GPS Global positioning system

HLRA Horsham Land Redevelopment Authority<sup>1</sup>

NAS JRB Naval Air Station Joint Reserve Base

Navy U.S. Department of the Navy

NRCS Natural Resources Conservation Service

OBL Obligate Wetland UPL Obligate Upland

USACE U.S. Army Corps of Engineers
USDA U.S. Department of Agriculture
USFWS U.S. Fish and Wildlife Service

USGS U.S. Geologic Survey

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<sup>&</sup>lt;sup>1</sup> Prior to June 2012, this entity was known as the Horsham Township Authority.

## **Executive Summary**

The U.S. Department of the Navy is preparing an Environmental Impact Statement (EIS) to evaluate the disposal and reuse of Naval Air Station Joint Reserve Base Willow Grove, in Horsham, Pennsylvania. The installation ceased operations and was officially closed in September 2011 under the Defense Base Closure and Realignment Act of 1990, as amended in 2005 (BRAC Closure Law). To support preparation of the EIS, a wetland delineation was conducted on approximately 860 acres of the former installation in April and May of 2013.

The wetland delineation identified and mapped 23 wetland features encompassing a total of 25.96 acres. Drainage features associated with the wetlands, including both man-made features such as culverts and ditches and naturally occurring features such as seeps and streams, were also mapped. A total of 6,738.99 feet of linear features were mapped.

Introduction

The U.S. Department of the Navy (Navy) has closed Naval Air Station Joint Reserve Base (NAS JRB) Willow Grove in accordance with Public Law 101-510, the Defense Base Closure and Realignment Act of 1990, as amended in 2005 (BRAC Closure Law). NAS JRB Willow Grove is located in Horsham Township, Montgomery County, Pennsylvania, approximately 18 miles north of Philadelphia. The main gate is located on Easton Road approximately 2.5 miles north of the Pennsylvania Turnpike (see Figure 1-1).

The site of NAS JRB Willow Grove was originally a municipal airfield constructed in the mid-1930s. The Navy acquired the airfield in response to World War II, and NAS Willow Grove was commissioned in January 1943. After World War II ended in 1945, the installation was designated a Reserve Training Station. In 1994, the installation was re-designated a Joint Reserve Base to more accurately reflect its status. The mission of NAS JRB Willow Grove prior to closure was to provide, train, and maintain a ready reserve force for the country.

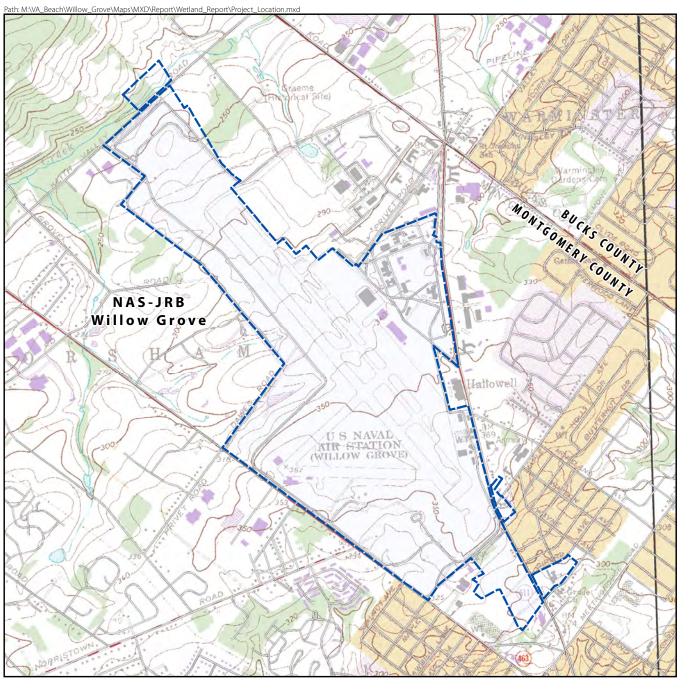
The BRAC Commission recommended closure of NAS JRB Willow Grove on September 8, 2005. The recommendation to close NAS JRB Willow Grove was approved by President Bush and accepted by Congress on November 9, 2005. By law, the installation had to be closed before September 15, 2011. The installation ceased operations and was officially closed in September 2011. The Navy intends to dispose of the installation property based on the recommendation of the BRAC Commission to close the installation. As part of the disposal process, the Horsham Township Authority (HLRA²) for NAS JRB Willow Grove was formed as the entity responsible for preparing the Redevelopment Plan with respect to the installation (RKG 2012). The Navy is preparing an Environmental Impact Statement (EIS) to evaluate the disposal and reuse of NAS JRB Willow Grove.

This wetland delineation report was prepared to support the Navy's EIS. Field reconnaissance surveys were conducted at NAS JRB Willow Grove in April and May 2013 to assess the occurrence of wetlands and waterbodies (e.g., streams, tributaries, and other major watercourses). Section 2 describes the methods used to evaluate wetlands and waterbodies at NAS JRB Willow Grove, and Section 3 describes the wetlands and waterbodies identified during the reconnaissance field

1-1 June 2013

In June 2012, the Horsham Township Authority was redesignated as the Horsham Land Redevelopment Authority (HLRA). To avoid confusion, this entity is referred to herein as the HLRA.

visit. The wetland delineation was performed for NEPA planning purposes and to identify potential impacts, which will be evaluated in the EIS; therefore, a jurisdictional determination (JD) of the wetland boundaries was not conducted. A JD will need to be conducted by a developer prior to any redevelopment of the installation property.



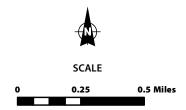
#### Figure 1-1 **Project Location NAS JRB Willow Grove**

NAS JRB Willow Grove Horsham, PA

#### Legend



County Boundary NAS JRB Willow Grove



SOURCE: ESRI 2010; USGS Ambler and Hatboro Quad 1996

2

# Methodology

This section describes the definition of wetlands and accepted criteria used to identify wetlands at NAS JRB Willow Grove.

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, bogs, marshes, and similar areas" (40 Code of Federal Regulations [CFR] 232.2).

The wetland delineation methods used in this study are described in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (USACE 2012). According to the wetland delineation manual, to be defined as a wetland an area must exhibit evidence of at least one positive wetland indicator from each of three parameters, including soils, hydrology, and vegetation (Environmental Laboratory 1987). These parameters are described below.

#### 2.1 Characteristics of Hydric Soils

The National Technical Committee for Hydric Soils has developed criteria for identifying hydric soils and published a list of the nation's hydric soil types. A hydric soil is defined as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (USDA NRCS n.d.). The growing season is defined as the portion of the year when the soil temperature at 12 inches below the soil surface is 41 degrees Fahrenheit (°F) or higher (USACE 2012). If the timing of the growing season based on vegetation growth and development and/or soil temperature is unknown and on-site data collection is not practical, then growing season dates may be approximated by the median dates (i.e., 5 years in 10, or a 50 percent probability) of 28 °F air temperatures in spring and fall, based on long-term records gathered at National Weather Service meteorological stations (USACE 2005). For Montgomery County, Pennsylvania, the growing season extends from April 18 through October 15, a period of 180 days (USDA NRCS 2002).

Anaerobic conditions are created when flooding, ponding, or saturation is of sufficient duration to result in the absence of oxygen from the soil. Such soils usually support hydrophytic vegetation. Due to their saturated condition during the growing season, hydric soils usually develop certain morphological features that can be observed in the field. A prolonged anaerobic environment typically results in the accumulation of organic matter and/or lowers the soil reduction-oxidation, or redox, potential and causes a chemical reduction of soil components, such as iron and manganese oxides. This reduction affects solubility, movement, and aggregations of these oxides, which are reflected in soil colors (USDA NRCS 2010).

#### 2.2 Characteristics of Wetland Hydrology

Permanent or periodic inundation (where soil is saturated within the rooting zone, at least seasonally) is the hydrologic force behind wetland formation. The presence of water for 5 percent or more of the growing season typically creates an anaerobic condition in the soil, which affects the types of plants that can grow there and the types of soils that develop (Environmental Laboratory 1987).

Factors that influence the wetness of an area include precipitation, stratigraphy (i.e., layering), topography and micro-relief, and soil permeability. The water found in wetlands may come directly from precipitation and from overbank flooding, surface water runoff, groundwater discharge, or tidal flooding. The frequency and duration of inundation and soil saturation range from permanent flooding or saturation to intermittent flooding or saturation. Duration is usually the most important factor affecting soils and vegetation. Soil permeability, which is affected by soil texture and density, also influences the duration of inundation or soil saturation. For example, soils with high clay content generally have lower permeabilities, absorb water more slowly, and therefore remain saturated for a longer period of time than sandy or loamy soils (Environmental Laboratory 1987).

Of the three technical criteria for wetland identification, wetland hydrology is often the least exact and most challenging to characterize, primarily because of annual, seasonal, and daily fluctuations in water level. An area has wetland hydrology when saturated within the rooting zone (usually within 12 inches of the surface) for at least 5 percent of the growing season (Environmental Laboratory 1987).

The U.S. Army Corps of Engineers (USACE) defines the water table as "the upper surface of groundwater or the level below which the soil is saturated with water. It is at least 6 inches thick and persists in the soil for more than a few weeks" (Environmental Laboratory 1987). Field indicators used as evidence of wetland hydrology include one or more primary indicator such as surface water, high water table, or saturation. Two or more secondary indicators may also be used as evidence of wetland hydrology, such as ordinary high water marks, drift lines, drainage patterns, water marks, sediment deposition, vegetation morphology (e.g., adventitious roots), and presence or absence of algae or moss (Environmental Laboratory 1987). The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) pro-

vides a complete list of primary and secondary wetland hydrology indicators for the region (USACE 2012).

#### 2.3 Characteristics of Hydrophytic Vegetation

Hydrophytic vegetation is defined as macrophytic plant life growing in water or soil or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content (Environmental Laboratory 1987). Vascular plants are classified into the following five wetland indicator status groups based on qualitative ecological descriptions (Lichvar et al. 2012):

- **Obligate Wetland (OBL).** Almost always occur in wetlands.
- Facultative Wetland (FACW). Usually occur in wetlands, but may occur in non-wetlands.
- Facultative (FAC). Occur in wetlands and non-wetlands.
- Facultative Upland (FACU). Usually occur in non-wetlands, but may occur in wetlands.
- Obligate Upland (UPL). Almost never occur in wetlands.

A list of plants able to tolerate saturated soil conditions has been developed for the Eastern Mountains and Piedmont Region by the USACE as part of an interagency effort with the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service (USFWS), and U.S. Department of Agriculture - Natural Resources Conservation Service (USDA NRCS) (Lichvar 2012). The presence of hydrophytic vegetation is determined using the wetland indicator status of species encountered. Wetland boundaries are identified based on the presence of a wetland plant community rather than on any one particular indicator species. For example, a plant community with scattered individual upland species but dominated by hydrophytic species is considered to be a wetland plant community. Within each wetland, specific communities are determined on the basis of their dominant plant species, soils, and hydrology.

#### 2.4 Classification

This section describes the different classes of wetlands and the criteria used to classify them. These criteria were used to classify wetlands at NAS JRB Willow Grove.

The wetlands delineated in the study area were classified using the USFWS wetland hierarchical classification system (Cowardin et al. 1979). This system classifies wetlands according to hydrologic, geomorphologic, chemical, and biological factors. Wetlands are first classified by the primary source of water to the wetland. These classes are usually identified by the physical form of the dominant vegetation community type or, less often, the substrate of the wetland. The Cowardin et al. (1979) primary systems are as follows:

■ Palustrine Systems are shallow ponds and wet areas, including all non-tidal wetlands, dominated by trees, shrubs, persistent emergents, emergent mosses,

or lichens. This system also includes wetlands lacking such vegetation but with all of the following four characteristics: (1) total area is less than 20 acres; (2) active wave-formed or bedrock shoreline features are lacking; (3) water depth in the deepest part of the basin is less than 6.6 feet at low water; and (4) salinity, due to ocean-derived salts, is less than 0.5 part per thousand.

- Lacustrine Systems are lakes and deep ponds and include wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) trees, shrubs, persistent emergents, emergent mosses, or lichens with less than 30 percent aerial coverage; and (3) total area exceeds 20 acres. Similar wetland and deepwater habitats totaling less than 20 acres are also considered a Lacustrine System if an active wave-formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin exceeds 6.6 feet at low water. Lacustrine waters may be tidal or non-tidal, but ocean-derived salinity is always less than 0.5 parts per thousand.
- Marine Systems consist of open ocean overlying the continental shelf and its associated high-energy coastline. Marine habitats are exposed to the waves and currents of the open ocean, and the water regimes are determined primarily by the ebb and flow of oceanic tides. Salinities exceed 30 parts per thousand, with little or no dilution, except outside the mouths of estuaries. Shallow coastal indentations or bays without appreciable freshwater inflow and coasts with exposed rocky islands that provide the mainland with little or no shelter from wind and waves are also considered a Marine System because they generally support typical marine biota.
- Estuarine Systems consist of deepwater tidal habitats and their adjacent tidal wetlands, which are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may periodically increase above that of the open ocean by evaporation. Along some low-energy coastlines, there is appreciable dilution of seawater. Offshore areas with typical estuarine plants and animals are also included in this system.
- Riverine Systems include all wetlands and deepwater habitats contained within a channel, except: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens; and (2) habitats with water containing ocean-derived salts in excess of 0.5 parts per thousand.

The above systems are then divided into more specific categories, or subsystems, although there are no subsystems in the Palustrine System. The classification system further subdivides wetlands into different classes based on general appearance of the life form in the plant community (e.g., trees, shrubs, aquatic vegetation; see Table 2-1). The class Forested Wetland is characterized by woody vegetation that is 19.7 feet or taller and greater than 3 inches in diameter at breast height. The class Scrub-Shrub Wetland is dominated by multi-stemmed woody vegetation less than 19.7 feet in height. This class includes shrubs, sapling trees, and trees that are small or stunted due to environmental conditions. The class

Emergent Wetland consists of erect, rooted, herbaceous vascular plants and excludes mosses and lichens.

**Table 2-1 Palustrine System Classes and Subclasses** 

Tubic 2-1 1 diustinic bystein blusses	
RB – ROCKY BOTTOM	ML - MOSS-LICHEN
1 – Bedrock	1 – Moss
2 – Rubble	2 – Lichen
UB – UNCONSOLIDATED BOTTOM	EM – EMERGENT
1 – Cobble-Gravel	1 – Persistent
2 – Sand	2 – Nonpersistent
3 – Mud	
4 – Organic	SS – SCRUB-SHRUB
	1 – Broad-Leaved Deciduous
AB – AQUATIC BED	2 – Needle-Leaved Deciduous
1 – Algal	3 – Broad-Leaved Evergreen
2 – Aquatic Moss	4 – Needle-Leaved Evergreen
3 – Rooted Vascular	5 – Dead
4 – Floating Vascular	6 – Deciduous
5 – Unknown Submergent	7 – Evergreen
6 – Unknown Surface	
	FO – FORESTED
US – UNCONSOLIDATED SHORE	1 – Broad-Leaved Deciduous
1 – Cobble-Gravel	2 –Needle-Leaved Deciduous
2 – Sand	3 – Broad-Leaved Evergreen
3 – Mud	4 – Needle-Leaved Evergreen
4 – Organic	5 – Dead
5 – Vegetated	6 – Deciduous
	7 – Evergreen
	OW – OPEN WATER/UNKNOWN BOTTOM

Source: Cowardin et al. 1979.

The determination of wetland classes is based on the following criteria: if vegetation covers 30 percent or more of the substrate, then the class is distinguished on the basis of the life form of the plants that constitutes the uppermost layer of vegetation and that possesses an aerial coverage of 30 percent or greater. For example, an area with 50 percent areal coverage of trees over a shrub layer with 60 percent areal coverage would be classified as Forested Wetland; an area with 20 percent areal coverage of trees over the same (60 percent) shrub layer would be classified as Scrub-Shrub Wetland. When trees or shrubs alone cover less than 30 percent of an area but in combination cover 30 percent or more, the wetland would be assigned to the class Scrub-Shrub Wetland. When trees and shrubs together cover less than 30 percent of the area but the total cover of vegetation is 30 percent or greater, the wetland would be assigned to the appropriate class for the predominant life form below the shrub layer.

Finer differences in life form are recognized at the subclass level. For example, during this study, the only Forested Wetland subclass (and its classification code) encountered during surveys was "1 – Broad-Leaved Deciduous," the only Scrub-Shrub Wetland subclass encountered during field surveys was "1 – Broad-Leaved Deciduous," and the only Emergent Wetland subclass was "1 – Persistent."

#### 2.5 Desktop Data Review

Prior to engaging in field work, background information was reviewed to familiarize field personnel with the study area and to assist in the initial identification of wetlands and waterbodies. This background information included data from the following publicly available sources:

- U.S. Geologic Survey (USGS) 7.5-Minute Series topographic maps (Ambler and Hatboro Quadrangles) (USGS 1996)
- Current aerial imagery
- USFWS National Wetland Inventory (USFWS 2011)
- USGS National Land Cover Data (Fry et al. 2011)
- USDA Soil Survey Geographic (SSURGO) Database (USDA NRCS 2009)
- USDA NRCS WETS table data (USDA NRCS 1995).

In addition to public databases queried during the desktop review, the installation's Integrated Natural Resources Management Plan (Atlantic Division, Naval Facilities Engineering Command 2000) was reviewed for descriptions of previously noted water resources.

#### 2.6 Field Surveys

Field surveys were conducted on April 1 through April 6, April 30 through May 3, and May 12, 2013, to delineate and characterize water resources occurring within approximately 860 acres of the former NAS JRB Willow Grove property. The delineation did not include areas of the former installation that have been, or will be, transferred to other federal agencies, such as the Federal Aviation Administration and the U.S. Air Force (Horsham Air Guard Station).

Field data collected during the wetland delineation were recorded on "Wetland Determination Data Form: Eastern Mountains and Piedmont Region" datasheets (see Appendix A). A "Wetland Jurisdictional Field Data Sheet" was also completed for each delineated wetland (see Appendix A). In general, after preliminary identification of potential wetland areas based on vegetation and hydrology, the following activities were performed at each location to assist in verifying the presence of a wetland and delineating the wetland boundaries:

■ The Wetland Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement (USACE 2012) provide guidelines for determining the presence of wetland hydrology. In general, the criteria for wetland hydrology are met if the area is inundated or saturated at the soil surface during the growing season for a time sufficient to develop hydric soils and support hy-

drophytic vegetation. In some instances, it is necessary to use other field characteristics to identify wetland hydrology. These characteristics may include water staining, sediment deposits, drainage patterns, or drift lines. Hydrologic characteristics, as well as the depth of surface water or depth to soil saturation, were recorded for each wetland area.

- To determine the presence of hydrophytic vegetation, the dominant species in each major vegetative stratum (i.e., tree, shrub/sapling, herbaceous, and woody vine) and their relative percent cover were identified and recorded. Each dominant plant species was then associated with its wetland indicator status (i.e., OBL, FACW, FAC, FACU, or UPL) as defined by Lichvar (2012). If the percent cover is dominated by species that are classified as FAC, FACW, or OBL then hydrophytic vegetation is deemed to be present.
- Soils were examined by using a tile spade shovel, or "sharpshooter," to a depth of at least 36 centimeters (cm) (14 inches), if possible. Wherever disturbance of the soils caused by past excavation or fill activity was evident, a soil characterization was performed in adjacent, undisturbed areas within the potential wetland, if present. Soils were characterized at a depth immediately below the A-horizon or at 30 cm (12 inches), whichever was shallower. Soil colors were identified using a Munsell Soil Color Chart (Munsell Color 2009), and characteristics such as the presence of mottles and soil texture were recorded. Hydric characteristics such as organic soil layers, gleying, mottling, and oxidized rhizospheres were noted where they occurred.
- Each wetland was classified according to the USFWS hierarchical classification system developed by Cowardin et al. (1979).

In addition to delineating wetland boundaries, information on seeps, streams, and ponds/lakes was also collected. Man-made and natural features such as ditches, swales, drainage patterns, and culverts were also mapped as necessary to describe the hydrologic regime related to the wetlands at NAS JRB Willow Grove. Only man-made features connected to a wetland or stream with a significant enough function worth noting were mapped.

Based on the methods described above, the boundary of each water resource was determined and flagged with wetland delineation tape. Flag locations were surveyed using a Trimble GeoXT global positioning system (GPS) unit. Electronic files were then generated from the GPS survey for integration into figures for NAS JRB Willow Grove. Photographs were taken at each delineated feature (see Appendix B).

### **Results**

#### 3.1 Wetlands

Twenty-three wetland features encompassing a total of 25.96 acres were identified during the survey (see Figures 3-1, Frames 1 through 6). The 23 wetlands listed in Table 3-1 are identified on Figure 3-1 by 32 polygons; some features with a distinct upland area between them were treated as a single wetland if they had similar conditions and shared a distinct hydrologic connection. It is likely that many of these features were once larger wetlands that have been bisected by human activities. A summary of each wetland is provided in Table 3-1.

Table 3-1 Summary of Wetlands Delineated at NAS JRB Willow Grove

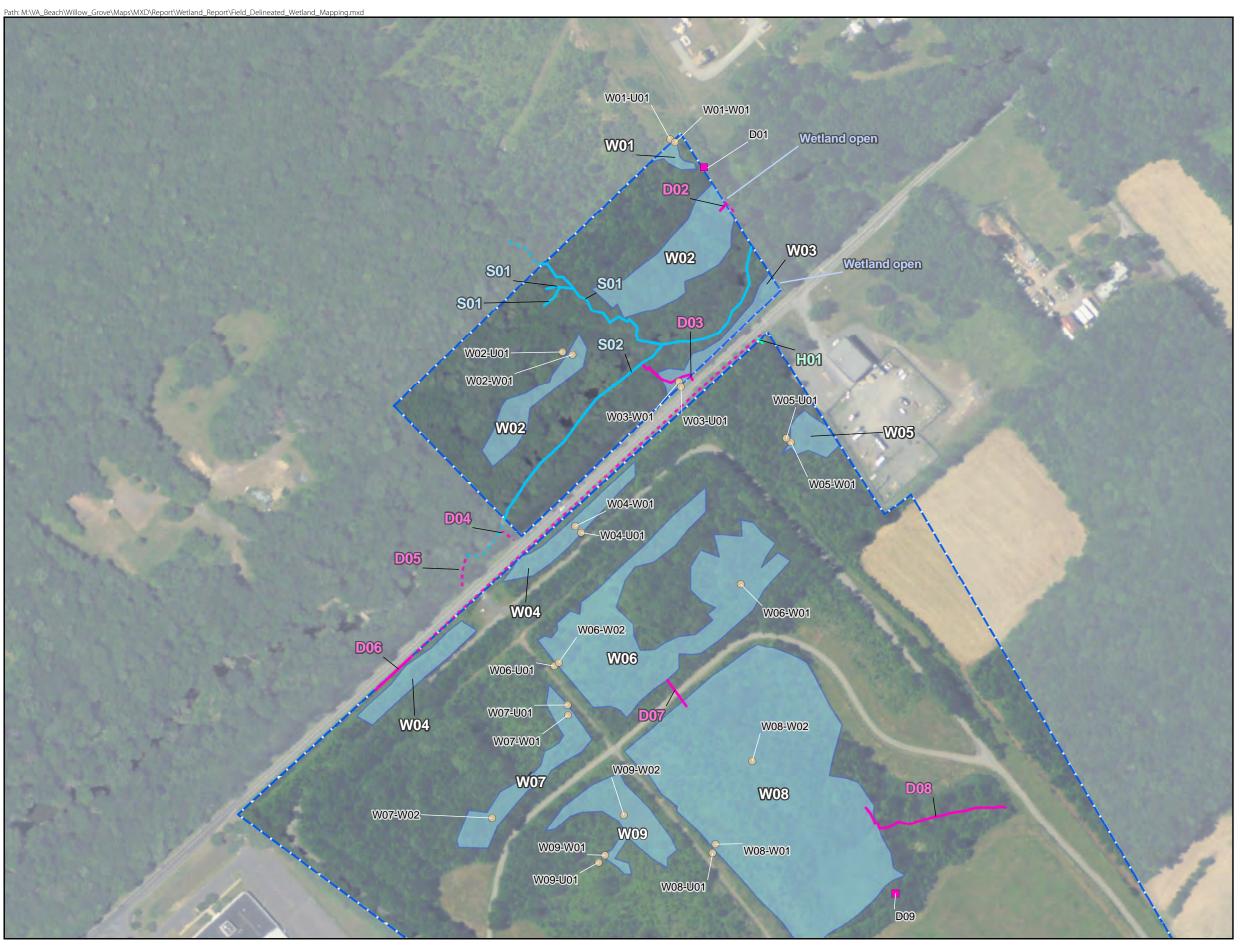
Size			
Wetland	Class	(acres)	
W01	PEM1	0.08	
W02 (East)	PFO1	1.13	
W02 (West)	PEM1/PSS1/PFO1	0.49	
W03	PEM1/PSS1/PFO1	0.30	
W04 (East)	PSS1/PFO1	0.42	
W04 (West)	PSS1/PFO1	0.41	
W05	PFO1	0.24	
W06	PSS1/PFO1	2.94	
W07	PSS1/PFO1	0.66	
W08 (East)	PSS1/PFO1/PEM1	6.86	
W08 (West)	PEM1	0.18	
W09	PSS1/PEM1	0.71	
W10	PFO1	0.06	
W11 (East)	PFO1/PEM1	0.11	
W11 (West)	PFO1/PEM1	0.58	
W12	PEM1	0.07	
W13	PSS1	0.76	
W14 (East)	PSS1/PEM1/OW	3.28	
W14 (West)	PFO1	0.40	
W15	PEM1	1.06	
W16	PSS1	0.09	
W17 (East)	PSS1	0.20	
W17 (West)	PSS1	0.10	
W18 (North)	PSS1/PFO1/PEM1	0.28	

Table 3-1 Summary of Wetlands Delineated at NAS JRB Willow Grove

Maria de la colo	01	Size
Wetland	Class	(acres)
W18 (South)	PSS1/PFO1/PEM1	0.16
W19 (East)	PFO1	0.34
W19 (West)	PFO1	0.16
W20	PSS1	0.36
W21	PEM1	0.04
W22	PSS1/PFO1	3.30
W23 (North)	PSS1/PFO1/OW	0.15
W23 (South)	PEM1	0.06
Total		25.96

Each of the wetland features shown on Figure 3-1 and listed in Table 3-1 are described below. More detailed information for each wetland can be found on the Wetland Jurisdictional Field Data Sheets and Wetland Determination Data Forms provided in Appendix A. Representative photos of each wetland are provided in Appendix B.

- Wetland W01: This 0.08 acres PEM1 wetland is located in the northeast corner of the property (see Figure 3-1, Frame 1). The wetland continues off the property to the north and receives hydrologic inputs from a retention pond located off the NAS JRB Willow Grove property. The wetland appears to have a discrete ephemeral connection to W02 and Park Creek (S02) via a swale (D01) that runs southeast, off the installation property. Dominant herbaceous species in the wetland include common fox sedge (Carex vulpinoidea), lesser poverty rush (Juncus tenuis), lamp rush (Juncus effusus), and common velvet grass (Holcus lanatus).
- Wetland W02: This 1.62 acres PFO1 wetland was delineated as two separate sections north of Keith Valley Road (see Figure 3-1, Frame 1). The western section encompasses 0.49 acres, and the eastern section encompasses 1.13 acres. The eastern section of the wetland continues to the east, off NAS JRB Willow Grove property. The wetland is located within the floodplain terrace of Park Creek (S02) and is bisected by a stream (S01) that flows south to Park Creek (S02). Each wetland section has a discrete ephemeral connection to S01. A swale (D02) is also present at the eastern end of the wetland that connects directly to Park Creek (S02). At the time of the survey, approximately 25 percent of the wetland was inundated or saturated at the surface. Dominant trees include silver maple (Acer saccharinum), American elm (Ulmus americana), and red maple (Acer rubrum). American elm, northern spicebush (Lindera benzoin), and rambler rose (Rosa multiflora) occur in the sapling/shrub stratum, and melic manna grass (Glyceria melicaria), thymeleaf speedwell (Veronica serpyllifolia), fig buttercup (Ficaria verna), and lamp rush occur in the herbaceous stratum.



Frame 1 of 6 NAS JRB Willow Grove Horsham, PA





Off-Base Drain
Hydrology

---- Hydrology

Off-Base Hydrology
Stream

• • • Off-Base Stream

Soil Point

Wetland

NAS JRB Willow Grove





SCALE

200 400 Feet

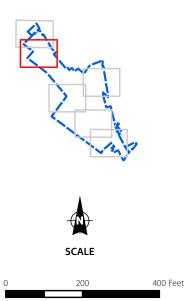
SOURCE: ESRI 2010; National Aerial Imagery Program 2010.



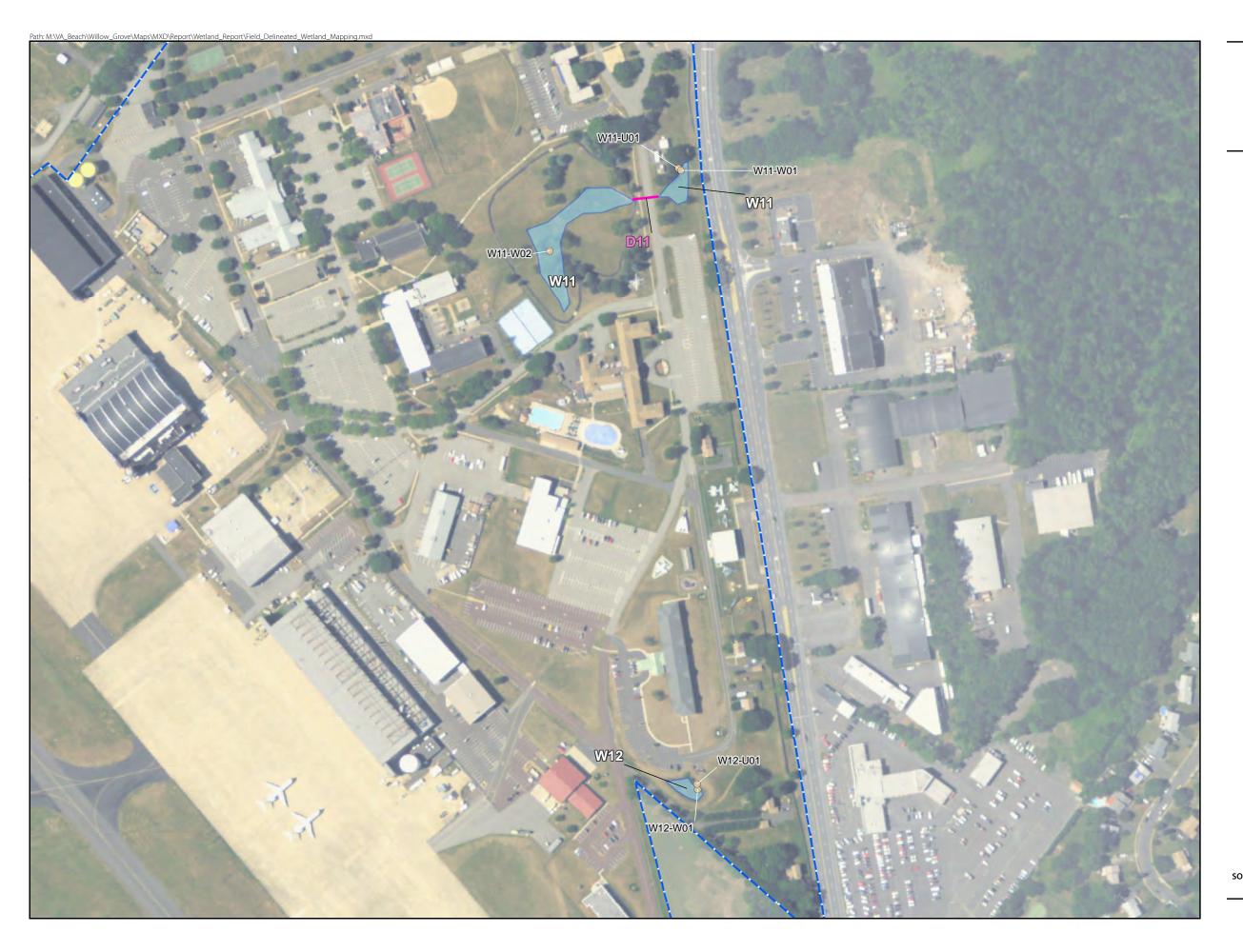
Frame 2 of 6 NAS JRB Willow Grove Horsham, PA







**SOURCE**: ESRI 2010; National Aerial Imagery Program 2010.



Frame 3 of 6 NAS JRB Willow Grove Horsham, PA





— Drain

Off-Base Drain

Hydrology
Hydrology

• • • Off-Base Hydrology

Stream

• • • Off-Base Stream

Soil Point

Wetland

NAS JRB Willow Grove

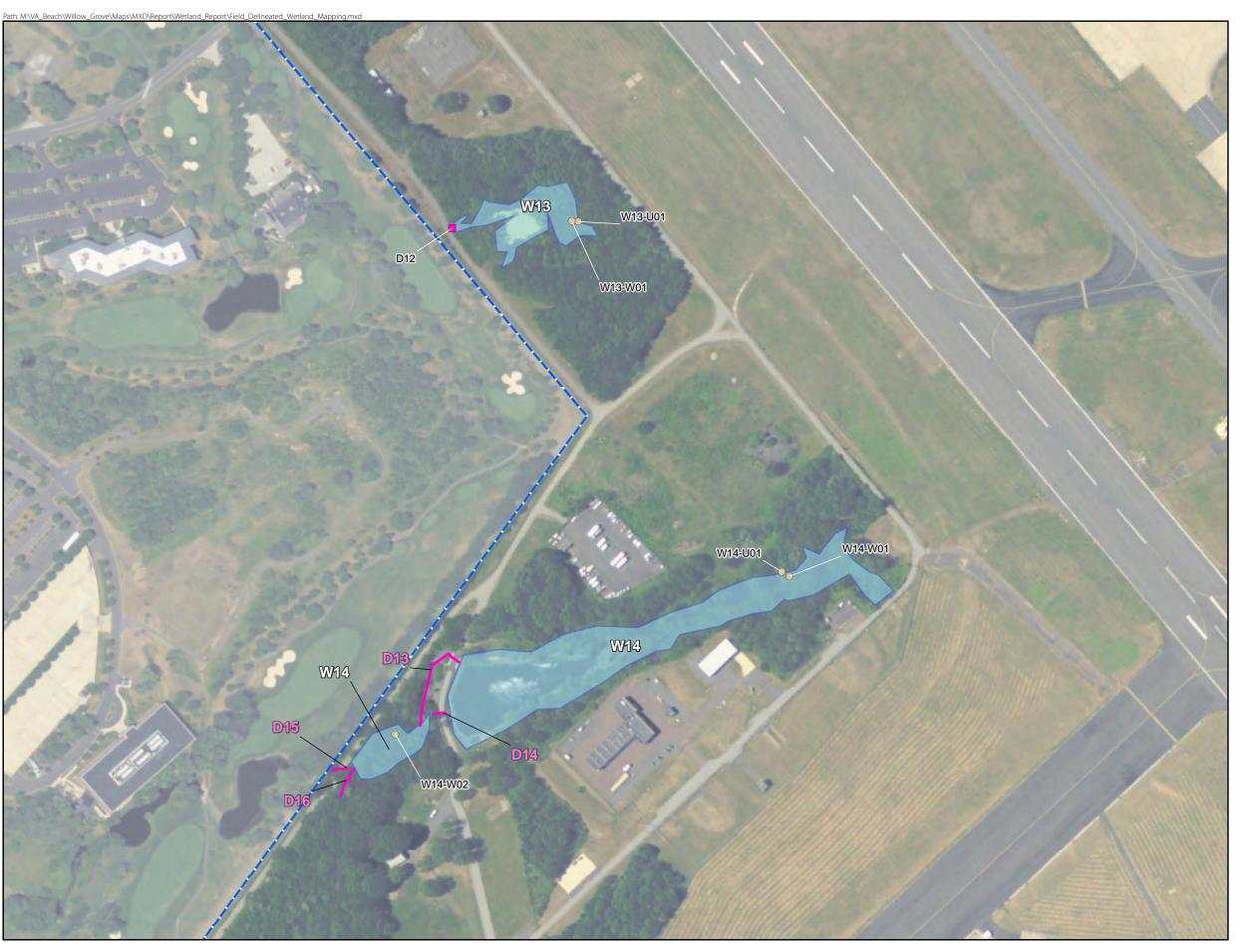




SCALE

SOURCE: ESRI 2010; National Aerial Imagery Program 2010.

400 Feet



Frame 4 of 6 NAS JRB Willow Grove Horsham, PA





—— Drain

• • • Off-Base Drain

HydrologyHydrology

• • • Off-Base Hydrology

Stream

• • • Off-Base Stream

Soil Point

Wetland

NAS JRB Willow Grove

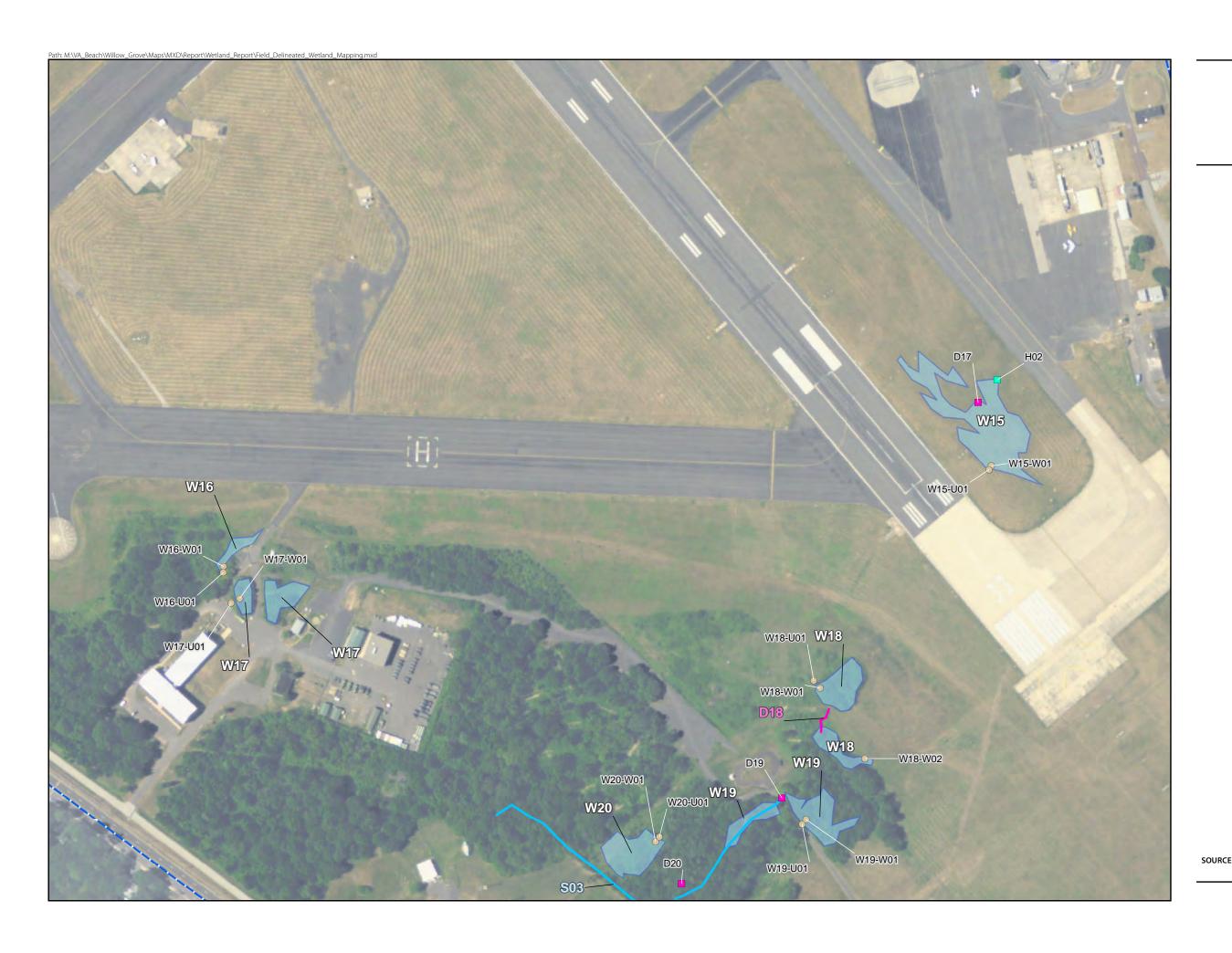




SCALE

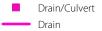
200 400 Feet

SOURCE: ESRI 2010; National Aerial Imagery Program 2010.



Frame 5 of 6 NAS JRB Willow Grove Horsham, PA





Off-Base Drain

HydrologyHydrology

• • • Off-Base Hydrology

Stream

• • • Off-Base Stream

Soil Point

Wetland

NAS JRB Willow Grove





SCALE

**SOURCE**: ESRI 2010; National Aerial Imagery Program 2010.

400 Feet



- Wetland W03: This 0.30 acres wetland borders the north side of Keith Valley Road; it continues off of the installation property to the east (see Figure 3-1, Frame 1). The wetland connects to Park Creek (S02) through a drainage (D03) originating on the south side of Keith Valley Road. It is a PEM1 wetland close to the road, and transitions to a PSS1 wetland and PFO1 wetland moving north from the road. Green ash (*Fraxinus pennsylvanica*) is the dominant tree species and also occurs in the sapling stratum. Red osier (*Cornus alba*) also occurs in the sapling stratum. Herbaceous species include skunk-cabbage (*Symplocarpus foetidus*), lamp rush, fig buttercup, uptight sedge (*Carex stricta*), and sensitive fern (*Onoclea sensibilis*).
- Wetland W04: This 0.83 acres PSS1/PFO1 wetland is located along the perimeter fence on the south side of Keith Valley Road (see Figure 3-1, Frame 1). The wetland is bisected by a road and was delineated as two separate polygons; the western portion encompasses 0.41 acres and the eastern portion encompasses 0.42 acres. The two areas are connected by a culvert and drain into a narrow roadside ditch along Keith Valley Road (D06). A small hillside seep (H01) was also noted during the survey draining into D06. Culverts (D04 and D05) continue under Keith Valley Road and drain into Park Creek (S02). At the time of the survey, approximately 20 percent of the wetland was inundated. The wetland contains an abundance of trees up to 40 feet tall and saplings up to 20 feet tall. Silver maple, slippery elm (*Ulmus* rubra), and red maple dominate the tree stratum. Silver maple and slippery elm are also common in the sapling stratum, along with red osier and black willow (Salix nigra). The herbaceous stratum is dominated by common reed (Phragmites australis), sensitive fern, and field horsetail (Equisetum arvense).
- Wetland W05: This 0.24 acres PFO1 depression may be man-made, as it is bounded by berms and appears to have been used for debris disposal (see Figure 3-1, Frame 1). Soils are hydric and show evidence of disturbance. A majority of the wetland was inundated with several inches of water at the time of the survey. The tree stratum is dominated by silver maple, green ash, and eastern red-cedar (*Juniperus virginiana*). Northern spicebush (*Lindera benzoin*), southern arrow-wood (*Viburnum dentatum*), and silver maple are common in the sapling/shrub stratum.
- wetland w06: This 2.94 acres PSS1/PFO1 wetland is situated in a depression created by bermed roads on all sides (see Figure 3-1, Frame 1). The roads separate this wetland from W07, W08, and W09. A culvert/drain (D07) joins W08 to W06. Water appears to flow north from W08 into W06; however, no outlet from W06 was identified. Much of W06 was inundated at the time of the survey. Forested areas of the wetland are dominated by red maple, green ash, northern red oak (*Quercus rubra*), and slippery elm in the tree stratum. Southern arrow-wood, red osier, red maple, slippery elm, and flowering dogwood (*Cornus florida*) are common in the sapling/shrub stratum. In the scrub-shrub portions of the wetland, crack willow (*Salix fragilis*) and red maple are common saplings/shrubs; fringed yellow-loosestrife (*Ly-simachia ciliata*) and rufous bulrush (*Scirpus pendulus*) are common herbs.

- Wetland 07: This 0.66 acres PSS1/PFO1 wetland is situated in a depression created by bermed roads to the south and east (see Figure 3-1, Frame 1), which separate this wetland from W06, W08, and W09. This wetland was not inundated at the time of the survey; however, the soil was saturated to the surface and primary (i.e., oxidized rhizospheres) and secondary (e.g., drainage patterns) wetland hydrology indicators were observed. Forested portions of this wetland are dominated by red maple and eastern red-cedar in the tree stratum, and red maple, southern arrow-wood, and rambler rose in the sapling/shrub stratum. In the scrub-shrub portions of the wetland, red osier, green ash, crack willow, and red maple are common in the sapling/shrub stratum, and lamp rush, uptight sedge, thyme-leaf speedwell, Canadian goldenrod (Solidago canadensis), fowl manna grass (Glyceria striata), and arrow-leaf tearthumb (Persicaria sagittata) are common in the herb stratum.
- Wetland W08: This 7.04 acres wetland has PFO1, PSS1, and PEM1 components (see Figure 3-1, Frames 1 and 2). As with other wetlands in this area (i.e., W06, W07, and W09), it is a depression bounded by bermed roads. A 0.18 acres portion of the wetland was delineated to the west of the main wetland area. This portion is a PEM1 wetland connected to the main wetland by a culvert (D10) (see Figure 3-1, Frame 2). D08 and D09 appear to be hydrologic inputs into W08. W08 drains into W06 through a culvert (D07); however, these wetlands appear to be isolated, as no outlet from W06 was observed. This wetland appears to have been cleared in the past, possibly for clear zone maintenance. Forested areas are dominated by red maple, silver maple, and green ash in the tree stratum; red osier, flowering dogwood, American plum (Prunus americana), red maple, green ash, southern arrowwood, rambler rose, and twinsisters (Lonicera tatarica) in the sapling/shrub stratum; and, soft fox sedge (Carex conjuncta), Japanese honeysuckle (Lonicera japonica), and rufous bulrush in the herb stratum. Scrub-shrub areas contain saplings of red osier, black willow, green ash, ash-leaf maple (Acer negundo), pin oak, and red maple. Common reed and rufous bulrush occur in the herb stratum. PEM areas of the wetland are almost entirely vegetated with common reed.
- Wetland W09: This 0.71 acres PEM1/PSS1 wetland is situated in a depression created by bermed roads to the north and east (see Figure 3-1, Frame 1), which separate this wetland from W06, W07, and W08. The wetland appears isolated, as no outlets were observed during the survey. As with W08, W09 appears to have been cleared in the past, and contains emergent vegetation in the center with a scrub-shrub fringe. The center portion of the wetland was inundated at the time of the survey. The emergent portion of the wetland is dominated by rufous bulrush, uptight sedge, broad-leaf cat-tail (*Typha latifolia*), harvestlice (*Agrimonia parviflora*), blunt spike-rush (*Eleocharis obtusa*), and arrow-leaf tearthumb. Scattered saplings of green ash, slippery elm, and pin oak (*Quercus palustris*) are also present. The scrub-shrub fringe is dominated by pin oak, red osier, red maple, and slippery elm.
- Wetland W10: This is 0.06 acres isolated PFO1 depressional wetland is adjacent to a road (see Figure 3-1, Frame 2). At the time of the survey, it was inundated with 2 to 3 inches of water. It is dominated by red maple and sil-

ver maple, with red maple saplings also present. No herb stratum is present in the wetland.

- Wetland W11: This 0.69 acres PFO1/PEM1 wetland occurs within a stormwater outfall on the eastern side of NAS JRB Willow Grove (see Figure 3-1, Frame 3). It was delineated as two separate areas connected through a culvert (D11) under A Avenue. The western portion encompasses 0.58 acres and the eastern portion encompasses 0.11 acres. It drains northeast, off the installation. The PEM portion of the wetland is dominated by broad-leaf cattail, and the PFO portion is dominated by weeping willow (Salix babylonica).
- Wetland W12: This 0.07 acres isolated PEM1 wetland occurs within a retention pond (see Figure 3-1, Frame 3). It is dominated by broad-leaf cattail, but also contains lamp rush and needle spike-rush (*Eleocharis acicularis*).
- Wetland W13: This 0.76 acres wetland is primarily a PSS1 wetland with areas of open water, but it contains some pockets of larger trees within its interior and along its fringe (see Figure 3-1, Frame 4). An old boardwalk and evidence of altered hydrology were observed during the survey. A previously mapped NHD stream was not located, likely as a result of the previous disturbance. However, a culvert (D12) was identified at the western end of the wetland that drains the wetland area under a road and off the installation. Larger trees include red maple, shag-bark hickory (*Carya ovata*), and crack willow. The scrub-shrub areas are dominated by red osier, red maple, and pin oak.
- Wetland W14: This 3.68 acres wetland contains PSS1/PEM1 and PFO1 wetlands and open water. It was delineated as two separate areas (see Figure 3-1, Frame 4). The eastern area encompasses 3.28 acres and consists of a mixed PSS1/PEM1 wetland to the east that flows into an open water pond to the west. The pond is dammed by a road on its western side. A culvert and spill gate (D13 and D14) drain water to the west into a 0.40 acres PFO1 wetland. The system drains southwest off the installation through a culvert (D15). An overflowing monitoring well (D16) was noted during the survey; water from this well was flowing north into the wetland. Beaver (Castor canadensis) activity was noted throughout this wetland system. The PSS/PEM portion of the wetland is dominated by red osier, crack willow, sensitive fern, and uptight sedge. The forested portions are dominated by red maple, green ash, and tuliptree (Liriodendron tulipifera) in the tree stratum.
- Wetland W15: This 1.06 acres isolated PEM1 wetland is located in a depression between the runway and taxiway (see Figure 3-1, Frame 5). The size of the wetland is likely limited by a stormwater drain (D17), which drains the area during high water periods. At the time of the survey, soils within the wetland were saturated to the surface and inundated areas occurred in the interior. A seep (H02) was noted as a hydrologic input to the wetland. Dominant species include dark-green bulrush (*Scirpus atrovirens*), lamp rush, sallow sedge (*Carex lurida*), and slender spike-rush (*Eleocharis tenuis*).
- Wetland W16: This 0.09 acres isolated PSS1 wetland abuts a paved road and the airfield perimeter fence (see Figure 3-1, Frame 5). Portions of the wetland are disturbed with rock and debris. Dominant species include red

- osier and crack willow in the shrub stratum, and rufous bulrush, lamp rush, and Canadian goldenrod in the herb stratum.
- Wetland W17: This 0.30 acres isolated PSS1 wetland was delineated as two separate areas, as it is divided by a road (see Figure 3-1, Frame 5). The western portion encompasses 0.10 acres, and the eastern portion encompasses 0.20 acres. Both portions were inundated at the time of the survey. The sapling/shrub layer is dominated by pussy willow (*Salix discolor*), crack willow, and red osier; the herb layer is dominated by common reed.
- Wetland W18: This 0.44 acres mixed PSS1/PFO1/PEM1 wetland is located in the wooded margins of the airfield (see Figure 3-1, Frame 5). It was delineated as two areas connected by an upland swale (D18). The northern portion encompasses 0.28 acres, and the southern portion encompasses 0.16 acres. While the two portions are connected to each other, the wetland appears to be isolated. Forested areas contain crack willow and red maple in the tree stratum and red osier, crack willow, and red maple in the sapling/shrub stratum. PSS and PEM areas contain saplings of crack willow and red osier, with lamp rush, uptight sedge, and field horsetail in the herb layer.
- Wetland W19: This 0.5 acres PFO1 wetland is drained by a stream (S04) (see Figure 3-1, Frames 5 and 6). It was delineated as two areas connected by a culvert (D19), which conveys a stream (S04) under a paved path; an additional culvert (D20) also feeds into this stream. During the survey, an overflowing well or manhole cover (H03) was noted providing additional hydrologic input to S04. S04 drains from the installation via a culvert (D22). The eastern portion of the wetland encompasses 0.34 acres, and the western portion of the wetland encompasses 0.16 acres. Dominant trees include red maple and green ash; red osier and red maple are common saplings.
- Wetland W20: This 0.36 acres PSS1 wetland is adjacent to a stream (S03) (see Figure 3-1, Frames 5 and 6). The wetland is separated from the stream by approximately 5 feet at the closest point, but likely has a subsurface connection. S03 drains into S04, which drains from the installation via a culvert (D22). The sapling/shrub stratum is primarily composed of red osier, but also contains red maple; rufous bulrush is dominant in the herb stratum.
- Wetland W21: This 0.04 acres PEM1 wetland is associated with a drainage ditch (see Figure 3-1, Frame 6). It is connected to other waterbodies on NAS JRB Willow Grove via a storm sewer. Broad-leaf cat-tail is the dominant vegetation; lesser poverty rush, needle spike-rush, and broom-sedge (*Andropogon virginicus*) also occur.
- Wetland W22: This 3.30 acres PSS1/PFO1 wetland complex contains two open-water ponds (see Figure 3-1, Frame 6). The wetland complex drains via S05, which drains from the installation via a culvert (D22). A man-made ditch (D21) flows southwest into S05. In addition, two seeps (H04 and H05) provide hydrologic inputs into S05. The PSS portions of the wetland are dominated by red maple and red osier in the sapling/shrub stratum, and sensitive fern and broad-leaf cat-tail in the herb stratum. PFO portions of the wetland are dominated by red maple in the tree stratum. The sapling/shrub stratum consists of red maple saplings and red osier, Virginia rose (*Rosa virgini*-

- *ana*), and Allegheny blackberry (*Rubus allegheniensis*). The two open-water ponds are connected by D23.
- Wetland W23: This 0.21 acres PEM1 wetland is situated within a wide swale with berms on either side (see Figure 3-1, Frame 6). It appears to have been man-made for stormwater runoff. The wetland is delineated as two areas; the northern area encompasses 0.15 acres, and the southern area encompasses 0.06 acres. The two areas are hydrologically linked by a drainage ditch (D25). Two culverts (D24 and D27) appear to be hydrologic inputs to the system, while a third culvert (D26) appears to be an outlet from the system. The northern portion of the wetland appears to be permanently inundated, while the southern portion appears to be intermittently inundated. Dominant plants in both portions include common fox sedge and lamp rush.

#### 3.2 Waterbodies

In addition to the wetlands described in Section 3.1, information on other hydrologic features at NAS JRB Willow Grove was collected. Three ponds were noted during the survey. All three of the ponds occur within the extent of wetlands (W14 and W22); therefore, specific pond boundaries were not delineated. Other features noted during the survey included drains, other hydrologic (hydrology) features, and streams. In general, drains refer to man-made structures such as ditches and culverts. Hydrology features generally include naturally occurring seeps. Streams are generally naturally occurring and can be intermittent or perennial. The features mapped at NAS JRB Willow Grove, including their associated wetland(s) or other feature(s), are summarized in Table 3-2. Descriptions of the features are included with their associated wetland in Section 3.1.

Table 3-2 Summary of Linear Features at NAS JRB Willow Grove

Number	Feature Type	Associated Feature	Length (feet) <sup>*</sup>
Drains			
D01	Swale	W01	-
D02	Swale	W02	22.32
D03	Culvert	W03	162.74
D04	Culvert	W04	-
D05	Culvert	W04	-
D06	Ditch	W04	124.13
D07	Culvert	W06, W08	83.65
D08	Drainage	W08	408.56
D09	Culvert	W08	-
D10	Culvert	W08	75.07
D11	Culvert	W11	67.41
D12	Culvert	W13	-
D13	Culvert	W14	247.89
D14	Culvert	W14	30.05
D15	Culvert	W14	39.26
D16	Other (Monitoring Well)	W14	85.36
D17	Drain	W15	-
D18	Swale	W18	76.07

Table 3-2 Summary of Linear Features at NAS JRB Willow Grove

		Associated	Length	
Number	Feature Type	Feature	(feet) <sup>*</sup>	
D19	Culvert	W19	-	
D20	Culvert	S04	-	
D21	Ditch	W22	218.91	
D22	Culvert	S04, S05	-	
D23	Drainage	W22	74.59	
D24	Culvert	W23	-	
D25	Swale	W23	232.99	
D26	Culvert	W23	-	
D27	Culvert	W23	-	
Hydrology				
H01	Seep	W04, D06	10.37	
H02	Seep	W15	_	
H03	Other (Manhole Cover/Well)	S04	264.91	
H05	Seep	W22, S05	93.06	
Streams				
S01	Intermittent	W02	573.57	
S02	Perennial	W01, W02,	1,022.14	
		W03, W04		
S03	Ditch/Canal	W20	607.11	
S04	Stream	W19	1,437.73	
S05	Perennial	W22	781.11	
Total			6,738.99	

Features such as culverts not associated with a linear drainage were mapped as a point and therefore do not have an associated length.

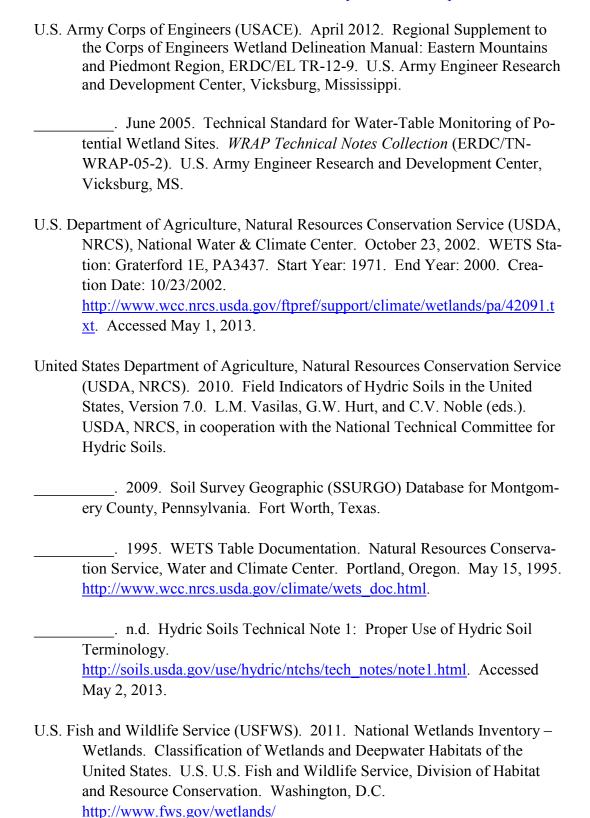
4

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U.S. Geological Survey (USGS). 1996. 7.5 minute Digital Raster Graphics for Pennsylvania – cropped collars. Reston, Virginia.



# A Wetland Data Forms

WETI	ANID	ID.	**/**/	\ <i>\</i> /\\1
WHIL	AND	11):	ww-	VVUI

Is wetland hydrologically isolated?  yes  no could not be determined because wetland extends beyond the ROW	Wetland Association to Stream  Is the wetland:     directly abutting     adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  The wetland drains to swale DR-002-012 which is east of the survey corridor by several feet. The swale appears to continue SE outside of the survey corridor toward the open boundaries for wetland W02 and stream S02 (Park Creek)  Associated Stream:	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow
Approximate distance of wetland to stream (straight aerial feet):  Comments:  DR-002-012 may continue SE off the survey corridor and run directly to S02 providing ephemeral discrete drainage from wetland to stream. Not determined. This wetland does however drain to W02 which is directly abutting S02.	Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow confined other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date:05/12/2013
Applicant/Owner: U.S. Navy			_ Sampling Point: W01-W01
-	Section, Township, Range: H		
	Local relief (concave, convex, no		Slone (%)· 1-3
	Lat: 2691531.6 Long: 3324		
Soil Map Unit Name: Readington silt loam, 3-8%			
Are climatic / hydrologic conditions on the site typic			
Are Vegetation, Soil, or Hydrology		Circumstances" pr	resent? Yes No
Are Vegetation, Soil, or Hydrology	naturally problematic? (If needed, e	explain any answers	s in Remarks.)
SUMMARY OF FINDINGS - Attach sit	e map showing sampling point locatio	ns, transects,	important features, etc.
	<b>v</b>		
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes	No Is the Sampled Area	,	
Hydric Soil Present? Yes Wetland Hydrology Present? Yes	No within a Wetland?	Yes	No
Remarks:			
	tland and survey corridor near a drainage swale that ing on a slight slope near the NW end of the Park		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicat	tors (minimum of two required)
Primary Indicators (minimum of one is required;	check all that apply)	Surface Soil C	
<u>✓</u> Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Veg	etated Concave Surface (B8)
<u>✓</u> High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Drainage Patt	
✓ Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)	Moss Trim Lir	nes (B16)
Water Marks (B1)	Presence of Reduced Iron (C4)	Dry-Season V	Vater Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Crayfish Burro	` '
Drift Deposits (B3)	Thin Muck Surface (C7)		sible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Remarks)	<del></del>	ressed Plants (D1)
Iron Deposits (B5)		Geomorphic F	` ′
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)		Shallow Aquit	phic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral	· · · · · · · · · · · · · · · · · · ·
Field Observations:	1		1001 (20)
	Depth (inches):<1 adjacent		
	Depth (inches): 8		
		Hydrology Present	t? Yes 🗸 No
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitor	ing well, aerial photos, previous inspections), if ava	ilable:	
Remarks:			
	vater table. Adjacent areas had pooled water in loca	alized depressions	at the time of delineation.
	·	·	

EGETATION (Four Strata) – Use scientific	names of	plants.		Sampling Point: W01-W01
Tree Stratum (Plot size:30)	Absolute	Dominant		Dominance Test worksheet:
1			Status	Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
2				Total Number of Dominant
3				Species Across All Strata: 1 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
8	00/	= Total Cov	/or	OBL species x 1 = 40
Sapling/Shrub Stratum (Plot size:)		- 10tai 00.	Ci	FACW species15 x 2 =30
1				FAC species25
2				FACU species 0 x 4 = 0
3				UPL species x 5 = 0
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =1.8
6				Hydrophytic Vegetation Indicators:
7				✓ 1 - Rapid Test for Hydrophytic Vegetation
8				✓ 2 - Dominance Test is >50%
9				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10		= Total Cov	 /er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )	40	V	ODI	Problematic Hydrophytic Vegetation¹ (Explain)
1. Carex vulpinoidea		<u>Y</u> N	OBL FAC	
2. Juncus tenuis 3. Juncus effusus		N	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Holcus lanatus	10	N	FAC	be present, unless disturbed or problematic.
-				Definitions of Four Vegetation Strata:
56.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
				more in diameter at breast height (DBH), regardless of
7 8.				height.
9.				Sapling/Shrub – Woody plants, excluding vines, less
10.				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11.				Herb – All herbaceous (non-woody) plants, regardless
12.				of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:30)	80%	= Total Cov	/er	<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
1				
2.				
3.				
4.				
5.				Hydrophytic Vegetation
6.				Present? Yes No
	0%	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separat	e sheet.)			

W01-W01

Sampling Point:

SOIL

Profile Desc	ription: (Describe t	o the dept	h needed to docur	nent the i	ndicator	or confirm	the absence	e of indicators.)
Depth	Matrix		Redo	x Features	S			
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
0-8	7.5YR 4/4	90	5YR 3/4	3	С	M	SL	
			5YR 5/8	7				
8-13	7.5YR 5/6	70	10YR 6/2	30				
				. ———				
				· ——				
¹Type: C=Co	ncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.
Hydric Soil I		,	,					ators for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Dark Surface	(S7)			2	2 cm Muck (A10) <b>(MLRA 147)</b>
	ipedon (A2)		Polyvalue Be		ce (S8) <b>(N</b>	/ILRA 147,		Coast Prairie Redox (A16)
Black His			Thin Dark Su				· —	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		-	•	F	Piedmont Floodplain Soils (F19)
Stratified	Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm Mu	ck (A10) (LRR N)		Redox Dark		6)		<u>~</u> F	Red Parent Material (TF2)
Depleted	Below Dark Surface	(A11)	Depleted Dar	rk Surface	(F7)		\	/ery Shallow Dark Surface (TF12)
	rk Surface (A12)		Redox Depre	essions (F	8)		(	Other (Explain in Remarks)
	ucky Mineral (S1) <b>(L</b>	RR N,	Iron-Mangan		es (F12) <b>(</b>	LRR N,		
	. 147, 148)		MLRA 13	-			•	
	leyed Matrix (S4)		Umbric Surfa			-		dicators of hydrophytic vegetation and
	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	-	vetland hydrology must be present,
	Matrix (S6)						u	ınless disturbed or problematic.
_	ayer (if observed):							
Type:								./
Depth (inc	:hes):						Hydric Soi	I Present? Yes No
Remarks:	noted in 140/C and a	ualifiaa far	nrablamatia indiaata		nt matari	alia tha fir	at layer No at	har indicators were mot at this leastion
The plot is lo	cated in 146/5 and q	uailles loi	problematic indicate	ir red pare	ent maten	ai in me iii:	st layer. No oti	her indicators were met at this location.

Project/Site: Willow Grove EIS	3	City/C	county: Montgomery		Sampling Date: _	05/12/2013
Applicant/Owner: U.S. Navy						
Investigator(s): Z. Fink / R. W	ardwell	Section	on, Township, Range: Hors			
Landform (hillslope, terrace, e			ief (concave, convex, none):		Slop	e (%). 1-3
Subregion (LRR or MLRA): 14						
Soil Map Unit Name: Readin			Long			
Are climatic / hydrologic condi						<b>/</b>
Are Vegetation, Soil					resent? Yes	No
Are Vegetation, Soil	, or Hydrology	naturally problema	atic? (If needed, expl	lain any answer	s in Remarks.)	
SUMMARY OF FINDING	3S – Attach site n	nap showing sam	pling point locations	, transects,	important fea	tures, etc.
Hydrophytic Vegetation Pres	ent? Yes	No	lo the Compled Area			
Hydric Soil Present?	Yes		Is the Sampled Area within a Wetland?	Yes	No	
Wetland Hydrology Present?		No	William a Wolland	.00		
Remarks: This plot is located on a sligh elevation than the paired plo		rub-shrub area higher u	p the slope than the abutting	g wetland. The	plot is approximate	əly 1' higher in
HYDROLOGY						
Wetland Hydrology Indicat				-	ors (minimum of t	wo required)
Primary Indicators (minimum				Surface Soil (	• •	
Surface Water (A1)		_ True Aquatic Plants (			etated Concave S	urface (B8)
High Water Table (A2) Saturation (A3)		_ Hydrogen Sulfide Od		_ Drainage Pati		
Water Marks (B1)		_ Oxidized Rnizosphere _ Presence of Reduced	es on Living Roots (C3)	_ Moss Trim Lir	Vater Table (C2)	
Sediment Deposits (B2)		Recent Iron Reductio	· · ·	_ Dry-Season v _ Crayfish Burr		
Drift Deposits (B3)		Thin Muck Surface (C			sible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)		- _ Other (Explain in Ren	· ·	<del></del> '	ressed Plants (D1	
Iron Deposits (B5)			<u> </u>	_ Geomorphic I	Position (D2)	
Inundation Visible on Ae	rial Imagery (B7)		_	_ Shallow Aquit	ard (D3)	
Water-Stained Leaves (I	B9)		_		phic Relief (D4)	
Aquatic Fauna (B13)			_	_ FAC-Neutral	Test (D5)	
Field Observations:						
Surface Water Present?		Depth (inches):	l l			
Water Table Present?		_ Depth (inches):				.,
Saturation Present? (includes capillary fringe)	Yes No	Depth (inches):	Wetland Hyd	rology Present	t? Yes	No
Describe Recorded Data (str	eam gauge, monitoring	well, aerial photos, pre	vious inspections), if availab	ole:		
Remarks:  No indicators were met at th	is location. The soil pro-	file was moist througho	ı ıt			
No indicators were met at th	is location. The soil proi	ille was moist througho	ut.			

EGETATION (Four Strata) – Use scientific r	names of	plants.		Sampling Point: W01-U01
T 01 (D1) 30	Absolute			Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:30) 1		Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
2				Total Number of Dominant
3				Species Across All Strata: 3 (B)
4				Percent of Deminant Species
5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6				Benedated
7				Prevalence Index worksheet:
8	- ——			Total % Cover of: Multiply by:
Sanling/Shruh Stratum (Plot siza: 15 )		= Total Cov	er	OBL species X I =
Sapling/Shrub Stratum (Plot size:15 )  1 Elaegnus umbellata	40	Υ	UPL	TACVI species X2
1. Liaegrus umberiata 2. Juniperus virginiana	15	Y	FACU	rac species x3 =
				racu species x4
3				0FL species
4				Column Totals:(A)(B)
5				Prevalence Index = B/A =4.1
6	- —			Hydrophytic Vegetation Indicators:
7	- —			1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
10	55%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum (Plot size:5				data in Remarks or on a separate sheet)
1. Festuca arundinacea	50	Y	FACU	Problematic Hydrophytic Vegetation¹ (Explain)
2. Phalaris caroliniana	10	N	FACW	The disease of hooding and southern the declaration of the
3. Holcus lanatus	10	N	FAC	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. Andropogon virginicus	_ 2	N	FACU	Definitions of Four Vegetation Strata:
5. Taraxacum officinale	2	N	FACU	
6. Securigera varia	2	N	UPL	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7				height.
8				Continui Chaush Maada u lauta ayah dinu yina a laa
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				
11				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12				
	76%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size:)				neight.
1				
2				
3				
4				Hydrophytic
5				Vegetation
6				Present? Yes No
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate	sheet.)			

Depth   Matrix   Redox Features   Color (moist)   %   Color (moist)   %   Type   Loc   Texture   Remarks	rofile Description: (Describe to	the depth	needed to docum	nent the i	ndicator	or confirm	the ab	sence of indic	ators.)
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   ^2Location: PL=Pore Lining, M=Matrix.						1 2	<b>T</b> 4	<b>.</b>	Damada
### Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.    Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   2 Location: PL=Pore Lining, M=Matrix.   1			Color (moist)		_ iype	_Loc			Remarks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.    Pl=Pore Lining, M=Matrix   Indicators:   Indicators for Problematic Hydric Soils									
Hydric Soil Indicators:  Histosol (A1)  Histosol (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (F6)  Depleted Dark Surface (F7)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Sandy Redox (S5)  Stripped Matrix (S6)  Restrictive Layer (if observed):  Type:  Depth (inches):  Der Novel A10 (A10)  Dark Surface (S7)  Dark Surface (S8) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Dark Surface (F6)  Depleted Dark Surface (F7)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  MIRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type:  Depth (inches):  Depth (inches):  Hydric Soil Present? Yes No	8-13 7.5YR 4/3		7.5YR 5/6	15					
ydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A11)  Thick 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)  Back Histic (A3)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Dark Surface (F7)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Estrictive Layer (if observed):  Type:  Depth (inches):  Hydric Soil Present? Yes No									
ydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (F7)  Thick Dark Surface (A11)  Thick Dark Surface (A11)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Sandy Redox (S5)  Stripped Matrix (S6)  Depth (inches):  Depth (inches):  Depth (inches):  Dark Surface (S7)  Dark Surface (S8) (MLRA 147, 148)  Loany Gleyed Matrix (F2)  Depleted Selow Dark Surface (A11)  Depleted Matrix (F3)  Redox Dark Surface (F7)  Depleted Dark Surface (F7)  Depleted Dark Surface (F7)  Depleted Dark Surface (F7)  MLRA 147, 148)  Depleted Dark Surface (F12) (LRR N, MLRA 147, 148)  MIRA 136)  Wetland hydrology must be present, unless disturbed or problematic.									
Histosol (A1)		tion, RM=R	educed Matrix, MS	S=Masked	Sand Gra	ins.	<sup>2</sup> Locati		
Remarks:	Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) (LRI MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)  Restrictive Layer (if observed): Type:		Polyvalue Be Thin Dark Su Loamy Gleye Depleted Ma Redox Dark S Depleted Dar Redox Depre Iron-Mangan MLRA 13 Umbric Surfa	elow Surface (S9) ed Matrix ( trix (F3) Surface (F rk Surface (F essions (F) esse Masse 6) ace (F13) (	(MLRA 1 F2) 6) (F7) 3) es (F12) (I	47, 148) -RR N, 6, 122)	8)	2 cm Muc Coast Pro- Piedmon' Red Pare Very Sha Other (Ex- Other (Ex- and it is a second of the control of	ck (A10) (MLRA 147) hairie Redox (A16) ha 147, 148) ha 136, 147) hat Material (TF2) hallow Dark Surface (TF12) hard plain in Remarks) hard hydrophytic vegetation and hydrology must be present, sturbed or problematic.

WETLAND ID: WW-W02	WETI	LANI	) ID:	ww.	W02	
--------------------	------	------	-------	-----	-----	--

Is wetland hydrologically isolated?	Wetland Association to Stream
yes  X  no   could not be determined because wetland extends beyond the ROW	Is the wetland:    X   directly abutting   adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  PFO. The wetland abutts S01. The wetland is adjacent to S01, situated roughly 30' from the left bank of the stream. Ephemeral, discrete flow from the wetland enters S01 and this stream terminates at S09 after flowing through the wetland. Ephemeral, confined flow from the wetland to S09 occurs via the S01 channel.	Wetland adjacency determination (if not directly abutting):    Discrete wetland hydrologic connection  Ecological connection  Separated by berm/barrier  Explain:
Associated Stream:    X   yes	Surface flow type from wetland to associated stream:  intermittent surface  ephemeral surface  perennial surface  no surface flow
Approximate distance of wetland to stream (straight aerial feet):30'	Surface flow characteristic from wetland to associated stream:    i discrete  overland sheet flow  confined  other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

Project/Site: Willow Grove EIS	;		City/C	ounty: Montgomery		Sampling Date: _	05/02/2013
Applicant/Owner: U.S. Navy			•		State: PA		
Investigator(s): Z. Fink / R. Wa	ardwell		Section	on, Township, Range: <u>I</u>			
Landform (hillslope, terrace, et							e (%): 0-1
Subregion (LRR or MLRA): 14							
Soil Map Unit Name: Penn-La				2511g			
Are climatic / hydrologic condit							
							/ Na
Are Vegetation, Soil							No
Are Vegetation, Soil					explain any answer		
SUMMARY OF FINDING			· · ·	pling point location	ons, transects,	Important rea	itures, etc.
Hydrophytic Vegetation Prese		Yes		Is the Sampled Area			
Hydric Soil Present?			_ No	within a Wetland?	Yes	No	
Wetland Hydrology Present? Remarks:		Yes	No				
This plot is located at the edg corridor of the stream off the							
HYDROLOGY							
Wetland Hydrology Indicate					Secondary Indica		wo required)
Primary Indicators (minimum	of one is req				Surface Soil		
Surface Water (A1)			True Aquatic Plants (I		Sparsely Veg		iurface (B8)
<ul><li>✓ High Water Table (A2)</li><li>✓ Saturation (A3)</li></ul>			Hydrogen Sulfide Odd	es on Living Roots (C3)	Drainage Pat		
Water Marks (B1)			Presence of Reduced			Nater Table (C2)	
Sediment Deposits (B2)			Recent Iron Reduction		Crayfish Burr		
Drift Deposits (B3)			Thin Muck Surface (C			sible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)		· · · · · · · · · · · · · · · · · · ·	Other (Explain in Ren			ressed Plants (D1	
Iron Deposits (B5)					✓ Geomorphic	Position (D2)	
Inundation Visible on Ae	rial Imagery	(B7)			Shallow Aqui	tard (D3)	
<u>✓</u> Water-Stained Leaves (E	39)					phic Relief (D4)	
Aquatic Fauna (B13)					FAC-Neutral	Test (D5)	
Field Observations:	,			0.05			
Surface Water Present?			Depth (inches):	0.25			
Water Table Present?			Depth (inches):				
Saturation Present? (includes capillary fringe)	Yes	_ No	Depth (inches):	Wetland	Hydrology Presen	t? Yes	No
Describe Recorded Data (stre	eam gauge, i	monitoring w	ell, aerial photos, pre	vious inspections), if av	ailable:		
Remarks:	1 24 4	Р			1		
This plot is located within a so		anding water	. Approximately 0.25"	inches of water was of	served in wildlife pi	ints. A faint H2S o	odor was also

## VEGETATION (Four Strata) - Use scientific names of pla

30

Sapling/Shrub Stratum (Plot size: \_\_\_\_\_\_15 \_\_\_\_)

3. Rosa multiflora

1. Ulmus americana

Herb Stratum (Plot size: 5

Woody Vine Stratum (Plot size: 30

Tree Stratum (Plot size: \_

1. Acer saccharinum

2. Ulmus americana 3. Acer rubrum

2. Lindera benzoin

 Glyceria melicaria Veronica serpyllifolia

3. Ficaria verna

4. Juncus effusus

	Dominant	Indicator	Dominance Test worksheet:	
<u>6 Cover</u> 45	Species?	Status FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 6	(A)
30 10	Y N	FACW FAC	Total Number of Dominant Species Across All Strata: 7	(B)
			Percent of Dominant Species That Are OBL, FACW, or FAC:  85.71%	(A/B)
			Prevalence Index worksheet:	
			Total % Cover of: Multiply by:	_
85%	= Total Cov	 er	OBL species25 x 1 =25	_
	10101 001	OI .	FACW species97	_
20	Y	FACW	FAC species 50 x 3 = 150	_
15	Υ	FAC	FACU species15 x 4 =60	_
15	Y	FACU	UPL species0 x 5 =0	_
			Column Totals:187	_ (B)
			Prevalence Index = B/A =2.3	_
			Hydrophytic Vegetation Indicators:	
			1 - Rapid Test for Hydrophytic Vegetation	
			✓ 2 - Dominance Test is >50%	
			✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
			4 - Morphological Adaptations (Provide sup	portino
50%	= Total Cov	er	data in Remarks or on a separate sheet)	
25	Υ	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explai	n)
15		FAC		
10		FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology n	nust
2		FACW	be present, unless disturbed or problematic.	
			Definitions of Four Vegetation Strata:	
			<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 more in diameter at breast height (DBH), regardle height.	
			Sapling/Shrub – Woody plants, excluding vines than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
			Herb – All herbaceous (non-woody) plants, regal of size, and woody plants less than 3.28 ft tall.	rdless
52%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 height.	ft in
			Hydrophytic Vegetation Present? Yes No	

Remarks: (Include photo numbers here or on a separate sheet.) Approximately 50% bare ground / open water is present at the plot.

W02-W01

Sampling Point:

SOIL

0-1 1 1-8 7	lor (moist) 0YR 3/2 .5YR 4/2	% 100 85 80	7.5YR 4/6 2.5YR 2.5/4 7/5YR 3/4	10 5 20	Type <sup>1</sup> C	Loc <sup>2</sup>	Texture	Remarks
1-8 7.	.5YR 4/2	85	2.5YR 2.5/4	5	С			Mucky Mineral
			2.5YR 2.5/4	5				Wideky Willera
8-14	5YR 5/4	80			_	<u>M</u>	SCL	
8-14	5YR 5/4	80 -	7/5YR 3/4		<u> </u>	M/PL		
					C	M	CL	
				· <u></u> ·				
				· ·				
				· —— ·				
				· ·				
		tion, RM=	Reduced Matrix, MS	S=Masked S	Sand Gra	ins.		L=Pore Lining, M=Matrix. ators for Problematic Hydric Soils <sup>3</sup> :
ydric Soil Indicate	ors:		Dark Curfoso	(07)				
<ul><li>Histosol (A1)</li><li>Histic Epipedon</li></ul>	(Δ2)		Dark Surface Polyvalue Be		- (S8) <b>(M</b>	Ι <b>Ρ</b> Δ 147		2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16)
_ Histic Epipedon _ Black Histic (A3			Thin Dark Su				0	(MLRA 147, 148)
Hydrogen Sulfid			Loamy Gleye			, ,	F	Piedmont Floodplain Soils (F19)
_ Stratified Layers			✓ Depleted Mar	trix (F3)				(MLRA 136, 147)
_ 2 cm Muck (A10			Redox Dark \$	•				Red Parent Material (TF2)
_ Depleted Below		(A11)	Depleted Dar				·	/ery Shallow Dark Surface (TF12)
<ul><li>Thick Dark Surf</li><li>Sandy Mucky M</li></ul>		PR N	Redox Depre			RR N	_ '	Other (Explain in Remarks)
MLRA 147, 1		XIX I <b>X</b> ,	MLRA 13		3 (1 12) <b>(1</b>	-1111 14,		
_ Sandy Gleyed N	-		Umbric Surfa	•	ILRA 13	6, 122)	<sup>3</sup> Inc	licators of hydrophytic vegetation and
_ Sandy Redox (S	S5)		Piedmont Flo	odplain So	ils (F19)	(MLRA 14	<b>∤8)</b> ∨	vetland hydrology must be present,
_ Stripped Matrix							u	nless disturbed or problematic.
estrictive Layer (i	if observed):							
Type:								
Depth (inches): _							Hydric Soil	Present? Yes No
ie solis at this plot	quality for the	аеріетеа г	natrix indicator in th	e secona ia	ayer. H2S	o was aiso	aetectea wne	n the soil pit was excavated.

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date: 05/02/2013
Applicant/Owner: U.S. Navy			Sampling Point: W02-U01
	Section, Township, Range		
Landform (hillslope, terrace, etc.): Toe Slope			
Subregion (LRR or MLRA): 148 / S Lat			
Subregion (LRR or MLRA): 140 / 5 La	Slopes Long: C		Datum: 1470 00
Soil Map Unit Name: Penn-Lansdale Complex, 3-8%			
Are climatic / hydrologic conditions on the site typical f			
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are "Nor	mal Circumstances" p	resent? Yes No
Are Vegetation, Soil, or Hydrology	naturally problematic? (If neede	d, explain any answer	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site n	nap showing sampling point loca	tions, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes	No Is the Sampled Are within a Wetland?	ea	
Hydric Soil Present? Yes	— No within a Wetland?		No <u> </u>
Wetland Hydrology Present? Yes	No		
HYDROLOGY			
Wetland Hydrology Indicators:			tors (minimum of two required)
Primary Indicators (minimum of one is required; chec		Surface Soil (	
	True Aquatic Plants (B14)		getated Concave Surface (B8)
	Hydrogen Sulfide Odor (C1)	Drainage Pat	
	Oxidized Rhizospheres on Living Roots (C		
	Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6)	Crayfish Burr	Water Table (C2)
	Thin Muck Surface (C7)		sible on Aerial Imagery (C9)
<u> </u>	Other (Explain in Remarks)		ressed Plants (D1)
Iron Deposits (B5)	( - · - · - · · · · · · · · · ·	Geomorphic	
Inundation Visible on Aerial Imagery (B7)		Shallow Aqui	, ,
Water-Stained Leaves (B9)		Microtopogra	phic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral	Test (D5)
Field Observations:			
	_ Depth (inches):		
	_ Depth (inches):		4
	_ Depth (inches): Wetlan	d Hydrology Presen	t? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspections), if	available:	
Remarks:			
The plot is located on a well drained slope above the	e wetland.		

## VEGETATION (Four Strata) - Use scientific names of plants.

30

Sapling/Shrub Stratum (Plot size: \_\_\_\_\_\_)

Herb Stratum (Plot size: \_\_\_\_\_\_5

Tree Stratum (Plot size: \_

Ulmus americana

3. Juniperus virginiana

Prunus serotina

1. Lindera benzoin

3. Cornus florida

Rosa multiflora

4. Lonicera tatarica

Claytonia virginica

2 Ficaria verna

4. Carex blanda

5. Allium vineale

3. Fragaria vesca

nmes of	plants.			s	ampling	Point: _	W02-U01		
Absolute <u>% Cover</u> 25	Dominant Species? Y		Dominance Tes  Number of Domin	nant Specie	es	4	(A)		
20	Y	FACU	, ,						
5	N	FACU	Total Number of Dominant Species Across All Strata:  5						
			Percent of Domir That Are OBL, FA			80%	(A/B)		
			Prevalence Inde	x workshe	et:				
			Total % Cov	er of:	N	lultiply b	oy:		
50%	= Total Cov	er	OBL species	0	_ x1=				
		<b>.</b>	FACW species _	25	_ x 2 =				
45	Y	FAC	FAC species	95	_ x3=				
10	N	FACU	FACU species _	62	_ x4=				
10	N	FACU	UPL species _	0	_ x5=		<del></del>		
5	N	FACU	Column Totals:	182	_ (A)	58	<sup>33</sup> (B)		
			Prevalence	Index = B	/A =	3.2			
			Hydrophytic Ve	getation In	dicator	s:			
			1 - Rapid Te	st for Hydro	phytic \	/egetati	on		
			2 - Dominan	ce Test is >	50%				
			3 - Prevalen	ce Index is	≤3.0 <sup>1</sup>				
70%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)						
25	Y	FAC	Problematic	Hydrophyti	c Vegeta	ation <sup>1</sup> (E	Explain)		
20	Υ	FAC	1						
10	N	FACU	<sup>1</sup> Indicators of hyd be present, unles	dric soil and ss disturbed	l wetland I or prob	d hydrol dematic	ogy must		
5	N	FAC	Definitions of Fe						
2	N	FACU		-					
			Tree – Woody pl more in diameter height.						
			Sapling/Shrub - than 3 in. DBH a						
			Herb – All herbad of size, and wood						
62%	= Total Cov	er	Woody vine – A height.	ll woody vir	nes grea	ter than	3.28 ft in		
			I						

0% \_ = Total Cover Remarks: (Include photo numbers here or on a separate sheet.)

Woody Vine Stratum (Plot size: 30 )

Plot is located in a relatively open area of the forested riparian corridor of Park Creek with less coverage in the tree stratum than in other areas. Note plot passes dominance test but fails prevalence.

Hydrophytic Vegetation

Present?

Yes V No

W02-U01

Sampling Point:

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist) % Type¹ Loc²		Remarks
0-10	7.5YR 4/3	100	Coloi (IIIolat) 70 Type Loc	<u>rexture</u> CL	- IVEIIIdIKS
10-14	7.5YR 4/6	100		<u>C</u>	
		·			
	noontration D-Don	lotion DM-I	Reduced Matrix, MS=Masked Sand Grains.	<sup>2</sup> Location: D	L=Pore Lining, M=Matrix.
ype. C−Coi /dric Soil Ir		ielion, Rivi-i	Reduced Matrix, MS-Masked Sand Grains.	Location. P	eators for Problematic Hydric Soils <sup>3</sup> :
			Dark Surface (S7)		2 cm Muck (A10) (MLRA 147)
_ Histosol (	pedon (A2)		<ul><li>Dark Surface (S7)</li><li>Polyvalue Below Surface (S8) (MLRA 1</li></ul>		Coast Prairie Redox (A16)
_ Histic Epi _ Black His			Thin Dark Surface (S9) (MLRA 147, 148		(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Matrix (F3)	<u> </u>	(MLRA 136, 147)
	ck (A10) <b>(LRR N)</b>		Redox Dark Surface (F6)	F	Red Parent Material (TF2)
	Below Dark Surface	e (A11)	Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
_	rk Surface (A12)	` ,	Redox Depressions (F8)		Other (Explain in Remarks)
Sandy Mı	ucky Mineral (S1) <b>(L</b>	RR N,	Iron-Manganese Masses (F12) (LRR N		
MLRA	147, 148)		MLRA 136)		
_ Sandy Gl	eyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)	<sup>3</sup> Inc	dicators of hydrophytic vegetation and
_ Sandy Re	edox (S5)		Piedmont Floodplain Soils (F19) (MLRA	<b>( 148)</b>	wetland hydrology must be present,
	Matrix (S6)			ι	ınless disturbed or problematic.
estrictive La	ayer (if observed):				
Type:					
_	hoo):		<u></u>	Hydric Soi	l Present? Yes No 🛂
Depth (incl	nes)				
	nes)				
	nes)				
	les)				
	les)				
	les).				
	les).				
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	ies).				
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	les).				
	les).				
Depth (inclemarks:	les).				
	les).				

WETL	AND	m. v	7337	เทกร
VV P. I I.	AND	11): V	v vv -	10003

Is wetland hydrologically isolated?	Wetland Association to Stream
yes   x   no   could not be determined because wetland extends beyond the ROW	Is the wetland:  directly abutting  adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  PEM/PSS/PFO. Drainage D03 runs through the wetland and terminates at S02, Park Creek.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:    X   yes     no     If yes, list ID: SS-S02 Park Creek     (Use separate datasheet for each associated stream)    Approximate distance of wetland to stream (straight aerial feet): 40	Surface flow type from wetland to associated stream:  intermittent surface  ephemeral surface  perennial surface  no surface flow  Surface flow characteristic from wetland to associated stream:  discrete  overland sheet flow  confined  other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date:	05/02/2013
Applicant/Owner: U.S. Navy			Sampling Point:	
• •	Section, Township, Range: _			
Landform (hillslope, terrace, etc.): Swale			Slone	ار%). 0-2
	91542.6 Long: <u>331</u>			
Soil Map Unit Name: Bowmansville - Knauers Silt Loams				
				7110
Are climatic / hydrologic conditions on the site typical for the				
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are "Norma	l Circumstances" pr	resent? Yes	No
Are Vegetation, Soil, or Hydrology	naturally problematic? (If needed,	explain any answer	s in Remarks.)	
SUMMARY OF FINDINGS – Attach site map	showing sampling point location	ons, transects,	important fea	tures, etc.
Library In the Manager Program O	N.			
1	No Is the Sampled Area			
	No within a Wetland?	Yes	No	
Remarks:				
This plot is located in a swale associated with D03 culver. The swale and wetland extends only a short distance but the wetland ends near the right bank of Park Creek.				
HYDROLOGY				
Wetland Hydrology Indicators:		Secondary Indicat	ors (minimum of t	wo required)
Primary Indicators (minimum of one is required; check all	I that apply)	Surface Soil 0	Cracks (B6)	
Surface Water (A1) Tru	ue Aquatic Plants (B14)	Sparsely Veg	etated Concave S	urface (B8)
High Water Table (A2) Hy	drogen Sulfide Odor (C1)	✓ Drainage Patt	terns (B10)	
Saturation (A3) Ox	idized Rhizospheres on Living Roots (C3)	Moss Trim Lir	nes (B16)	
	esence of Reduced Iron (C4)	Dry-Season V	Vater Table (C2)	
	cent Iron Reduction in Tilled Soils (C6)	Crayfish Burre		
<del></del>	in Muck Surface (C7)		sible on Aerial Ima	
	ner (Explain in Remarks)	<del></del>	ressed Plants (D1)	)
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)		✓ Geomorphic F Shallow Aquit		
✓ Water-Stained Leaves (B9)			phic Relief (D4)	
Aquatic Fauna (B13)		FAC-Neutral		
Field Observations:				
	epth (inches):			
	epth (inches):			
Saturation Present? Yes V No Do		Hydrology Present	t? Yes ✔	No
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitoring well,	, aerial photos, previous inspections), if ava	ailable:		
Remarks: Stronger hydrology indicators (surface water / saturation	/ water table) are present toward the inter-	ior of the wetland cl	oser to the DR-00°	2-007 drainage
line.	, water table, are present toward the inter	of of the wettand ch	oser to the Div-002	2-007 drainage
I				

EGETATION (Four Strata) – Use scientific i	names of	plants.		Sampling Point: W03-W01
Tree Stratum (Plot size: 30 )	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
Tree Stratum (Plot size:30)  1. Fraxinus pennsylvanica	<u>% Cover</u> 10	Y Y	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
2				Total Number of Dominant
3				Species Across All Strata: 6 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:(A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
8	10%	Tatal Cov		OBL species x 1 =40
Sapling/Shrub Stratum (Plot size:)		= Total Cov	er	FACW species 90 x 2 = 180
1. Cornus alba	35	Y	FACW	FAC species 15 x 3 = 45
2. Fraxinus pennsylvanica	25	Υ	FACW	FACU species0 x 4 =0
3.				UPL species 0 x 5 = 0
4.				Column Totals:145
5.				
6.				Prevalence Index = B/A =1.8
7.				Hydrophytic Vegetation Indicators:
8.				1 - Rapid Test for Hydrophytic Vegetation
9.				2 - Dominance Test is >50%
10.				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size:5 )	60%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
1. Symplocarpus foetidus	35	Υ	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Juncus effusus	15	<u> </u>	FACW	
3. Ficaria verna	15	Y	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
4. Carex stricta	5	N	OBL	be present, unless disturbed or problematic.
5. Onoclea sensibilis	5		FACW	Definitions of Four Vegetation Strata:
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6 7				more in diameter at breast height (DBH), regardless of
8.				height.
o				Sapling/Shrub – Woody plants, excluding vines, less
10.				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
12.				of size, and woody plants less than 3.28 ft tall.
	75%	= Total Cov	er	<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
Trocky vino chatain (1 lot 0i20.				
1				
2				
3				
4				Hydrophytic
				Vegetation No.
6		=		Present? Yes NO
		= Total Cov	er ———	
5		= Total Cov	er	

W03-W01

Sampling Point:

Profile Desc	ription: (Describe	to the dept	h needed to docur	nent the i	ndicator	or confirn	n the absence	of indicators.)	)	
Depth	Matrix		Redo	x Feature	S					
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	<u>Texture</u>		Remarks	
0-2	7.5YR 3/2	99	7.5YR 4/6	1		M	CL			
2-9	7.5YR 3/2	95	7.5YR 4/6	5	C	M	CL			
9-15	7.5YR 6/2	60	7.5YR 5/8	20	C	M	C			
			7.5YR 3/6	10		M				
			2.5Y 7/1	10	D	M				
				-						
				-						
17	- D. D. D.	leties DM	De des ed Matris M				21 +	Describing 1	NA NA-Asis	
Hydric Soil I	oncentration, D=Depl Indicators:	letion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.	Location: PL	=Pore Lining, I	M=Matrix. Iematic Hvd	Iric Soils <sup>3</sup> :
-			Davis Curface	(07)						
Histosol	, ,		Dark Surface Polyvalue Be		oo (S9) <b>(N</b>	II D A 1 <i>1</i> 7		cm Muck (A10 oast Prairie Re		· <i>t</i> )
Black Hi	oipedon (A2)		Thin Dark Su		. , .		, 146) C	(MLRA 147, 1		
	n Sulfide (A4)		Loamy Gleye	, ,	•	47, 140)	Di	iedmont Flood		E10)
	l Layers (A5)		<u>✓</u> Depleted Ma		1 2)		<u> </u>	(MLRA 136, 1		19)
	ick (A10) <b>(LRR N)</b>		✓ Redox Dark		(C)		В	ed Parent Mate		
	d Below Dark Surface	- (Λ11)	Depleted Da					ery Shallow Da		(TE12)
	ark Surface (A12)	= (\(\tau\)	Redox Depre					ther (Explain ir		(11 12)
	• •	DD N	Iron-Mangan			I DD N	_ 0	trier (⊏xpiairi ir	i Remarks)	
	lucky Mineral (S1) <b>(L</b>	KK N,			es (F12) <b>(</b>	LKK N,				
	147, 148)		MLRA 13	-	MI DA 42	c 422)	3 m di	antoro of budge		station and
	Sleyed Matrix (S4)		Umbric Surfa		-	-		cators of hydro		
	ledox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14		etland hydrolog		
	Matrix (S6)						ur	nless disturbed	or problema	atic.
Restrictive I	_ayer (if observed):									
Type:										
Depth (inc	ches):		<del></del>				Hydric Soil	Present? Y	es	No
The plot qual	ifies for redox dark s	urface in la	yer 2 and depleted	martix in la	ayer 3.					

Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		Sampling Date: _	05/02/2013
Applicant/Owner: U.S. Navy		•			Sampling Point	
Investigator(s): Z. Fink / R. Wardwel	I	Section	on, Township, Range: H			
Landform (hillslope, terrace, etc.): R						e (%): <sup>2-3</sup>
Subregion (LRR or MLRA): 148 / S	l at:	2691548.1	Long: 3318	340.4	Datum	. NAD 83
Soil Map Unit Name: Bowmansville	- Knauers Silt Loa	ms	Long	NWI classific	cation: UPL	
Are climatic / hydrologic conditions o	n the site typical fo	r this time of year? Y	es No	(If no, explain in F	Remarks.)	
Are Vegetation, Soil,	or Hydrology	significantly distur	bed? Are "Normal	Circumstances"	oresent? Yes	/ No
Are Vegetation, Soil,				explain any answe		
SUMMARY OF FINDINGS –						itures, etc.
Hydrophytic Vegetation Present?	Yes	No	to the Committed Aven			
Hydric Soil Present?	Yes	No 🔽	Is the Sampled Area within a Wetland?	Yes	No	
Wetland Hydrology Present?	Yes	No V	Willim a Frondia.			
roadway and is situated roughly 1' h						
Wotland Hydrology Indicators:				Cacandan, India	-ta (minimum of t	···- romuirod)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one	s is required; check	call that annly)			ators (minimum of t Cracks (B6)	Wo required)
Surface Water (A1)		True Aquatic Plants (l		Surface Soil	getated Concave S	turface (B8)
High Water Table (A2)		Hydrogen Sulfide Odd			getated Concave S itterns (B10)	uliace (Do)
Saturation (A3)			es on Living Roots (C3)	Moss Trim L		
Water Marks (B1)		Presence of Reduced			Water Table (C2)	
Sediment Deposits (B2)		Recent Iron Reductio		Crayfish Bur		
Drift Deposits (B3)		Thin Muck Surface (C			isible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)		Other (Explain in Ren	narks)	Stunted or S	Stressed Plants (D1	)
Iron Deposits (B5)					Position (D2)	
Inundation Visible on Aerial Ima	agery (B7)			Shallow Aqu		
Water-Stained Leaves (B9)					aphic Relief (D4)	
Aquatic Fauna (B13)				FAC-Neutra	I Test (D5)	
Field Observations: Surface Water Present? Yes	No 🗸	Depth (inches):				
		Depth (inches):				
		Depth (inches):		lydrology Prese	nt? Yes	No 🗸
(includes capillary fringe)						
Describe Recorded Data (stream ga	auge, monitoring w	ell, aerial photos, pre	vious inspections), if ava	ilable:		
Remarks: The plot is in a well drained position	n on a slight slope.					
The plot to the distance property	Ton a chight stap :					

22	names of p	-		Sampling Point: W03-001
Tree Stratum (Plot size: 30 )	Absolute	Dominant Species 2		Dominance Test worksheet:
Tree Stratum (Plot size:30)  1. Quercus rubra	20	Species?	FACU	Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
2.				Total Number of Dominant
3				Species Across All Strata:3 (B)
4 5				Percent of Dominant Species That Are ORL EACW or EAC: 33.33% (A/R)
6				That Are OBL, FACW, or FAC:33.33% (A/B)
7				Prevalence Index worksheet:
8.				Total % Cover of: Multiply by:
	20%	= Total Cov	er	OBL species
Sapling/Shrub Stratum (Plot size:15 )	_			FACW species $0 \times 2 = 0$
1				FAC species x 3 =
2				TACO species X4 =
3				UPL species x 5 =
4				Column Totals:(A)(B)
5				Prevalence Index = B/A =3.9
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
10		= Total Cov	 er	4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size:5 )		.,		Problematic Hydrophytic Vegetation¹ (Explain)
1. Festuca pratensis	_ 45	Y	FACU	
2. Ficaria verna		<u>Y</u>	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3. Lamium purpureum		N	UPL	be present, unless disturbed or problematic.
4. Taraxacum officinale		N	FACU	Definitions of Four Vegetation Strata:
5. Plantago major 6. Carex blanda		N	FACU FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6. <u>Carex blanda</u> 7				more in diameter at breast height (DBH), regardless of height.
8				G
9.				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				
11				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12	90%	= Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		1010.00.	O1	height.
1				
2				
3				
3 4				Hydrophytic
3				Vegetation
3 4		Total Cov		

W03-U01

SOIL Sampling Point:

12-14 (Control of the control of the	7.5YR 3/3 7.5YR 3/3 10YR 7/2	99 95 75	Color (moist) 7.5YR 4/6 2.5YR 3/6 7.5YR 6/8	5 25	C C C	M M M	C C		Remar	KS	
3-12	7.5YR 3/3	95	2.5YR 3/6	5	С	M	C				
		-									
12-14	10YR 7/2	75	7.5YR 6/8	25	C	M					
		<u> </u>									
		etion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=	Pore Linin	g, M=Matr	ix.	
ydric Soil Indic	ators:						Indicate	ors for Pro	oblematic	Hydric S	Soils
_ Histosol (A1)			Dark Surface					•	10) <b>(MLR</b>		
_ Histic Epiped			Polyvalue Be		. , .		· —		Redox (A	16)	
_ Black Histic (A			Thin Dark Տւ		-	47, 148)	•	MLRA 14			
_ Hydrogen Sul			Loamy Gleye		<del>-</del> 2)				odplain Sc	oils (F19)	
_ Stratified Lay			Depleted Ma		0)			MLRA 130	-	-0)	
_ 2 cm Muck (A	(LRR N) ow Dark Surface	. (111)	Redox Dark Depleted Da						laterial (TI Dark Surf		2)
_ Depleted Belt _ Thick Dark St		5 (A11)	Redox Depre				· · · · · · · · · · · · · · · · · · ·		n in Rema		۷)
	/ Mineral (S1) <b>(L</b>	RR N.	Iron-Mangan	•	•	LRR N.	011	ici (Lxpiai	II III IXCIIIa	iko)	
MLRA 147		,	MLRA 13		,	,					
_ Sandy Gleye			Umbric Surfa		MLRA 13	6, 122)	<sup>3</sup> Indic	ators of hy	drophytic	vegetatio	n and
_ Sandy Redox			Piedmont Flo						ology must		
_ Stripped Matr	rix (S6)						unle	ess disturb	ed or prob	olematic.	
estrictive Layer	r (if observed):										
Туре:											
Depth (inches)	):						Hydric Soil P	resent?	Yes	No	

WETI	AND	ID.	$\mathbf{W}\mathbf{W}_{-}$	W04
VV P. I I	ANI	117:	VV VV -	V V U <del>1</del>

Is wetland hydrologically isolated?	Wetland Association to Stream
yes no could not be determined because wetland extends beyond the ROW	Is the wetland:  directly abutting  adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  PSS/PFO. A network of culverts drain this wetland into ditch D06.  Culverts continue from D06 NW under Keith Valley road and to S02,  Park Creek. Culverts and associated drainage lines D05 through D03 lead from ditch D06 to stream S02, providing perennial, confined flow from the wetland to the stream.  Associated Stream:	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
X yes   no   If yes, list ID: SSS02, Park Creek (Use separate datasheet for each associated stream)	Surface flow type from wetland to associated stream: intermittent surface ephemeral surface incomplete no surface flow
Approximate distance of wetland to stream (straight aerial feet):300	Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow  confined other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

Project/Site: Willow Grove EIS	City/C	ounty: Montgomery	Sampling Date:05/02/2013
Applicant/Owner: U.S. Navy			Sampling Point: W04-W01
Investigator(s): Z. Fink / R. Wardwell	Section	on, Township, Range: Horsham Town	
	tch Local reli		
	Lat: 2691272.2		
Soil Map Unit Name: Doylestown Sil			
		NWI clas	
	the site typical for this time of year? You		
Are Vegetation, Soil,	or Hydrology significantly disturb	bed? Are "Normal Circumstance	es" present? Yes No
Are Vegetation, Soil,	or Hydrology naturally problema	atic? (If needed, explain any an	swers in Remarks.)
SUMMARY OF FINDINGS -	Attach site map showing sam	pling point locations, transe	cts, important features, etc.
Hydrophytic Vegetation Present?	Yes No		
Hydric Soil Present?	Yes No	Is the Sampled Area within a Wetland? Yes	✓ No
Wetland Hydrology Present?	Yes No	within a wetland? Fes	NO
This plot is located in a narrow, lineal sapling and tree vegetation.	ar ditch between the base perimeter roa	d and perimeter fence. The wetland di	tch includes a mixture of shrub/
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary In	dicators (minimum of two required)
Primary Indicators (minimum of one	is required; check all that apply)	Surface	Soil Cracks (B6)
Surface Water (A1)	True Aquatic Plants (I	B14) Sparsely	Vegetated Concave Surface (B8)
<u>✓</u> High Water Table (A2)	✓ Hydrogen Sulfide Odd		Patterns (B10)
Saturation (A3)	Oxidized Rhizosphere		m Lines (B16)
Water Marks (B1)	Presence of Reduced		son Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction		Burrows (C8)
Drift Deposits (B3)	Thin Muck Surface (C	<del></del>	n Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Ren		or Stressed Plants (D1) phic Position (D2)
Iron Deposits (B5) Inundation Visible on Aerial Ima	geny (R7)		Aguitard (D3)
Water-Stained Leaves (B9)	gery (br)		ographic Relief (D4)
Aquatic Fauna (B13)			utral Test (D5)
Field Observations:			
	No Depth (inches):		
	No Depth (inches):		
	No Depth (inches):0		esent? Yes V No
(includes capillary fringe)			
Describe Recorded Data (stream ga	uge, monitoring well, aerial photos, pre	vious inspections), if available:	
Remarks: Standing water is present in other a	reas of the wetland		
Chairming mater to process in ourse, a	Todo or the troughair		

EGETATION (Four Sti			Absolute	Dominant	Indicator	Sampling Point: W04-W01  Dominance Test worksheet:
Γree Stratum (Plot size:	30	)		Species?		Number of Dominant Species
Acer saccharinum		-,	35	Υ	FACW	That Are OBL, FACW, or FAC:8 (A)
Ulmus rubra			20	Υ	FAC	
Acer rubrum			5	N	FAC	Total Number of Dominant Species Across All Strata:  8 (B)
1						
5						Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
7						Prevalence Index worksheet:
· 3.						Total % Cover of: Multiply by:
,			60%	= Total Cov		OBL species 2 x 1 = 2
Sapling/Shrub Stratum (Plot	size:	15 )		- Total Cov	CI	FACW species130 x 2 =260
Cornus Alba		,	25	Υ	FACW	FAC species95 x 3 =285
Acer saccharinum			15	Y	FACW	FACU species0 x 4 =0
Ulmus rubra			15	Y	FAC	UPL species0 x 5 =0
Salix nigra			2	N	OBL	Column Totals: 227 (A) 547 (B)
5						Prevalence Index = B/A =2.4
S						Frevalence index - b/A
7						Hydrophytic Vegetation Indicators:
3						1 - Rapid Test for Hydrophytic Vegetation
9						2 - Dominance Test is >50%
10						✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
	-		57%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
<u>Herb Stratum</u> (Plot size: <sub>1</sub> Phragmites australis	5	)	40	Υ	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Onoclea sensibilis			15	<u> </u>	FACW	
Equisetum arvense			10		FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
. Lquisetuili aiverise					TAC	be present, unless disturbed or problematic.
1 -						Definitions of Four Vegetation Strata:
5						Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5 -						more in diameter at breast height (DBH), regardless of
/						height.
3 9						Sapling/Shrub – Woody plants, excluding vines, less
10						than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11						Herb – All herbaceous (non-woody) plants, regardless
12						of size, and woody plants less than 3.28 ft tall.
		00	65%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
<u>Woody Vine Stratum</u> (Plot si <sub>1. </sub> Lonicera japonica	ze:	30)	40	Υ	FAC	noight.
Toxicodendron radicans					FAC	
					170	
3						
<del>1</del>						Hydrophytic
ō						Vegetation

Remarks: (Include photo numbers here or on a separate sheet.)
Equisetum a. is present on mowed margins of the ditch. This plot is representative of PSS/PFO wetland overall with many trees between 20-40' and saplings below. The wetland is roughly a 50-50 mixture of PSS and PFO cover types.

45% = Total Cover

Yes \_\_\_\_ No \_\_

Present?

W04-W01

Sampling Point:

Depth	Matrix			x Features		. 2		
(inches) 0-5	Color (moist) 7.5YR 4/3	<u>%</u> 97	Color (moist) 7.5YR 4/6	3	Type <sup>1</sup> C	Loc <sup>2</sup>	Texture SCL	Remarks
				- ——				
5-10	7.5YR4/2	95	7.5YR 6/8	5	<u> </u>	M	SCL	_
10-15	7.5YR 5/2	85	5YR 4/6	10	<u> </u>	M	C	_
			7.5YR 6/8	5	C	M		_
								_
		· ——						-
		· ——		<del></del>				_
		. ——						_
ype: C=Cc	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.		PL=Pore Lining, M=Matrix.
/dric Soil I	ndicators:						Indi	cators for Problematic Hydric Soils <sup>3</sup> :
_ Histosol			Dark Surface					2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be				148)	Coast Prairie Redox (A16)
_ Black His	stic (A3) n Sulfide (A4)		Thin Dark Su Loamy Gleye		-	47, 148)		(MLRA 147, 148) Piedmont Floodplain Soils (F19)
	I Layers (A5)		<u>✓</u> Depleted Ma		2)			(MLRA 136, 147)
	ick (A10) <b>(LRR N)</b>		Redox Dark		6)			Red Parent Material (TF2)
_ Depleted	d Below Dark Surfac	e (A11)	Depleted Da	rk Surface	(F7)			Very Shallow Dark Surface (TF12)
	ark Surface (A12)		Redox Depre					Other (Explain in Remarks)
_ Sandy M	lucky Mineral (S1) <b>(I</b>	LRR N,	Iron-Mangan		es (F12) <b>(</b> I	LRR N,		
BAL D A	447 440\		MI DA 40					
	147, 148)		MLRA 13	•	MI RA 13	6 122)	311	ndicators of hydrophytic vegetation and
_ Sandy G	leyed Matrix (S4)		Umbric Surfa	ace (F13) <b>(</b>		-		ndicators of hydrophytic vegetation and wetland hydrology must be present.
Sandy G Sandy R				ace (F13) <b>(</b>		-		ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Sandy G Sandy R Stripped	Bleyed Matrix (S4) Ledox (S5)		Umbric Surfa	ace (F13) <b>(</b>		-		wetland hydrology must be present,
Sandy G Sandy R Stripped	eleyed Matrix (S4) edox (S5) Matrix (S6)		Umbric Surfa	ace (F13) <b>(</b>		-		wetland hydrology must be present,
_ Sandy G _ Sandy R _ Stripped estrictive L	sleyed Matrix (S4) edox (S5) Matrix (S6) Layer (if observed):		Umbric Surfa	ace (F13) <b>(</b>		-	18)	wetland hydrology must be present,
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	sleyed Matrix (S4) edox (S5) Matrix (S6) Layer (if observed):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
Sandy G Sandy R Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
Sandy G Sandy R Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
Sandy G Sandy R Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.
_ Sandy G _ Sandy R _ Stripped estrictive L Type: Depth (inc	ches):		Umbric Surfa	ace (F13) ( codplain So	oils (F19)	-	18)	wetland hydrology must be present, unless disturbed or problematic.

Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		Sampling Date: _	05/02/2013
Applicant/Owner: U.S. Navy			•		Sampling Point	
Investigator(s): Z. Fink / R. Wa	ardwell	Section	on, Township, Range: Ho			
Landform (hillslope, terrace, etc						e (%)· 7-10
Subregion (LRR or MLRA): 14						
Soil Map Unit Name: Doylesto	own Silt Loam, 0-3% slo	ppes	Long			
Are climatic / hydrologic conditi	ons on the site typical f	or this time of year? Yo	es No (	If no, explain in R	emarks.)	
Are Vegetation, Soil						<b>/</b> No
Are Vegetation, Soil				xplain any answe		
SUMMARY OF FINDING					•	itures, etc.
Hydrophytic Vegetation Prese	ent? Yes	No				· · · · · · · · · · · · · · · · · · ·
Hydric Soil Present?	Yes	No	Is the Sampled Area within a Wetland?	Yes	No	
Wetland Hydrology Present?	Yes	_ No	Within a Honara.			
HYDROLOGY						
Wetland Hydrology Indicato					ators (minimum of t	wo required)
Primary Indicators (minimum				Surface Soil		·- •
Surface Water (A1)		True Aquatic Plants (I			getated Concave S	Surface (B8)
High Water Table (A2)		Hydrogen Sulfide Odd		Drainage Pa		
Saturation (A3) Water Marks (B1)		Presence of Reduced	es on Living Roots (C3)	Moss Trim Li	Water Table (C2)	
Sediment Deposits (B2)		Recent Iron Reduction		Crayfish Bur		
Drift Deposits (B3)		Thin Muck Surface (C			isible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)		Other (Explain in Rem		· <del></del>	tressed Plants (D1	
Iron Deposits (B5)					Position (D2)	,
Inundation Visible on Aer	rial Imagery (B7)			Shallow Aqu	itard (D3)	
Water-Stained Leaves (B	39)			Microtopogra	aphic Relief (D4)	
Aquatic Fauna (B13)				FAC-Neutral	Test (D5)	
Field Observations:						
Surface Water Present?		Depth (inches):				
Water Table Present?		Depth (inches):		_		.1
Saturation Present? (includes capillary fringe)	Yes No	_ Depth (inches):	Wetland H	ydrology Preser	nt? Yes	No
Describe Recorded Data (stre	eam gauge, monitoring	well, aerial photos, prev	vious inspections), if avai	lable:		
Remarks:						
The plot is in well drained pos	sition above ditch, no in	dicators.				

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>ree Stratum</u> (Plot size:30 ) Acer rubrum	<u>% Cover</u> 15	Species?	Status FAC	Number of Dominant Species That Are OBL, FACW, or FAC:5 (A
Ulmus rubra	15	Y	FAC	
				Total Number of Dominant Species Across All Strata:  5 (B
•				
·				Percent of Dominant Species That Are OBL, FACW, or FAC:100% (A
				That Ale OBE, I AOW, OI I AO.
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
	30%	= Total Cov	/er	OBL species
apling/Shrub Stratum (Plot size:15				FACW species0
Acer rubrum	15	Y	FAC	FAC species x 3 = 20
Ulmus rubra	15	Y	FAC_	FACU species
Rhus typhina	5	N	<u>UPL</u>	UPL species5 x 5 =25
				Column Totals:145 (A)445 (
				Provalence Index = R/A = 3.1
				Trevalence index - b/A -
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
0.				3 - Prevalence Index is ≤3.0¹
lerb Stratum (Plot size:5)	35%	= Total Cov	/er	4 - Morphological Adaptations <sup>1</sup> (Provide support data in Remarks or on a separate sheet)
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
· ·				<sup>1</sup> Indicators of hydric soil and wetland hydrology mus be present, unless disturbed or problematic.
:				Definitions of Four Vegetation Strata:
				Tree Woody plants evaluating vines 2 in (7.6 cm)
i				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) more in diameter at breast height (DBH), regardless
				height.
				Sapling/Shrub – Woody plants, excluding vines, les
				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
0				
1				Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall.
2				
	0%	= Total Cov	/er	Woody vine – All woody vines greater than 3.28 ft in
Voody Vine Stratum (Plot size:)				height.
Lonicera japonica		Y	FAC_	
·				
i				
·				
i.				Hydrophytic Vegetation
3.				Present? Yes No
	80%	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate Lonicera j. has completely covered the herbaceous stra	e sheet.)		/er	

Sampling Point: W04-U01

SOIL

Depth	Matrix		Redox Features				
(inches)	Color (moist)	%	Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>			Remarks	
0-14	10YR 4/3	100		CI			
Type: C=Co	ncentration D=Denie	tion PM=Pc	educed Matrix, MS=Masked Sand Grains.	<sup>2</sup> Location	on: PL=Pore Lini	na M=Matrix	
lydric Soil II		tiion, mivi–me	duced Matrix, MO-Masked Sarid Grains.		Indicators for P		dric Soils <sup>3</sup> :
Histosol (			Dark Surface (S7)			A10) <b>(MLRA 1</b>	
	ipedon (A2)	•	Polyvalue Below Surface (S8) <b>(MLRA 147</b>	7 148\		e Redox (A16)	47)
Black His		•	Thin Dark Surface (S9) (MLRA 147, 148)		(MLRA 14	, ,	
	n Sulfide (A4)	•	Loamy Gleyed Matrix (F2)			oodplain Soils	(F19)
	Layers (A5)	•	Depleted Matrix (F3)		(MLRA 13		()
	ck (A10) (LRR N)		Redox Dark Surface (F6)			Material (TF2)	
	Below Dark Surface	(A11)	Depleted Dark Surface (F7)			v Dark Surface	(TF12)
Thick Da	rk Surface (A12)		Redox Depressions (F8)		Other (Expla	ain in Remarks)	)
Sandy M	ucky Mineral (S1) <b>(Li</b>	RR N,	Iron-Manganese Masses (F12) (LRR N,				
	147, 148)		MLRA 136)		_		
	leyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)		<sup>3</sup> Indicators of h		
	edox (S5)		Piedmont Floodplain Soils (F19) <b>(MLRA 1</b>	48)		rology must be	
	Matrix (S6)				unless distur	bed or problen	natic.
Restrictive L	ayer (if observed):						
Туре:			_				
Depth (inc	hes):		_	Hydri	ic Soil Present?	Yes	No_
Remarks:				•			

******	ABIT	TT	*****	MOL
WETI	$\Delta NII$	11).	$\mathbf{w}_{\mathbf{w}_{-}}$	VVUS

Is wetland hydrologically isolated?   X  yes   no   could not be determined because wetland extends beyond the ROW	Wetland Association to Stream  Is the wetland:     directly abutting     adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  A surface outlet for this wetland was not observed. There is likely a subsurface connection to roadside drainage ditch D06 which is located downslope from the wetland and has culverts running to S02 (Park Creek). Also downslope from this wetland is side seep H01 which leads directly to D06.  Associated Stream:	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
yes no If yes, list ID: SS	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow  Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow
Comments.	confined other, explain:

### **Definitions**

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

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

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

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

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

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

Confined: defined bed and banks.

Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		Sampling Date: _	05/12/2013		
Applicant/Owner: U.S. Navy					Sampling Point			
Investigator(s): Z. Fink / R. Ward	lwell	Section	on, Township, Range: <u> </u>					
Landform (hillslope, terrace, etc.)						e (%)· 0		
Subregion (LRR or MLRA): 148	/ S Lat:	 2691833.4	Long: 331	696.1	Datum	. NAD 83		
Soil Map Unit Name: Lawrence	ville silt loam, 3-8 perce	ent slopes	Long					
Are climatic / hydrologic condition	is on the site typical for	this time of year? Y	es No	(If no, explain in F	Remarks.)			
Are Vegetation, Soil	, or Hydrology	significantly distur	bed? Are "Norma	Il Circumstances"	oresent? Yes	/ No		
Are Vegetation, Soil				explain any answe	· · · · · · · · · · · · · · · · · · ·			
SUMMARY OF FINDINGS	- Attach site ma	p showing sam	pling point location	ons, transects	, important fea	ntures, etc.		
Hydrophytic Vegetation Present		No	Is the Sampled Area					
Hydric Soil Present?	Yes	No	within a Wetland?	Yes	No			
Wetland Hydrology Present?  Remarks:	Yes	No						
This plot is located at the western edge of the wetland depression adjacent to a man-made berm. The plot is roughly 2' lower in elevation than the paired plot U01. The plot is in a forested area in a depression on a hillslope.								
HYDROLOGY								
Wetland Hydrology Indicators				Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of				Surface Soil Cracks (B6)				
Surface Water (A1)		Frue Aquatic Plants (I		Sparsely Vegetated Concave Surface (B8)				
High Water Table (A2)		Hydrogen Sulfide Odd		Drainage Patterns (B10)				
Saturation (A3)			es on Living Roots (C3)					
Water Marks (B1) Sediment Deposits (B2)		Presence of Reduced		Dry-Season Water Table (C2) Soils (C6) Crayfish Burrows (C8)				
Sediment Deposits (B2) Recent Iron Reduction in Tillo						agery (C9)		
Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks				<ul><li>Saturation Visible on Aerial Imagery (C9)</li><li>Stunted or Stressed Plants (D1)</li></ul>				
Iron Deposits (B5)		· · · · · · · · · · · · · · · · ·	,	✓ Geomorphic Position (D2)				
Inundation Visible on Aeria	I Imagery (B7)			Shallow Aqu	` '			
Water-Stained Leaves (B9)	)			Microtopogr	aphic Relief (D4)			
Aquatic Fauna (B13)				FAC-Neutra	l Test (D5)			
Field Observations:								
1	Yes No							
	Yes No		•		,			
	Yes No	Depth (inches):	0 Wetland	Hydrology Prese	nt? Yes	No		
(includes capillary fringe)  Describe Recorded Data (stream	m gauge, monitoring we	ell, aerial photos, pre	vious inspections), if ava	ailable:				
Remarks:								
A majority of the wetland was in	nundated with several in	nches of water at the	time of delineation.					

EGETATION (Four Strata) – Use scientific	Absolute	Dominant	Indicator	Sampling Point: W05-W01  Dominance Test worksheet:		
Tree Stratum (Plot size:)		Species?				
1. Acer saccharinum	40	Y	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:5 (A)		
Fraxinus pennsylvanica	15	Y	FACW			
3. Juniperus virginiana	10	N	FACU	Total Number of Dominant Species Across All Strata: 5 (B)		
4.				Cpcolco / tolodo / til otilata.		
5				Percent of Dominant Species That Are OBL, FACW, or FAC:  100% (A/B)		
6.				That Are OBL, FACW, or FAC: (A/B)		
7				Prevalence Index worksheet:		
B			-	Total % Cover of: Multiply by:		
·	65%	= Total Cov		OBL species0 x 1 =0		
Sapling/Shrub Stratum (Plot size:)		- 10tai 00t	CI	FACW species70 x 2 =140		
1. Lindera benzoin	20	Y	FAC	FAC species30 x 3 =90		
2. Viburnum dentatum	10	Υ	FAC	FACU species10 x 4 =40		
Acer saccharinum	5	N	FACW	UPL species0 x 5 =0		
4				Column Totals: 110 (A) 270 (B)		
5						
6				Prevalence Index = B/A =2.5		
7				Hydrophytic Vegetation Indicators:		
8				1 - Rapid Test for Hydrophytic Vegetation		
9				✓ 2 - Dominance Test is >50%		
10.				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>		
	35%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
Herb Stratum (Plot size:5				Problematic Hydrophytic Vegetation¹ (Explain)		
1. Carex conjuncta	10	Y	FACW	—   Problematic Hydrophytic Vegetation (Explain)		
2				<sup>1</sup> Indicators of hydric soil and wetland hydrology must		
3				<ul> <li>be present, unless disturbed or problematic.</li> </ul>		
4				- Definitions of Four Vegetation Strata:		
5						
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of		
7				height.		
8				Conline/Chrush Wasdy plants avaluding vines less		
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
10						
11				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
12						
	10%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.		
Woody Vine Stratum (Plot size:)	4.5	.,	E40	Height.		
1. Lonicera japonica		<u> </u>	FAC			
2						
3						
4				Hydrophytic		
5				Vegetation		

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

The prevalence test is a better representation of this wetland community than the dominance test. Not included in this plot is Pinus virginiana (UPL). Several pinus v. and Juniperus v. are located within the wetland boundary. These are stressed and dying but do push the overall vegetation community closer to upland than what is reflected in the dominance test at this plot.

15% = Total Cover

Yes \_\_\_\_\_ No \_\_

Present?

W05-W01

SOIL

Sampling Point:

Profile Desc	ription: (Describe to	o the depth	needed to docum	nent the ir	ndicator	or confirm	the absen	ce of indicators.)
Depth	Matrix			x Features				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-5	10YR 3/2	90	7.5YR 3/4	10	C	M	L	
5-8	10YR 4/3	60	7.5YR 4/6	40	С	M	CL	
<sup>1</sup> Type: C=Co	oncentration, D=Deple	etion, RM=F	Reduced Matrix, MS	S=Masked	Sand Gr	ains.	<sup>2</sup> Location:	PL=Pore Lining, M=Matrix.
Hydric Soil I		,	,					licators for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Dark Surface	(S7)				2 cm Muck (A10) (MLRA 147)
	ipedon (A2)		Polyvalue Be		ce (S8) <b>(N</b>	ILRA 147,	148)	Coast Prairie Redox (A16)
Black His	stic (A3)		Thin Dark Su	rface (S9)	(MLRA 1	47, 148)		(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		<del>-</del> 2)		_	Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Mat					(MLRA 136, 147)
	ck (A10) (LRR N)	(4.4.4)	✓ Redox Dark S				_	Red Parent Material (TF2)
	Below Dark Surface	(A11)	Depleted Dar		. ,		_	Very Shallow Dark Surface (TF12)
	irk Surface (A12) lucky Mineral (S1) <b>(L</b> l	DD N	Redox Depre Iron-Mangane			I DD NI	_	Other (Explain in Remarks)
	147, 148)	nn N,	MLRA 136		55 (1 12 <i>)</i> (	LKK N,		
	leyed Matrix (S4)		Umbric Surfa		MLRA 13	6. 122)	<sup>3</sup> I	Indicators of hydrophytic vegetation and
	edox (S5)		Piedmont Flo					wetland hydrology must be present,
	Matrix (S6)		_		,	`	-,	unless disturbed or problematic.
Restrictive L	ayer (if observed):							
Type:								
Depth (inc	ches):						Hydric S	oil Present? Yes No
Remarks:								
	urbed as the wetland	exists betw	een man-made ber	ms. Refus	sal due to	inorganic o	debris and g	gravel was encountered at 8".

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Willow Grove EIS	City/County: Montgome	ery	Sampling Date: 05/12/2013
Applicant/Owner: U.S. Navy			Sampling Point: W05-U01
	Section, Township, Ran	<u> </u>	
Landform (hillslope, terrace, etc.): Berm			Slope (%): 2-4
Subregion (LRR or MLRA): 148 / S Lat:			
Soil Map Unit Name: Lawrenceville Silt Loam, 3-8% sl	lopes	y NWI classifica	
Are climatic / hydrologic conditions on the site typical fo	r this time of year? Yes No	(If no, explain in Re	emarks.)
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are "I	Normal Circumstances" pr	resent? Yes No
Are Vegetation, Soil, or Hydrology		eded, explain any answers	
SUMMARY OF FINDINGS - Attach site ma		ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes	No La tha Camala I		
Hydric Soil Present? Yes	Is the Sampled within a Wetlan		No
Wetland Hydrology Present? Yes	_ No		
This plot is located on a man-made berm roughly 2' hi upland forested area near the eastern boundary of the		and the wettand depression	n. The plot is located in an
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicat	tors (minimum of two required)
Primary Indicators (minimum of one is required; check		Surface Soil 0	` '
	True Aquatic Plants (B14)		etated Concave Surface (B8)
	Hydrogen Sulfide Odor (C1)	Drainage Patt	
	Oxidized Rhizospheres on Living Roots		
	Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C		Vater Table (C2)
	Thin Muck Surface (C7)		sible on Aerial Imagery (C9)
<del>-</del>	Other (Explain in Remarks)		ressed Plants (D1)
Iron Deposits (B5)	(2.4	Geomorphic F	, ,
Inundation Visible on Aerial Imagery (B7)		Shallow Aquit	` '
Water-Stained Leaves (B9)		Microtopograp	phic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral	Test (D5)
Field Observations:			
	Depth (inches):		
	Depth (inches):		
Saturation Present? Yes No (includes capillary fringe)	Depth (inches): Wet	tland Hydrology Present	t? Yes No
Describe Recorded Data (stream gauge, monitoring w	l /ell, aerial photos, previous inspections)	), if available:	
Remarks:			
This plot is located on a berm/slope in a well drained	position.		

	Absolute	Dominant	Indicator	Dominance Test worksheet:
ree Stratum (Plot size:)		Species?		Number of Dominant Species
Carya tomentosa	20	Y	UPL	That Are OBL, FACW, or FAC:0 (A)
Pinus virginiana	20	Y	UPL	Total Number of Dominant
Juniperus virginiana	15	Υ	FACU	Species Across All Strata: 6 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/E
				That Are OBE, I AGW, OF I AG (Are
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
	55%	= Total Cov		OBL species0 x 1 =0
apling/Shrub Stratum (Plot size:)		- Total Gov	Ci	FACW species0 x 2 =0
Elaeagnus umbellata	30	Υ	UPL	FAC species10 x 3 =30
Cornus florida	15	<u>Y</u>	FACU	FACU species35 x 4 =140
				UPL species 70 x 5 = 350
				Column Totals: 115 (A) 520 (B
				(1)
				Prevalence Index = B/A = 4.5
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0 <sup>1</sup>
)				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
ot Otrotom (Distriction 5	45%	= Total Cov	er	data in Remarks or on a separate sheet)
erb Stratum (Plot size:5 ) Alliaria petiolata	5	Υ	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
			1700	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
				- W
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of
				height.
				Continu/Church Woods plants evaluating since less
				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.
2.				of size, and woody plants less than 3.20 it tall.
		Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in
oody Vine Stratum (Plot size:)		rotal oov	0.	height.
Lonicera japonica	10	Y	FAC	
				Hydrophytic
				Vegetation
				Present? Yes No V
		 = Total Cov		Present? Yes No

US Army Corps of Engineers

. W05-U01

Profile Desc	ription: (Describe t	o the depth	needed to docum	nent the in	ndicator	or confirm	the ab	sence of indicators.)
Depth	Matrix		Redox	x Features	<u> </u>			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		ture Remarks
0-6	10YR 4/3	100					SI	<u> </u>
6-12	7.5YR 4/6	100					CI	L
							-	
							-	<del></del>
<sup>1</sup> Type: C=Co	oncentration, D=Deple	etion, RM=Re	educed Matrix, MS	=Masked	Sand Gra	ains.	<sup>2</sup> Location	on: PL=Pore Lining, M=Matrix.
Hydric Soil I		,	,					Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Dark Surface	(S7)				2 cm Muck (A10) (MLRA 147)
	ipedon (A2)		Polyvalue Be	. ,	ce (S8) <b>(N</b>	ILRA 147,	148)	Coast Prairie Redox (A16)
Black His	stic (A3)		Thin Dark Su	rface (S9)	(MLRA 1	47, 148)	-	(MLRA 147, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (I	F2)			Piedmont Floodplain Soils (F19)
Stratified	Layers (A5)	•	Depleted Mat	rix (F3)				(MLRA 136, 147)
	ck (A10) <b>(LRR N)</b>		Redox Dark S					Red Parent Material (TF2)
	l Below Dark Surface	(A11)	Depleted Dar					Very Shallow Dark Surface (TF12)
	rk Surface (A12)		Redox Depre		•			Other (Explain in Remarks)
	lucky Mineral (S1) (L	RR N,	Iron-Mangane		es (F12) <b>(</b>	LRR N,		
	147, 148)		MLRA 136	-		0 400\		31
	leyed Matrix (S4)	•	Umbric Surfa				0)	<sup>3</sup> Indicators of hydrophytic vegetation and
	edox (S5) Matrix (S6)		Piedmont Flo	odpiain So	olis (F 19)	(IVILKA 14	18)	wetland hydrology must be present, unless disturbed or problematic.
	ayer (if observed):						1	unless disturbed of problematic.
Type:	ayer (ii observeu).							
	shoo):		_				Llyde	ic Soil Present? Yes No
	ches):		<del>_</del>				Пуш	ic soil Fresent? Tes No
Remarks: Rock refusal	at 12".							
rtookroidodi	ut 12 .							

TETTTETE A STEE	-	****	11100
W/H, I, I V VII)	111	<b>M</b> / <b>M</b> / _	WWDh
WETLAND	w.	** ** -	11100

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?  yes no Could not be determined because wetland extends beyond the ROW	Wetland Association to Stream  Is the wetland:     directly abutting     adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  PSS/PFO. Storm drain D07 connects W08 to this wetland under a travel road and associated berm. This wetland appears isolated however culverts/storm drains may exist that were not observed (overgrown). Natural topography would drain this wetland northerly toward Park Creek. The wetland is separated from W09, W08 and W07 by elevated roads.  Associated Stream:	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
yes   X   no   If yes, list ID: SS (Use separate datasheet for each associated stream)  Approximate distance of wetland to stream (straight aerial feet):	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow  Surface flow characteristic from wetland to associated stream:
	discrete overland sheet flow confined other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Willow Grove EIS		City/C	County: Montgomery		Sampling Date: _	04/30/2013
Applicant/Owner: U.S. Navy		<u> </u>		_ State: PA		
Investigator(s): Z. Fink / R. Wa	rdwell	Section				
Landform (hillslope, terrace, etc						e (%)· 1-2
Subregion (LRR or MLRA): 148						
Soil Map Unit Name: Lawrence	eville Silt Loam, 0-3	% slopes	Long			
Are climatic / hydrologic condition			es V No	—— (If no. explain in Re	emarks.)	
Are Vegetation, Soil						, No
Are Vegetation, Soil				explain any answer		140
SUMMARY OF FINDING						tures, etc.
		, ,		<u> </u>	<u> </u>	
Hydrophytic Vegetation Prese Hydric Soil Present?	nt? Yes	No	Is the Sampled Area			
Wetland Hydrology Present?		No	within a Wetland?	Yes	No	
Remarks: This plot is located in a PFO s forested area. No paired uplar	ection of the large wind plot.	vetland depression and is	situated between elevate	ed roads to the NE	and S in a poorly	drained,
HYDROLOGY						
Wetland Hydrology Indicato	rs:			Secondary Indica	tors (minimum of t	wo required)
Primary Indicators (minimum o	of one is required; ch	heck all that apply)	_	Surface Soil (	Cracks (B6)	
✓ Surface Water (A1)		True Aquatic Plants (		Sparsely Veg	etated Concave S	urface (B8)
<u>✓</u> High Water Table (A2)		Hydrogen Sulfide Ode		✓ Drainage Pat		
Saturation (A3)		Oxidized Rhizosphere		Moss Trim Li		
Water Marks (B1)		Presence of Reduced	, ,		Nater Table (C2)	
Sediment Deposits (B2)		Recent Iron Reductio		Crayfish Burr		(00)
Drift Deposits (B3)		Thin Muck Surface (C			sible on Aerial Ima	
Algal Mat or Crust (B4)	•	Other (Explain in Ren	narks)		ressed Plants (D1	)
Iron Deposits (B5)	(D7)			✓ Geomorphic		
Inundation Visible on Aeri	, ,			Shallow Aqui		
✓ Water-Stained Leaves (B: Aquatic Fauna (B13)	<i>3</i> )			Nilcrotopogra		
Field Observations:				I AO-Neuliai	Test (D3)	
Surface Water Present?	Ves V No	Depth (inches): 0.25	(adjacent)			
Water Table Present?		Depth (inches):				
Saturation Present?		Depth (inches):		lydrology Presen	12 Vos <b>V</b>	No
(includes capillary fringe)			_		tr res	NO
Describe Recorded Data (stre	am gauge, monitorii	ng well, aerial photos, pre	vious inspections), if ava	ilable:		
Remarks:		of standing reservation				
The plot is adjacent to a swale	e with roughly 0.25"	of standing water.				

EGETATION (Four Strata) – Use scientific		-	la di a tan	Sampling Point: W06-W01
<u>Free Stratum</u> (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1. Acer rubrum	40	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:6 (A)
Quercus rubra	35	Y	FACU	
Ulmus rubra	10	N	FAC	Total Number of Dominant Species Across All Strata:  7 (B)
Fraxinus pennsylvanica	5	N	FACW	
5.				Percent of Dominant Species That Are OBL, FACW, or FAC:  85.71% (A/B)
7				Prevalence Index worksheet:
3				Total % Cover of: Multiply by:
J	90%	= Total Cov		OBL species10 x 1 =10
Sapling/Shrub Stratum (Plot size:)		10101 001	701	FACW species35 x 2 =70
1. Viburnum dentatum	25	Y	FAC	FAC species95 x 3 =285
Cornus alba	20	Y	FACW	FACU species40 x 4 =160
3. Acer rubrum	15	Y	FAC	UPL species0 x 5 =0
4. Ulmus rubra	5	N	FAC	Column Totals:180 (A)525 (B)
Cornus florida	5	<u>N</u>	FACU	Prevalence Index = B/A = 2.9
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				✓ 2 - Dominance Test is >50%
9				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10	70%	= Total Cov	 /er	4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size:5 )  1 Onoclea sensibilis	10	Y	FACW	Problematic Hydrophytic Vegetation¹ (Explain)
Glyceria striata	$-\frac{10}{10}$		OBL	
3				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5 3				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of height.
3 9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				than 3 iii. DBH and greater than 3.20 it (1 iii) tali.
11				Herb – All herbaceous (non-woody) plants, regardless
12.				of size, and woody plants less than 3.28 ft tall.
Noody Vine Stratum (Plot size: 30 )	20%	= Total Cov	/er	<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
1				
2.				
3.				
4.				l
5.				Hydrophytic Vegetation
5.				Present? Yes No

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

This plot is representative for the forested areas of the wetland. Note the presence of Quercus rubra as well as Juniperus virginiana (not present in this plot) throughout the PFO area making vegetation only marginally hydrophytic overall.

\_ = Total Cover

0%

W06-W01

SOIL

Sampling Point:

nches)	Matrix Color (moist)	%	Color (moist)	x Features %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-3	10YR 4/2	97	7.5YR 4/6	3	C	<u></u>	SC	Remains
3-11	10YR 4/2	85	7.5YR 5/6	15		M		
1-15	10YR 4/2	80	7.5YR 4/6	20	C	M		
				- ——				
e: C=Co	ncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=F	ore Lining, M=Matrix.
	ndicators:	·						rs for Problematic Hydric Soils <sup>3</sup>
Histosol	(A1)		Dark Surface	e (S7)			2 cm	n Muck (A10) <b>(MLRA 147)</b>
	ipedon (A2)		Polyvalue Be					st Prairie Redox (A16)
Black His	, ,		Thin Dark Su		-	47, 148)		/ILRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		-2)			Imont Floodplain Soils (F19)
	Layers (A5) ck (A10) <b>(LRR N)</b>		Depleted Ma Redox Dark		6)			<b>ILRA 136, 147)</b> Parent Material (TF2)
	Below Dark Surface	e (A11)	✓ Depleted Da					Shallow Dark Surface (TF12)
-	rk Surface (A12)	,	Redox Depre					er (Explain in Remarks)
Sandy M	ucky Mineral (S1) (L	.RR N,	Iron-Mangan	ese Masse	es (F12) (	LRR N,		
	147, 148)		MLRA 13	-			2	
	leyed Matrix (S4)		Umbric Surfa			-		tors of hydrophytic vegetation and
	edox (S5)		Piedmont Flo	oodplain So	oils (F19)	(MLRA 14	-	and hydrology must be present,
	Matrix (S6) ayer (if observed):						unie	ss disturbed or problematic.
Type:	ayer (ii observeu).							
· ypc							Hydric Soil Pr	esent? Yes V No
Denth (inc	hes).						Tiyano com Ti	
	:hes):							
narks:	sing with depth.							
narks:								
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## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Willow Grove EIS				City/C	county: Monte	gomery		Sampling Date: _	05/01/2013
Applicant/Owner: U.S. Navy								Sampling Point	
Investigator(s): Z. Fink / R. Wa	ırdwell			Section			orsham Township		
Landform (hillslope, terrace, etc									e (%): 1-2
Subregion (LRR or MLRA): 14									
Soil Map Unit Name: Lawrence							NWI classific		
Are climatic / hydrologic conditi								' <u>'</u>	
									/ Na
Are Vegetation, Soil									NO
Are Vegetation, Soil SUMMARY OF FINDING									atures, etc.
							,	•	
Hydrophytic Vegetation Prese		es			Is the Sam				
Hydric Soil Present? Wetland Hydrology Present?		es V	No No		within a We	etland?	Yes	No	
Remarks:									
roughly 4' lower in elevation the	ап рапес рю								
HYDROLOGY									
Wetland Hydrology Indicato								ators (minimum of t	wo required)
Primary Indicators (minimum	of one is requi						Surface Soil	, ,	
Surface Water (A1)			True Aquatic F					getated Concave S	iurface (B8)
High Water Table (A2)			Hydrogen Sulf				Drainage Pa		
Saturation (A3) Water Marks (B1)			Oxidized Rhizo Presence of R			100ts (C3)	Moss Trim L	Water Table (C2)	
Sediment Deposits (B2)			Recent Iron Re		, ,	ils (C6)	Crayfish Bur		
Drift Deposits (B3)			Thin Muck Sur			(00)		isible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)			Other (Explain					Stressed Plants (D1	
Iron Deposits (B5)							✓ Geomorphic	Position (D2)	
Inundation Visible on Aer	ial Imagery (B	7)					Shallow Aqu	itard (D3)	
Water-Stained Leaves (B	9)						Microtopogra	aphic Relief (D4)	
Aquatic Fauna (B13)							FAC-Neutra	l Test (D5)	
Field Observations:									
Surface Water Present?			_ Depth (inches						
Water Table Present?			_ Depth (inches					/	
Saturation Present? (includes capillary fringe)	Yes	No	_ Depth (inches	s):	4-7	Wetland H	ydrology Presei	nt? Yes	No
Describe Recorded Data (stre	am gauge, m	onitoring	well, aerial phot	os, pre	vious inspect	ions), if avai	lable:		
Remarks:					/.I. DOG				
There is 2-3" of standing water characteristics are not captur the wetland in this area.									

### W06-W02 VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point: Absolute Dominant Indicator **Dominance Test worksheet:** 30 Tree Stratum (Plot size: % Cover Species? Status **Number of Dominant Species** That Are OBL, FACW, or FAC: \_\_\_ (A) **Total Number of Dominant** 3 (B) Species Across All Strata: Percent of Dominant Species 100% That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: 10 \_ x 1 = \_ OBL species 0% = Total Cover 35\_\_\_ x 2 = \_ Sapling/Shrub Stratum (Plot size: \_\_\_\_\_\_) FACW species 70 210 1. Salix fragilis FAC FAC species \_\_ x3=\_ 0 \_\_\_ x 4 = \_ 2. Acer rubrum 0 5 FAC FACU species 0 0 UPL species x 5 = 115 290 (A) Column Totals: 2.5 Prevalence Index = B/A = \_\_\_ **Hydrophytic Vegetation Indicators:** \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% ✓ 3 - Prevalence Index is ≤3.0¹ \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting 70% = Total Cover data in Remarks or on a separate sheet) Herb Stratum (Plot size: \_\_\_\_\_\_5 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. Lysimachia ciliata **FACW** 2. Scirpus pendulus 10 OBL <sup>1</sup>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.

45% = Total Cover

\_\_\_\_\_\_ = Total Cover

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

Roughly 50% of the herbaceous stratum is bare ground.

Woody Vine Stratum (Plot size: 30 )

**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

Yes V No

Hydrophytic Vegetation

Present?

W06-W02

Sampling Point:

SOIL

Depth	Matrix	0/		x Features		12	T4		Davis	
(inches) 0-2	Color (moist) 7.5YR 4/3	<u>%</u> 98	Color (moist) 10YR 6/6	2	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u> CL	·	Remarks	
2-7	7.5YR 4/3	85	5YR 3/4		<u>C</u>		CL			
			7.5YR 4/6	5	<u>C</u>	M				
			5YR 5/8	5	C	M/PL				
		·								
								_		
								_		
T C-C.	tion D-Doub	letien DM	Daduard Matrix M	C-Maalaad			21		M-M-t	
Type: C=Cc Tydric Soil I	oncentration, D=Depl Indicators:	letion, Rivi=	Reduced Matrix, M	S=Masked	Sand Gr	ains.		PL=Pore Lini	ng, M=Matrix. roblematic Hy	dric Soils <sup>3</sup> :
Histosol			Dark Surface	e (S7)					A10) <b>(MLRA 1</b> 4	
	pipedon (A2)		Polyvalue Be		ce (S8) <b>(N</b>	/ILRA 147,	, 148)	_	e Redox (A16)	,
Black His			Thin Dark Su	. ,	•	147, 148)		(MLRA 14		
	n Sulfide (A4)		Loamy Gleye		<del>-</del> 2)		_		oodplain Soils (	F19)
	l Layers (A5) ck (A10) <b>(LRR N)</b>		Depleted Ma Redox Dark	, ,	6)		,	(MLRA 13 Red Parent		
	Below Dark Surface	e (A11)	Depleted Da	•	•				v Dark Surface	(TF12)
	ark Surface (A12)	, ,	Redox Depre					_	in in Remarks)	. ,
	lucky Mineral (S1) <b>(L</b>	.RR N,	Iron-Mangan		es (F12) <b>(</b>	LRR N,				
	147, 148)		MLRA 13	•	MI DA 41	oc 400\	3	} 		-4-4:
	edox (S5)		Umbric Surfa Piedmont Flo			-			ydrophytic vego rology must be	
	COOX (CO)		1 learners 1	ouplant of	Jii3 (1 10 <i>)</i>	(11121177 1-	,			
	Matrix (S6)							unless distur	bea or problem	ialic.
Stripped Restrictive L	Matrix (S6)  ayer (if observed):							unless distur	bed or problem	latic.
Stripped Restrictive L								unless distur	bed or problem	latic.
Stripped Restrictive L	ayer (if observed): ay Hardpan						Hydric S	unless distur		No
Stripped Restrictive L Type: Cla Depth (inc	Layer (if observed): ay Hardpan ches): 7"			l : d: d		44i l				
Stripped Restrictive L Type: Cla Depth (inc	ayer (if observed): ay Hardpan		for problematic soi	l indicator ı	ed paren	t material.				
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Stripped Restrictive L Type: Cla Depth (inc	Layer (if observed): ay Hardpan ches): 7"		for problematic soi	I indicator r	red paren	t material.				

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Willow Grove EIS	3	City/C	county: Montgomery		Sampling Date: _	05/01/2013		
Applicant/Owner: U.S. Navy		,	•		Sampling Point			
Investigator(s): Z. Fink / R. Wa	ardwell	Section	on, Township, Range: H					
Landform (hillslope, terrace, et						e (%)· 20		
Subregion (LRR or MLRA): 14								
Soil Map Unit Name: Lawrence			Long					
Are climatic / hydrologic condit	ions on the site typical f	for this time of year? Y	es No (	(If no, explain in R	emarks.)			
Are Vegetation, Soil						<b>/</b> No		
Are Vegetation, Soil								
SUMMARY OF FINDING						itures, etc.		
Hydrophytic Vegetation Prese Hydric Soil Present?	ent? Yes	No No	Is the Sampled Area within a Wetland?	Yes	No			
Wetland Hydrology Present? Remarks:	Yes	No						
HYDROLOGY								
Wetland Hydrology Indicato	ore:			Secondary Indica	ators (minimum of t	wo required)		
Primary Indicators (minimum		ck all that annly)				wo required)		
Surface Water (A1)		True Aquatic Plants (		<ul><li>Surface Soil Cracks (B6)</li><li>Sparsely Vegetated Concave Surface (B8)</li></ul>				
High Water Table (A2)		. Hydrogen Sulfide Od		Sparsely vegetated Concave Surface (Bo) Drainage Patterns (B10)				
Saturation (A3)			es on Living Roots (C3)					
Water Marks (B1)		Presence of Reduced		Dry-Season Water Table (C2)				
Sediment Deposits (B2)		Recent Iron Reductio		Crayfish Bur				
Drift Deposits (B3)		Thin Muck Surface (0		Saturation V	isible on Aerial Ima	agery (C9)		
Algal Mat or Crust (B4)		Other (Explain in Rer	marks)	Stunted or S	tressed Plants (D1	)		
Iron Deposits (B5)				Geomorphic	Position (D2)			
Inundation Visible on Ae				Shallow Aqu				
Water-Stained Leaves (E	39)			Microtopographic Relief (D4)				
Aquatic Fauna (B13)				FAC-Neutral	Test (D5)			
Field Observations:		5 4 ( )						
Surface Water Present?		_ Depth (inches):						
Water Table Present? Saturation Present?		_ Depth (inches): _ Depth (inches):		lydrology Preser	12 Vac	No 🗸		
(includes capillary fringe)	res No_ <del>-</del>	_ Depth (inches)	vvetiand n	iyarology Preser	it? res	NO		
Describe Recorded Data (stre	eam gauge, monitoring	well, aerial photos, pre	vious inspections), if ava	ilable:				
Remarks:	atad an a wall drained a	along (horro with alougt	ad raad) with dansaaian	a to the NE and C	10/			
No indicators. The plot is located in the second se	ated on a well drained s	siope (berm with eleval	ed road) with depression	s to the NE and S	vv.			

Absolute	Dominant		Dominance Test worksheet:
<u>% Cover</u>	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
			Total Number of Dominant Species Across All Strata: 3 (B)
			Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33% (A/B
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
			OBL species x 1 = 0
)	= Total Cov	er	FACW species0
- / 15	Υ	FAC	FAC species15 x 3 =45
	Y	UPL	FACU species
		FACU	UPL species 20 x 5 = 100
			Column Totals: (A) (B)
			Column rotals: (b)
			Prevalence Index = B/A =4
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0 <sup>1</sup>
	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
60	V	FACII	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
			<sup>1</sup> 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.
	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
			Hydrophytic
			Vegetation Present? Yes No
			<u> </u>
	30% 60 10 5 75%		0%

No6-U01

_			1
Sam	nlina	Point:	

Color (moist)	
A-9	
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  pdric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Histic Epipedon	
Histosol (A1)	
Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148)	
Histosol (A1)	
Histosol (A1)	
Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 146).  Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16).  Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16).  Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils.  Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147).  Depleted Below Dark Surface (A11) Depleted Dark Surface (F6) Red Parent Material (TF2).  Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148).  Sandy Mucky Mineral (S1) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) 3Indicators of hydrophytic veen strictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes marks:	
Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148)	
Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148)	
Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Piedmont Floodplain Soils Stratified Layers (A5) Depleted Matrix (F2) Piedmont Floodplain Soils Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks	
Histosol (A1)	
Histosol (A1) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Thic Dark Surface (F6) 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) Stripped Matrix (S6)  Thiore March (A10) (LRR N, MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be unless disturbed or proble strictive Layer (if observed):  Type: Depth (inches):  Marks:	
Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Stripped Matrix (S6) Stripped Matrix (S6) Stripped Matrix (S6)  Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 148)  Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be unless disturbed or proble strictive Layer (if observed):  Type: Depth (inches):  Matrix (S6)  Piedmont Floodplain Soils (F19) (MLRA 148)  Hydric Soil Present? Yes  Matrix (S6)  Hydric Soil Present? Yes  Matrix (S6)	
Black Histic (A3)	
Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F3) MLRA 136, 147)  Piedmont Floodplain Soils (MLRA 136, 147)  Redox Dark Surface (F6) 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)  Strictive Layer (if observed): Type: Depth (inches):  Hydric Soil Present? Yes  Piedmont Floodplain Soils (MLRA 136, 147) Redox Dark Surface (F7) Depleted Dark Surface (F7) Very Shallow Dark Surface (F7) Very Shallow Dark Surface (F8) Other (Explain in Remarks)  MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be unless disturbed or proble  Hydric Soil Present? Yes  Hydric Soil Present? Yes	
	(F19)
	(1.10)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Stripped Matrix (S6)  Depth (inches): Depth (inches):  Depleted Dark Surface (F7) Depleted Dark Surface (F7) Nergon Medox (F8) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (F12) (LRR N, MLRA 136, 122) Depleted Dark Surface (	ł
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Stripped Matrix (S6) Stripped Matrix (S6)  Depth (inches):  Hydric Soil Present? Yes  Emarks:	;)
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)   Sandy Redox (S5)	
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be unless disturbed or proble unless disturbed or proble estrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes	
_ Stripped Matrix (S6) unless disturbed or proble estrictive Layer (if observed):  Type:  Depth (inches):  emarks:  Hydric Soil Present? Yes	
Estrictive Layer (if observed):    Type:	present,
Type: Depth (inches): Hydric Soil Present? Yes emarks:	natic.
Depth (inches): Hydric Soil Present? Yes	
emarks:	No_

WETLA	ND	ID.	ww.	W07
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Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
yes no could not be determined because wetland extends beyond the ROW	Is the wetland:  directly abutting  adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:	
The wetland appears isolated however culverts / storm drains may exist that were unobserved due to the area being overgrown. Natural topography in the area would drain this wetland northerly toward Park Creek.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:	
yes	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow
Approximate distance of wetland to stream (straight aerial feet):	Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow confined other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Willow Grove EIS	3		City/C	county: Montgor	mery		Sampling Date: _	05/01/2013
Applicant/Owner: U.S. Navy							Sampling Point	
Investigator(s): Z. Fink / R. W.	ardwell		Section Section					
Landform (hillslope, terrace, et							Slop	e (%): 0-2
Subregion (LRR or MLRA): 14								
Soil Map Unit Name: Lawren						_ NWI classifica		
Are climatic / hydrologic condit								
Are Vegetation, Soil								No
Are Vegetation, Soil _						olain any answer		
SUMMARY OF FINDING								itures, etc.
Hydrophytic Vegetation Pres	ent? Yes	✓ N	o					
Hydric Soil Present?	Yes		o	Is the Sample within a Wetla		Yes_	No	
Wetland Hydrology Present?	-		0	WILLIIII a WELL	aliu :	169		
Remarks: This plot is located at the edo	ge of a large depre	ssion near	an elevated main	ntenance road th	hat is the up	lland boundary c	of the wetland in th	is area.
HYDROLOGY								
Wetland Hydrology Indicat					<u>Se</u>	-	tors (minimum of t	wo required)
Primary Indicators (minimum	of one is required			211)		_ Surface Soil (	, ,	f (D0)
Surface Water (A1)			e Aquatic Plants (l rogen Sulfide Odo		_		etated Concave S	urface (B8)
High Water Table (A2) Saturation (A3)			rogen Sumae Odd dized Rhizosphere			_ Drainage Pat _ Moss Trim Li		
Water Marks (B1)			sence of Reduced		018 (03)	<del></del> '	Nater Table (C2)	
Sediment Deposits (B2)			ent Iron Reduction		(C6)	Crayfish Burr		
Drift Deposits (B3)			Muck Surface (C				sible on Aerial Ima	igery (C9)
Algal Mat or Crust (B4)		<del></del>	er (Explain in Ren		_	<del></del>	ressed Plants (D1	
Iron Deposits (B5)					<u></u>	Geomorphic	Position (D2)	
Inundation Visible on Ae	rial Imagery (B7)				_	_ Shallow Aqui	tard (D3)	
Water-Stained Leaves (F	39)				<u></u>	Microtopogra	. , ,	
Aquatic Fauna (B13)					_	_ FAC-Neutral	Test (D5)	
Field Observations:		4 5						
Surface Water Present?			pth (inches): pth (inches):					
Water Table Present? Saturation Present?			ptn (inches): pth (inches):		Vetland Hyd	drology Presen	t? Yes 🗸	No
(includes capillary fringe)								
Describe Recorded Data (str	eam gauge, monit	oring well, a	aerial photos, pre	vious inspection	ns), if availal	ble:		
Remarks: Wetland in this location appe	ears to be saturate	d/inundated	d intermittently an	nd this is renrese	entative of th	he wetland over	all Pit-Mound mic	ro-tonography
is present at this location.	ars to be saturate	d/iiidiidatec	a intermittently an	ia tilis is represe	critative or ti	ne welland over	an. The Modria Trilo	to topograpity

EGETATION (Four Strata) – Use scientific		-		Sampling Point: W07-W01
Tree Stratum (Plot size:30)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1			Slatus	Number of Dominant Species That Are OBL, FACW, or FAC:  5 (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
5				Percent of Dominant Species That Are ORL FACW or FAC: 83.33% (A/R)
6				That Are OBL, FACW, or FAC: 83.33% (A/B)
7				Prevalence Index worksheet:
8.				Total % Cover of: Multiply by:
	0%	= Total Cov	/er	OBL species x 1 = 22
Sapling/Shrub Stratum (Plot size:)	-		<b>C.</b>	FACW species 50
1. Cornus alba		Y	FACW	FAC species x 3 = 90
2. Fraxinus americana	15	Y	FACU	FACU species25
3. Salix fragilis	10	<u>Y</u>	FAC	UPL species0 x 5 =0
4. Acer rubrum	5	<u>N</u>	FAC	Column Totals:(A)(B)
5				Prevalence Index = B/A =2.5
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				✓ 2 - Dominance Test is >50%
9				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum (Plot size:5 )	50%	= Total Cov	er/er	data in Remarks or on a separate sheet)
1. Juncus effusus	30	Υ	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Carex stricta	15	Y	OBL	
2. Veronica serpyllifolia	15	Y	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Solidago canadensis	10		FACU	be present, unless disturbed or problematic.
5. Glyceria striata		N	OBL	Definitions of Four Vegetation Strata:
6. Persicaria sagittata	$-\frac{3}{2}$		OBL	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
				more in diameter at breast height (DBH), regardless of
7				height.
8. 9.				Sapling/Shrub – Woody plants, excluding vines, less
9 10.				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft tall.
12.	77%	= Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		- 10tal 00v	ei	height.
1				
2.				
3.				
4.				l
5.				Hydrophytic Vegetation
6.				Present? Yes No
	0%:	= Total Cov	er/er	
Remarks: (Include photo numbers here or on a separate				

W07-W01

Sampling Point:

Profile Desc	ription: (Describe t	o the dept	h needed to docun	ent the i	ndicator	or confirm	the absence	of indicate	ors.)	
Depth	Matrix		Redox	κ Features	3					
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
0-5	7.5 YR 4/3	90	5YR 5/8	10	C	M/PL	SC			
5-7	7.5YR 4/3	85	5 YR 4/6	10	C	M/PL	C			
			7.5 YR 5/6	5	C	M				
	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	=Masked	Sand Gr	ains.	<sup>2</sup> Location: Pl	=Pore Lini	ng, M=Matrix.	
Hydric Soil I	ndicators:						Indica	ators for P	roblematic Hy	dric Soils³:
Histosol	(A1)		Dark Surface						(A10) <b>(MLRA 1</b> 4	47)
	pipedon (A2)		Polyvalue Be				148) 0		e Redox (A16)	
Black His			Thin Dark Su		-	147, 148)		(MLRA 1		
	n Sulfide (A4)		Loamy Gleye		F2)		P		oodplain Soils (	(F19)
	Layers (A5)		Depleted Mat					(MLRA 1		
	ck (A10) (LRR N)	(* 4 4)	Redox Dark S						Material (TF2)	(== 40)
	Below Dark Surface	e (A11)	Depleted Dar						w Dark Surface	
	ark Surface (A12)	DD N	Redox Depre	•	•	I DD N		itner (Expla	ain in Remarks)	
	lucky Mineral (S1) <b>(L</b>	KK N,	Iron-Mangane		es (F12) <b>(</b>	LKK N,				
	147, 148)		MLRA 136	-	MI DA 13	)6 422\	3Ind	icatora of h	ydrophytic veg	otation and
	eleyed Matrix (S4) edox (S5)		Umbric Surfa			-			rology must be	
	Matrix (S6)		Pleamont Flo	oupiain S	olis (F 19)	(IVILKA 14	-		bed or problem	
	ayer (if observed):						<u> </u>	iliess distui	bed of problem	latio.
	ay Hardpan									
Depth (inc							Hydric Soil	Present?	Yes 🗸	No
Remarks:										
	cated within 148/S a	nd meets th	ne requirements for p	oroblemat	ic red par	rent materia	al. No other ind	dicators we	re met at this pl	lot.

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Willow Grove EIS	3		_ City/County: Mor	ntgomery		Sampling Date: _	05/03/2013
Applicant/Owner: U.S. Navy						Sampling Point	
Investigator(s): Z. Fink / R. W	ardwell				•		
Landform (hillslope, terrace, e						Slon	
Subregion (LRR or MLRA): 14							
Soil Map Unit Name: Chalfor							i. <u></u>
					_ NWI classifica		
Are climatic / hydrologic condi							
Are Vegetation, Soil _				Are "Normal C	ircumstances" pr	esent? Yes	No
Are Vegetation, Soil _	, or Hydrolog	y naturally p	problematic?	(If needed, exp	olain any answers	s in Remarks.)	
SUMMARY OF FINDING	3S – Attach s	ite map showin	g sampling po	int locations	s, transects,	important fea	itures, etc.
Hydrophytic Vegetation Pres Hydric Soil Present? Wetland Hydrology Present?	Yes_			npled Area Vetland?	Yes	_ No	
Remarks: This plot is located in the SW		<u> </u>					
area. No paired upland plot.  HYDROLOGY							
						(ii	
Wetland Hydrology Indicat Primary Indicators (minimum		shook all that apply	٨		-	ors (minimum of t	wo requirea)
	or one is required				_ Surface Soil C	etated Concave S	Surface (PS)
Surface Water (A1) High Water Table (A2)		True Aquatic Hydrogen Sul		_	Sparsely vegt Drainage Patt		furface (B6)
Saturation (A3)			zospheres on Living	Roots (C3)			
Water Marks (B1)			Reduced Iron (C4)			Vater Table (C2)	
Sediment Deposits (B2)		<del></del>	Reduction in Tilled S	Soils (C6)	Crayfish Burro		
Drift Deposits (B3)		Thin Muck Su	ırface (C7)	_	_ Saturation Vis	ible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)		Other (Explain	n in Remarks)	_		essed Plants (D1	)
Iron Deposits (B5)				<u> </u>	✓ Geomorphic F		
Inundation Visible on Ae				_	_ Shallow Aquit		
Water-Stained Leaves (I	39)			_		ohic Relief (D4)	
Aquatic Fauna (B13)				_	_ FAC-Neutral 1	rest (D5)	
Field Observations: Surface Water Present?	Voc. No.	Depth (inche	):				
Water Table Present?		Depth (inche					
Saturation Present?		Depth (inche		Wetland Hy	drology Present	2 Vas V	No
(includes capillary fringe)						103	140
Describe Recorded Data (str	eam gauge, monit	oring well, aerial pho	otos, previous inspe	ctions), if availa	ble:		
Remarks: The upper 4" were nearly sa	turated at the time	of investigation Loc	cated in a poorly dra	ained area subje	act to ponding aft	or procipitation o	vonte
Generally weak but qualifying					set to portaing art	ci precipitation e	ronts.

EGETATION (Four Strata) – Use scientific		-		Sampling Point: W07-W02
Tree Stratum (Plot size:30)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
Acer rubrum	75	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:4 (A)
Juniperus virginiana	10	N	FACU	
3.				Total Number of Dominant Species Across All Strata:  4 (B)
4.				
5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
5				
7				Prevalence Index worksheet:
8.				Total % Cover of: Multiply by:
	85%	= Total Cov	er	OBL species x 1 = 0
Sapling/Shrub Stratum (Plot size:15 )				FACW species x 2 = 0
1. Acer rubrum	35	Y	FAC_	FAC species135 x 3 =405
2. Viburnum dentatum	15	Y	FAC_	FACU species15 x 4 =60
Rosa multiflora	_ 5	N	FACU	UPL species0 x 5 =0
4				Column Totals:150 (A)465 (B)
5				Prevalence Index = B/A =3.1
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				✓ 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
10				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum (Plot size: <sup>5</sup> )	55%	= Total Cov	er	data in Remarks or on a separate sheet)
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1				
2.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
8				height.
9				Sapling/Shrub – Woody plants, excluding vines, less
10				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
12.				of size, and woody plants less than 3.28 ft tall.
12.	0%	= Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		10101 001	OI .	height.
1. Lonicera japonica	10	Y	FAC	
2				
3				
4.				
5.				Hydrophytic Vegetation
S				Present? Yes No
	10%	= Total Cov	er	

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

This plot is situated in a localized, small depression with no herbaceous coverage. This plot and the marginally hydrophytic community present is representative for the PFO areas of the wetland with one exception- Cornus alba is present and dominant in many other locations within the PFO boundary.

W07-W02

Sampling Point:

SOIL

Color (moist)   %   Color (moist)   %   Type¹   Loc²   Texture   Rem	atic Hydric Soils <sup>3</sup> :
3-7	atic Hydric Soils <sup>3</sup> :
7-11 2.5YR 3/3 80 5YR 4/6 10 C M C  7.5YR 6/8 5 C M  2.5Y 7/2 5 D M  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Place Soil Indicators:  Histosol (A1)  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Stratified Layers (A5)  Zem Muck (A10) (LRR N)  Redox Dark Surface (F6)  To M  C  M  M	atic Hydric Soils <sup>3</sup> :
7.5YR 6/8	atic Hydric Soils <sup>3</sup> :
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Indicators:  Histosol (A1)  Histosol (A1)  Polyvalue Below Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Black Histic (A3)  Thin Dark Surface (S9) (MLRA 147, 148)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Redox Dark Surface (F6)   M  Location: PL=Pore Lining, M=M  Indicators for Problema  2 cm Muck (A10) (MI)  (MLRA 147, 148)  Piedmont Floodplain  (MLRA 136, 147)  MLRA 136, 147)	atic Hydric Soils <sup>3</sup> :
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (MRA 147, 148)  Coast Prairie Redox  (MLRA 147, 148)  (MLRA 147, 148)  (MLRA 147, 148)  Piedmont Floodplain  Stratified Layers (A5)  Depleted Matrix (F3)  Redox Dark Surface (F6)  PL=Pore Lining, M=M  2 com Muck (A10): ME  And Coast Prairie  (MLRA 147, 148)  (MLRA 147, 148)  (MLRA 147, 148)  (MLRA 147, 148)	atic Hydric Soils <sup>3</sup> :
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (MI  MLRA 147, 148)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  MLRA 136, 147)  Piedmont Floodplain  (MLRA 136, 147)  Redox Dark Surface (F6)	atic Hydric Soils <sup>3</sup> :
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (MI  MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Indicators for Problema  2 cm Muck (A10) (MI  Coast Prairie Redox  (MLRA 147, 148)  (MLRA 147, 148)  Piedmont Floodplain  (MLRA 136, 147)  Red Parent Material	atic Hydric Soils <sup>3</sup> :
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (MI  MLRA 147, 148)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  MLRA 136, 147)  Piedmont Floodplain  (MLRA 136, 147)  Redox Dark Surface (F6)  Red Parent Material	atic Hydric Soils <sup>3</sup> :
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (MI  MLRA 147, 148)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  MLRA 136, 147)  Piedmont Floodplain  (MLRA 136, 147)  Redox Dark Surface (F6)	atic Hydric Soils <sup>3</sup> :
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (MI  MLRA 147, 148)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  MLRA 136, 147)  Piedmont Floodplain  (MLRA 136, 147)  Redox Dark Surface (F6)	atic Hydric Soils <sup>3</sup> :
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (MI  MLRA 147, 148)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  MLRA 136, 147)  Piedmont Floodplain  (MLRA 136, 147)  Redox Dark Surface (F6)	atic Hydric Soils <sup>3</sup> :
Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MI Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147)  2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) ✓ Red Parent Material	
Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material	ILRA 147)
Black Histic (A3)Thin Dark Surface (S9) (MLRA 147, 148)(MLRA 147, 148)Hydrogen Sulfide (A4)Loamy Gleyed Matrix (F2)Piedmont FloodplainStratified Layers (A5)Depleted Matrix (F3)(MLRA 136, 147)2 cm Muck (A10) (LRR N)Redox Dark Surface (F6)✓ Red Parent Material	
Hydrogen Sulfide (A4)Loamy Gleyed Matrix (F2)Piedmont FloodplainStratified Layers (A5)Depleted Matrix (F3)(MLRA 136, 147)2 cm Muck (A10) (LRR N)Redox Dark Surface (F6)✓ Red Parent Material	
Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material	
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material	
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark S	
Thick Dark Surface (A12)  Redox Depressions (F8)  Other (Explain in Rel	emarks)
Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, ML RA 136)	
MLRA 147, 148) MLRA 136)  _ Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) <sup>3</sup> Indicators of hydrophy	utic vegetation and
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology m	
Stripped Matrix (S6) unless disturbed or p	
Restrictive Layer (if observed):	
Type:	_
Depth (inches): Hydric Soil Present? Yes _	No
Remarks: The plot is located in 148/S and qualifies for problematic red parent material. Rock refusal at approximately 12".	
The plot is located in 140/3 and qualifies for problematic fed parent material. Nock ferusal at approximately 12.	

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date: 05/02/2013			
Applicant/Owner: U.S. Navy			Sampling Point: W07-U01			
	Section, Township, Range					
Landform (hillslope, terrace, etc.): Hillslope						
Subregion (LRR or MLRA): 148 / S Lat:						
Soil Map Unit Name: Lawrenceville Silt Loam, 0-3% sl	opes Long. <u>S</u>					
Are climatic / hydrologic conditions on the site typical for						
Are Vegetation, Soil, or Hydrology						
Are Vegetation, Soil, or Hydrology		ed, explain any answer				
SUMMARY OF FINDINGS - Attach site ma	ap showing sampling point loca	tions, transects,	important features, etc.			
Hydrophytic Vegetation Present? Yes	No Lu a Lua					
Hydric Soil Present? Yes	Is the Sampled Are within a Wetland?		No			
Wetland Hydrology Present? Yes	No	165				
This plot is located on a berm associated with a mainted shrub area at the edge of the wetland.	mance road about 4.5 mgner in elevation	tilali palieu plot wo i.	The plot is located in a scrub-			
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)			
Primary Indicators (minimum of one is required; check	all that apply)	Surface Soil (	Cracks (B6)			
	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)				
	Hydrogen Sulfide Odor (C1)	Drainage Pat	, ,			
	Oxidized Rhizospheres on Living Roots (C					
	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)				
	Recent Iron Reduction in Tilled Soils (C6)	ills (C6) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)				
<del></del>	Thin Muck Surface (C7) Other (Explain in Remarks)	<del></del>	tressed Plants (D1)			
Iron Deposits (B5)	other (Explain in Nemarks)	Geomorphic	, ,			
Inundation Visible on Aerial Imagery (B7)		Shallow Aqui	` ,			
Water-Stained Leaves (B9)		Microtopographic Relief (D4)				
Aquatic Fauna (B13)		FAC-Neutral				
Field Observations:						
Surface Water Present? Yes No	Depth (inches):					
Water Table Present? Yes No	Depth (inches):					
	Depth (inches): Wetlar	nd Hydrology Presen	t? Yes No			
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring w	ell aerial photos, previous inspections), if	available:				
Describe Necorded Data (stream gauge, monitoring w	sii, aeriai priotos, previous irispections), ir	avallable.				
Remarks:						
The plot is located on a well drained slope above the	wetland.					

	Absolute	Dominant		Dominance Test worksheet:
ee Stratum (Plot size:30)	<u>% Cover</u>	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:  1 (A
				Total Number of Dominant Species Across All Strata:  4 (B
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: 25% (A
				Total % Cover of: Multiply by:
				OBL species x 1 = 0
nling/Shrub Stratum (Plot size: 15		= Total Cov	er	
pling/Shrub Stratum (Plot size:15 Lonicera tatarica	) 35	Υ	FACU	50 450
Rosa multiflora			FACU	1 AC species
	10			FACU species x4 =
Prunus americana		N	FACU	UPL species x 5
				Column Totals:135 (A)490 (
				Prevalence Index = B/A =3.6
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0 <sup>1</sup>
-	65%	= Total Cov		4 - Morphological Adaptations <sup>1</sup> (Provide suppor
erb Stratum (Plot size:5	<del></del>	- Total Gov	Ci	data in Remarks or on a separate sheet)
Solidago canadensis		Y	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				1 Indicators of budgin call and watland budgelong much
				<sup>1</sup> Indicators of hydric soil and wetland hydrology mus be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
				- commons on a case to getting in contains
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm)
				more in diameter at breast height (DBH), regardless height.
				Sapling/Shrub – Woody plants, excluding vines, lest than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				Herb – All herbaceous (non-woody) plants, regardle
				of size, and woody plants less than 3.28 ft tall.
	20%			Woody vine – All woody vines greater than 3.28 ft i
oody Vine Stratum (Plot size:)		= Total Cov	er	height.
Lonicera japonica	45	Υ	FAC	
Toxicodendron radicans			FAC	
				Hydrophytic
				I DVG(ODNVIIC
				Vegetation

.. W07-U01

Sampling Point:

Profile Desc	ription: (Describe t	o the depth	needed to docur	nent the ir	ndicator	or confirm	the abs	sence of indicato	ors.)	
Depth	Matrix		Redo	x Features	i					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	<u>Loc<sup>2</sup></u>	<u>Text</u>		Remarks	
0-6	7.5 YR 4/3	100		-			SL	<u>.                                    </u>		
6-12	10YR 5/6	100	-	-	-	-	С			
							-			
¹Type: C=Co	ncentration, D=Depl	etion. RM=R	educed Matrix. MS	S=Masked	Sand Gra	ains.	<sup>2</sup> Locatio	n: PL=Pore Linir	ng. M=Matrix.	
Hydric Soil I			oudou mann, m					Indicators for Pr		/dric Soils³:
Histosol			Dark Surface	(S7)					ء 1 <b>(MLRA) (</b> 10)	
	ipedon (A2)		Polyvalue Be		e (S8) <b>(N</b>	ILRA 147,	148)		Redox (A16)	
Black His			Thin Dark Su				•	 (MLRA 14		
Hydrogei	n Sulfide (A4)		Loamy Gleye	•	<sup>-</sup> 2)			Piedmont Flo	odplain Soils	(F19)
	Layers (A5)		Depleted Ma					(MLRA 13		
	ck (A10) (LRR N)		Redox Dark	•	,				Material (TF2)	
	Below Dark Surface	(A11)	Depleted Dai						Dark Surface	
	rk Surface (A12)	DD N	Redox Depre			LDDN		Other (Expla	in in Remarks	)
	ucky Mineral (S1) <b>(L</b> . <b>147, 148)</b>	KK N,	Iron-Mangan		S (F 12) (	LKK N,				
	leyed Matrix (S4)		Umbric Surfa	-	MIRA 13	6 122)		<sup>3</sup> Indicators of hy	vdrophytic vec	retation and
	edox (S5)		Piedmont Flo				18)		ology must be	
	Matrix (S6)			очр.ч	(1 10)	(	,		ped or problen	
	ayer (if observed):						1		<u> </u>	
Type:										
	hes):		_				Hvdri	c Soil Present?	Yes	No 🗸
Remarks:			_				1 ,			
Rock refusal	at 12".									

WETI	ANID	m.	<b>TX/TX</b> /	\\/∩¤
WHIL		111	W W -	····

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
yes   X   no   could not be determined because wetland extends beyond the ROW	Is the wetland:  directly abutting adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  PEM/PSS/PFO. The wetland is connected to W06 via culvert and storm drain D07. The wetland is separated from W09, W06 and W07 by elevated roads.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:  yes  ix no  If yes, list ID: SS  (Use separate datasheet for each associated stream)	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow
Approximate distance of wetland to stream (straight aerial feet):	Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow confined other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date: 05/01/2013			
Applicant/Owner: U.S. Navy	, ,		Sampling Point: W08-W01			
	Section, Township, Range: H					
Landform (hillslope, terrace, etc.): Depression			Slone (%): 1-2			
Subregion (LRR or MLRA): 148 / S L						
Soil Map Unit Name: Lawrenceville Silt Loam, 0-39	% slopes					
Are climatic / hydrologic conditions on the site typical						
Are Vegetation, Soil, or Hydrology _						
Are Vegetation, Soil, or Hydrology	naturally problematic? (If needed, e	xplain any answer	s in Remarks.)			
SUMMARY OF FINDINGS - Attach site	map showing sampling point locatio	ns, transects,	important features, etc.			
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes  Wetland Hydrology Present?	No Is the Sampled Area within a Wetland?	Yes	No			
Remarks: This plot is located in a PSS section of the wetland wetland.	near an elevated maintenance road that serves a	as the upland boun	dary in the western area of the			
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indicat	tors (minimum of two required)			
Primary Indicators (minimum of one is required; che	eck all that apply)	Surface Soil 0	, ,			
<u>✓</u> Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)				
	✓ Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)				
	_ Oxidized Rhizospheres on Living Roots (C3)					
	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)				
	<ul><li>Recent Iron Reduction in Tilled Soils (C6)</li><li>Thin Muck Surface (C7)</li></ul>	Crayfish Burrows (C8)				
	Other (Explain in Remarks)	Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1)				
Iron Deposits (B5)		Stunted or Stressed Plants (D1)  Geomorphic Position (D2)				
Inundation Visible on Aerial Imagery (B7)		Shallow Aquit				
Water-Stained Leaves (B9)		Microtopographic Relief (D4)				
Aquatic Fauna (B13)		FAC-Neutral	Test (D5)			
Field Observations:						
	Depth (inches): 0.25 (adjacent)					
	Depth (inches):3					
	Depth (inches):0-3	lydrology Present	t? Yes No			
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring	g well, aerial photos, previous inspections), if ava	ilable:				
Remarks:						
Approximately 0.25" of standing water was observed excavated.	ed immediately adjacent to the plot and a faint H2	2S odor was detect	ed when the soil pit was			
CACAVAICU.						

### W08-W01 VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: Absolute Dominant Indicator **Dominance Test worksheet:** 30 Tree Stratum (Plot size: \_\_\_\_ % Cover Species? Status **Number of Dominant Species** 5 That Are OBL, FACW, or FAC: \_\_\_ (A) **Total Number of Dominant** Species Across All Strata: (B) Percent of Dominant Species 100% That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: <sup>50</sup>\_\_\_ x 1 = \_ OBL species 0% = Total Cover 110 x 2 = 220 Sapling/Shrub Stratum (Plot size: \_\_\_\_\_\_15 ) FACW species 5 15 1. Cornus alba 25 **FACW** FAC species \_\_\_ x 3 = \_ 0 x 4 = 0 Salix nigra 20 OBL FACU species 3. Fraxinus pennsylvanica 0 0 20 Υ **FACW** \_\_ x 5 = UPL species 165\_\_\_ (A) 285 Acer negundo 10 Ν FACW Column Totals: 5 Quercus palustris **FACW** 1.7 Prevalence Index = B/A = \_\_\_ 6. Acer rubrum 5 FAC **Hydrophytic Vegetation Indicators:** ✓ 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% ✓ 3 - Prevalence Index is ≤3.0¹ \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting 85% = Total Cover data in Remarks or on a separate sheet) Herb Stratum (Plot size: \_\_\_\_\_\_5 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

50

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 80% = Total Cover height. Woody Vine Stratum (Plot size: 30 ) Hydrophytic Vegetation Yes V No Present?

**FACW** 

OBL

Approximately 20% bare ground.

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

Severe Phragmites a. infestations are present in the NW and SE areas of the wetland.

1. Phragmites australis

2 Scirpus pendulus

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. **Definitions of Four Vegetation Strata:** 

.. W08-W01

Sampling Point:

Profile Desc	ription: (Describe t	o the dept	h needed to docur	nent the i	ndicator	or confirm	the absenc	e of indicate	ors.)	
Depth	Matrix			x Features	S					
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	Texture		Remarks	
0-8	7.5YR 4/3	95	7.5YR 5/8	5	C	M	SC	_		
8-14	7.5YR 4/3	80	7.5YR 4/6	10	С	М	С			
			2.5Y 6/6	10						
				· —						
								-		
										_
<sup>1</sup> Type: C=Co	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: F	PL=Pore Lini	ng, M=Matrix.	
Hydric Soil		,	,						roblematic Hy	dric Soils³:
Histosol	(A1)		Dark Surface	(S7)				2 cm Muck (	A10) <b>(MLRA 1</b> 4	17)
_	pipedon (A2)		Polyvalue Be		ce (S8) <b>(N</b>	ILRA 147,			e Redox (A16)	,
Black Hi	stic (A3)		Thin Dark Su	ırface (S9)	(MLRA	147, 148)		(MLRA 14	17, 148)	
	n Sulfide (A4)		Loamy Gleye		F2)		_		oodplain Soils (	F19)
	l Layers (A5)		Depleted Ma					(MLRA 13		
	ck (A10) (LRR N)	(4.4.4)	Redox Dark						Material (TF2)	(75.10)
	d Below Dark Surface	e (A11)	Depleted Dar						v Dark Surface	
	ark Surface (A12) lucky Mineral (S1) <b>(L</b>	DD N	Redox Depre			I DD N	_	Otner (Expla	in in Remarks)	
	147, 148)	KK N,	MLRA 13		es (F12) <b>(</b>	LKK N,				
	Gleyed Matrix (S4)		Umbric Surfa		MLRA 13	6. 122)	<sup>3</sup> In	dicators of h	ydrophytic veg	etation and
	ledox (S5)		Piedmont Flo			-			rology must be	
	Matrix (S6)		_		,	`	-		bed or problem	
	_ayer (if observed):								·	
Type:										
Depth (inc	ches):						Hvdric So	il Present?	Yes	No
Remarks:	,									
	odor was observed w	nen excava	iting the soil pit. The	plot woul	d also qu	alify for ind	icator probler	matic red par	rent material.	

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Willow Grove EIS			City/C	County: Montgo	omery		Sampling Date: _	05/01/2013
Applicant/Owner: U.S. Navy							Sampling Point	
Investigator(s): Z. Fink / R. Wa	ardwell		Section					
Landform (hillslope, terrace, et			Local reli				Slope	e (%)· 1-2
Subregion (LRR or MLRA): 14								
Soil Map Unit Name: Lawrence								•
Are climatic / hydrologic condit								/
Are Vegetation, Soil								No
Are Vegetation, Soil					f needed, expla	•	,	
SUMMARY OF FINDING	iS – Atta	ch site ma	ap showing sam	pling point	t locations,	transects,	important fea	itures, etc.
Hydrophytic Vegetation Prese	ent?	Yes	No	la tha Campl	lad Araa			
Hydric Soil Present?		Yes 🔽	No	Is the Sampl within a Wet		Yes_	No	
Wetland Hydrology Present?		Yes	No	Within a 110t		.00		
Remarks: This plot is located in a PFO There is no paired upland plo				PSS area. The p	plot is near a s	swale that runs	through the forest	ted area.
HYDROLOGY								
Wetland Hydrology Indicate	ors:				Sec	condary Indicat	tors (minimum of t	wo required)
Primary Indicators (minimum	of one is req	uired; check	all that apply)			Surface Soil (	Cracks (B6)	
✓ Surface Water (A1)			True Aquatic Plants (	(B14)	_	Sparsely Veg	etated Concave S	urface (B8)
<u>✓</u> High Water Table (A2)			Hydrogen Sulfide Od			Drainage Pat		
Saturation (A3)			Oxidized Rhizospher		oots (C3)			
Water Marks (B1)			Presence of Reduced				Vater Table (C2)	
Sediment Deposits (B2)			Recent Iron Reductio		s (C6)	Crayfish Burro		(00)
Drift Deposits (B3)			Thin Muck Surface (C				sible on Aerial Ima	
Algal Mat or Crust (B4)			Other (Explain in Rer	marks)			ressed Plants (D1	)
Iron Deposits (B5)		(DZ)				Geomorphic I		
Inundation Visible on Ae		(B7)				Shallow Aquit	, ,	
Water-Stained Leaves (E	.9)						phic Relief (D4)	
Aquatic Fauna (B13)						FAC-Neutral	Test (D5)	
Field Observations: Surface Water Present?	V00 <b>V</b>	No	Depth (inches): 2	(adiacent)				
Water Table Present?			Depth (inches):					
Saturation Present?			Depth (inches):		Wetland Hydr	ology Present	t? Yes 🗸	No
(includes capillary fringe)								
Describe Recorded Data (stre	am gauge, r	monitoring w	ell, aerial photos, pre	vious inspectio	ons), if availabl	e:		
Remarks: There is pit-mound micro-top	ography at ti	hic location o	and the plot is immed	iataly adiacont	to a swale with	h approvimatel	v 2" of standing w	otor
There is pit-mound inicro-top	ograpity at ti	ilis location a	ind the plot is infined	lately adjacent	. to a swate with	паррголіпасе	y 2 or standing w	ater.
I								ļ

Number of Dominant Species   Number of Domi	00	Absolute	Dominant	Indicator	Dominance Test worksheet:		
Fraxinus pennsylvanica   30	A						
Faxinus pennsylvanica   30	Acer saccharinum	30	Υ	FACW			
Percent of Dominant Species   That Are OBL, FACW, or FAC:   100%	Fraxinus pennsylvanica	30	Υ	FACW	1		
That Are OBL, FACW, or FAC: 100%							
Prevalence Index worksheet:   Total Cover							
30%					That the OBE, The W, STINE.		
Solution   Stratum   Plot size:   15					Prevalence Index worksheet:		
Substitution   Plot size   15   15   20   15   15   15   15   15   15   15   1							
15		90%	= Total Cov	er	ODL species X I =		
Comus florida	apinig/ornab otratam (1 lot size)				FACW species x z =		
Prunus americana  10 Y FACU Acer rubrum 10 Y FACW Viburnum dentatum 10 Y FACW Viburnum dentatum 10 Y FACU Lonicera tatarica 5 N FACU Column Totals: 240 (A) 570 Prevalence Index = B/A = 2.4 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 2 - Problematic Hydrophytic Vegetation   4 - Morphological Adaptations i (Provide supp data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation i (Explair Indicators of hydro	Cornus alba	15		FACW	1 AC species x 3 =		
Acer rubrum    10	Cornus florida	10	Y	FACU	1 ACU species X 4 =		
Fraxinus pennsylvanica    To   Y   FACW   F	Prunus americana	10	Y	FACU	UPL species0 x 5 =0		
Viburnum dentatum		10	Y	FAC	Column Totals: <u>240</u> (A) <u>570</u> (B)		
Viburum dentatum	Fraxinus pennsylvanica	10	Y	FACW	24		
Lonicera tatarica  5 N FACU  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  4 - Morphological Adaptations¹ (Provide supt data in Remarks or on a separate sheet)  - Problematic Hydrophytic Vegetation * Indicators of hydric soil and wetland hydrology me be present, unless disturbed or problematic.  - Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in, (7.6 or more in diameter at breast height (DBH), regardle height.  - Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  - Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  - Woody vine – All woody vines greater than 3.28 height.  - Hydrophytic Vegetation	Viburnum dentatum	10	Y	FAC	Frevalence index - b/A		
Series Stratum (Plot size: 5   10   10   10   10   10   10   10	Rosa multiflora	5	N	FACU			
Total Cover    Total Cover	Lonicera tatarica	5	N	FACU			
Toward   T					1 — .		
ref Stratum (Plot size: 5	D.				1 <del></del>		
Carex conjuncta   25	_	75%	= Total Cov	er	4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)		
Glyceria melicaria  Juncus effusus  Scirpus pendulus  10 N FACW Scirpus pendulus  5 N OBL  Definitions of Four Vegetation Stratas:  Tree – Woody plants, excluding vines, 3 in. (7.6 or more in diameter at breast height (DBH), regardle height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica  5 Y FAC  Toxicodendron radicans  5 Y FAC  Hydrophytic Vegetation		05	V	E4 0)4/			
Juncus effusus   10   N   FACW   Scirpus pendulus   5   N   OBL							
Scirpus pendulus  5 N OBL  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 of more in diameter at breast height (DBH), regardle height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 height.  Woody vine – All woody vines greater than 3.28 height.  Hydrophytic Vegetation					<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
Tree – Woody plants, excluding vines, 3 in. (7.6 or more in diameter at breast height (DBH), regardle height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 Y FAC  Toxicodendron radicans 5 Y FAC  Hydrophytic Vegetation							
Tree – Woody plants, excluding vines, 3 in. (7.6 cmore in diameter at breast height (DBH), regardle height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 Y FAC  Toxicodendron radicans 5 Y FAC  Hydrophytic Vegetation				— OBL	Definitions of Four Vegetation Strata:		
more in diameter at breast height (DBH), regardle height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 Y FAC  Toxicodendron radicans 5 Y FAC  Hydrophytic Vegetation					Tree - Woody plants excluding vines 3 in (7.6 cm) o		
Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size:30)  Lonicera japonica					more in diameter at breast height (DBH), regardless of		
than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 Y FAC  Toxicodendron radicans 5 Y FAC  Hydrophytic Vegetation					height.		
than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 Y FAC  Toxicodendron radicans 5 Y FAC  Hydrophytic Vegetation					Sapling/Shrub – Woody plants, excluding vines, less		
1	•				than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
2					Herb – All herbaceous (non-woody) plants, regardless		
Coody Vine Stratum (Plot size: 30   Stratum	1						
Voody Vine Stratum (Plot size:     30       Lonicera japonica     5     Y     FAC       Toxicodendron radicans     5     Y     FAC   Hydrophytic Vegetation	2				Weeds vine All weeds vines greater than 2.29 ft in		
Lonicera japonica 5 Y FAC  Toxicodendron radicans 5 Y FAC  Hydrophytic Vegetation	20	65%	= Total Cov	er	, ,		
Toxicodendron radicans 5 Y FAC  Hydrophytic Vegetation	(Flot Size:	5	V	FAC			
Hydrophytic Vegetation							
Hydrophytic Vegetation				—FAC			
Hydrophytic Vegetation							
Vegetation					Hydrophytic		
Present? Yes No	•				Vegetation		
	·				Present? Yes No		
10% = Total Cover		10%	= Total Cov	er			

US Army Corps of Engineers

SOIL Sampling Point: W08-W02

Profile Desc	ription: (Describe t	o the dept	h needed to docur	nent the i	ndicator	or confirm	n the absence	of indicators.)
Depth	Matrix		Redo	x Features	S			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	7.5YR 4/3	99	7.5YR 4/6		C	M	SC	
4-6	7.5YR 4/3	90	7.5YR 4/6	10	C	M	SC	
6-11	7.5YR 4/3	80	7.5YR 5/8	15	C	M	C	
			2.5YR 4/8	5		M		
11-14	7.5YR 5/2	<u>75</u>	5YR 4/6	15	C	M	C	
			7.5YR 5/8	10		M		
				- ——				
1							2	
	oncentration, D=Deple	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.		_=Pore Lining, M=Matrix.
Hydric Soil								ators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Dark Surface					cm Muck (A10) (MLRA 147)
	oipedon (A2)		Polyvalue Be				148) (	Coast Prairie Redox (A16)
	stic (A3)		Thin Dark Su			147, 148)		(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gleye	ed Matrix (	F2)		F	Piedmont Floodplain Soils (F19)
Stratified	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm Mu	ıck (A10) <b>(LRR N)</b>		Redox Dark	Surface (F	6)		<u> </u>	Red Parent Material (TF2)
Depleted	d Below Dark Surface	(A11)	Depleted Da	rk Surface	(F7)		\	ery Shallow Dark Surface (TF12)
Thick Da	ark Surface (A12)		Redox Depre	essions (F	8)		0	Other (Explain in Remarks)
Sandy N	lucky Mineral (S1) <b>(L</b>	RR N.	Iron-Mangan	ese Masse	es (F12) <b>(</b>	LRR N.		
	A 147, 148)	•	MLRA 13		` , ,	,		
	Gleyed Matrix (S4)		Umbric Surfa	•	MIRA 13	6. 122)	<sup>3</sup> Inc	licators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo					vetland hydrology must be present,
	Matrix (S6)		1 loumont 1 lo	ouplain O	0113 (1 13)	(MEIXA I-	-	nless disturbed or problematic.
	Layer (if observed):						<del></del>	mess disturbed of problematic.
_	Layer (ii observeu).							
Type:								
Depth (in	ches):						Hydric Soil	Present? Yes No
Remarks:								
								ne plot did not qualify for other indicators.
i ne depieted	d matrix observed in la	ayer 4 begi	ns too deep in the s	on prome	to quality	for the dep	pietea matrix in	dicator.

Project/Site: Willow Grove EIS	3	City/C	county: Montgomery	;	Sampling Date: _	05/01/2013
Applicant/Owner: U.S. Navy			Sta			
Investigator(s): Z. Fink / R. W	ardwell	Section	on, Township, Range: Horsha			
Landform (hillslope, terrace, et			ef (concave, convex, none):		Slope	e (%)· 5-7
Subregion (LRR or MLRA): 14			· -			
Soil Map Unit Name: Lawren			Long.			•
Are climatic / hydrologic condit						/
Are Vegetation, Soil						No
Are Vegetation, Soil				-	•	
SUMMARY OF FINDING	3S – Attach site m	nap showing sam	pling point locations, t	transects, i	important fea	itures, etc.
Hydrophytic Vegetation Pres	ent? Yes	No	Is the Sampled Area			
Hydric Soil Present?	Yes	_ No	within a Wetland?	Yes	_ No	
Wetland Hydrology Present?	Yes	No				
Remarks: This plot is located on a bern adjacent wetland depression		tenance road roughly	4' higher in elevation than the	paired plot, W	01, which is locat	ed in the
HYDROLOGY						
Wetland Hydrology Indicate			Seco	ondary Indicate	ors (minimum of t	wo required)
Primary Indicators (minimum				Surface Soil C	• ,	
Surface Water (A1)		True Aquatic Plants (			etated Concave S	urface (B8)
High Water Table (A2)		Hydrogen Sulfide Odd		Drainage Patte		
Saturation (A3)				Moss Trim Lin		
Water Marks (B1) Sediment Deposits (B2)		Presence of Reduced Recent Iron Reductio		Crayfish Burro	/ater Table (C2)	
Orift Deposits (B3)		Thin Muck Surface (C			ible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)	· <del></del>	Other (Explain in Ren	· · · · · · · · · · · · · · · · · · ·		essed Plants (D1	
Iron Deposits (B5)	_	( — · <del>-</del> · - · · · · · · · · · · · · · · · · ·	· —	Geomorphic P		,
Inundation Visible on Ae	rial Imagery (B7)			Shallow Aquita		
Water-Stained Leaves (F					hic Relief (D4)	
Aquatic Fauna (B13)			_	FAC-Neutral T	est (D5)	
Field Observations:						
Surface Water Present?		Depth (inches):				
Water Table Present?		Depth (inches):				_
Saturation Present? (includes capillary fringe)	Yes No	Depth (inches):	Wetland Hydro	logy Present	? Yes	No
	eam gauge, monitoring v	well, aerial photos, pre	vious inspections), if available	:		
Remarks:						
This plot is in a well drained	position on a man-made	berm located between	n wetland depressions.			

EGETATION (Four Strata) – Use scientific	Absolute	- Dominant	Indicator	Dominance Test worksheet:
<u>Free Stratum</u> (Plot size:30 ) I)		Species?		Number of Dominant Species
2.				That Are OBL, FACW, or FAC: (A
3				Species Across All Strata: 3 (B
l				Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33% (A
S				Prevalence Index worksheet:
7				
3				Total % Cover of:         Multiply by:           OBL species         0         x 1 =0
	0%	= Total Cov	er	OBL species X I =
Sapling/Shrub Stratum (Plot size:15 )	25	V	FACIL	TACVI species X2
Lonicera tatarica		Y	FACU	1 AC species x 3
Rhus typhina	5	N	UPL	FACU species x4 =
S				UPL species x 5 = 100
l				Column Totals:(A)(A)(530(B)
i				Prevalence Index = R/A = 3.8
)				Trevalence index - b/A -
				Hydrophytic Vegetation Indicators:
3.				1 - Rapid Test for Hydrophytic Vegetation
).				2 - Dominance Test is >50%
0.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
	40%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide support data in Remarks or on a separate sheet)
Herb Stratum (Plot size:5 ) Solidago canadensis	50	Υ	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Securigera varia			UPL	
		N		<sup>1</sup> Indicators of hydric soil and wetland hydrology musi
Phragmites australis			FACW	be present, unless disturbed or problematic.
ł				Definitions of Four Vegetation Strata:
5				
S				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) more in diameter at breast height (DBH), regardless
<b>7</b>				height.
3				
				Sapling/Shrub – Woody plants, excluding vines, les than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10.				than 5 m. DDT and greater than 5.20 m (1 m) tail.
1				Herb – All herbaceous (non-woody) plants, regardle
2.				of size, and woody plants less than 3.28 ft tall.
2.	80%	= Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Noody Vine Stratum (Plot size:)		10101 001	0.	height.
Lonicera japonica	20	Y	FAC	
2.				
3.				
1 5				Hydrophytic
				Vegetation Present? Yes No
5				Present? Yes No
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate Phragmites a. has spread from within the wetland bound		land berm.		

SOIL Sampling Point: W08-U01

Profile Desc	ription: (Describe t	o the dept	h needed to docur	nent the i	ndicator	or confirm	the absence	e of indicators.)
Depth	Matrix		Redo	x Features	3			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-7	7.5YR 4/3	95	7.5YR 5/6	5	С	M	CL	
7-9	7.5YR 4/3	90	7.5YR 5/6	10				
	7.0110 1/0		7.0111.070					
								· <u></u> -
								-
	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.		L=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indic	eators for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Dark Surface	e (S7)			2	2 cm Muck (A10) <b>(MLRA 147)</b>
Histic Ep	oipedon (A2)		Polyvalue Be	low Surfac	ce (S8) <b>(N</b>	VILRA 147,	148) (	Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Sι	ırface (S9)	(MLRA	147, 148)		(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix (	F2)		F	Piedmont Floodplain Soils (F19)
Stratified	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm Mu	ıck (A10) <b>(LRR N)</b>		Redox Dark	Surface (F	6)		F	Red Parent Material (TF2)
Depleted	d Below Dark Surface	(A11)	Depleted Da	rk Surface	(F7)		\	Very Shallow Dark Surface (TF12)
Thick Da	ark Surface (A12)		Redox Depre	essions (F	3)		0	Other (Explain in Remarks)
Sandy N	lucky Mineral (S1) (L	RR N,	Iron-Mangan	ese Masse	es (F12) (	LRR N,		
MLRA	A 147, 148)		MLRA 13	6)				
	Gleyed Matrix (S4)		Umbric Surfa	ace (F13) <b>(</b>	MLRA 13	36, 122)	<sup>3</sup> Inc	dicators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo					wetland hydrology must be present,
	l Matrix (S6)		<del>_</del>	•	,	•	-	inless disturbed or problematic.
	Layer (if observed):							·
Type:	, ,							
	-l \·						Liveria Cal	I Present? Yes No ✔
Depth (in	cnes)						nyuric Soi	I Present? Yes No
Remarks:	at O" This plat is lose	منطئنيي لممدم	1.40/C and would a	alifu for n	rahlamati		t matarial have	wayer there is a last of budralary and
	egetation at the loca							wever there is a lack of hydrology and wetlands
nydropnyho (	regetation at the local		ino piot io ioodica o	ii a voiy a	pparont a	piana bem	i between two	, worldings.

WETI	AND	ID.	ww.	W09
VV P. I I	ANI	117:	VV VV -	VVU3

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?  yes no X could not be determined because wetland extends beyond the ROW	Wetland Association to Stream  Is the wetland:     directly abutting     adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  PEM/PSS. The wetland appears to be isolated however storm drains / culverts may exist that were not observed (overgrown). Natural topography would drain this wetland northerly toward Park Creek. The wetland is separated from W06, W08 and W07 by elevated roads.  Associated Stream:	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
yes   X   no   If yes, list ID: SS (Use separate datasheet for each associated stream)  Approximate distance of wetland to stream (straight aerial	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow  Surface flow characteristic from wetland to associated stream:
feet):	☐ discrete ☐ overland sheet flow ☐ confined ☐ other, explain:

## **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date: <u>04/30/2013</u>
Applicant/Owner: U.S. Navy			Sampling Point: W09-W01
	Section, Township, Range: _		
Landform (hillslope, terrace, etc.): Depression			
Subregion (LRR or MLRA): 148 / S			
Soil Map Unit Name: Lawrenceville Silt Loam, 0-39	% slopes		
Are climatic / hydrologic conditions on the site typica	al for this time of year? Yes No	(If no, explain in Re	emarks.)
Are Vegetation, Soil, or Hydrology _			
Are Vegetation, Soil, or Hydrology _			
SUMMARY OF FINDINGS – Attach site			
		<u> </u>	· · · · · · · · · · · · · · · · · · ·
Hydrophytic Vegetation Present? Yes	No Is the Sampled Area		
Wetland Hydrology Present?	No within a Wetland?	Yes	No
Remarks:			
Plot is located at the southern edge of a large PSS	s wetland with some emergent openings in a cor	ncave, large depress	sion.
A restrictive layer is present below the surface soil.			
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; ch	eck all that apply)	Surface Soil	Cracks (B6)
	True Aquatic Plants (B14)		getated Concave Surface (B8)
	Hydrogen Sulfide Odor (C1)	Drainage Pat	
	Oxidized Rhizospheres on Living Roots (C3)	Moss Trim Li	nes (B16)
Water Marks (B1)	Presence of Reduced Iron (C4)	Dry-Season \	Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Crayfish Burr	rows (C8)
<u> </u>	Thin Muck Surface (C7)	Saturation Vi	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Remarks)		tressed Plants (D1)
Iron Deposits (B5)		<u>✓</u> Geomorphic	, ,
Inundation Visible on Aerial Imagery (B7)		Shallow Aqui	
Water-Stained Leaves (B9)		Microtopogra	
Aquatic Fauna (B13)		FAC-Neutral	Test (D5)
Field Observations:  Surface Water Present? Yes No	Depth (inches):		
	Depth (inches):6		
		Hydrology Presen	t? Yes 🗸 No
(includes capillary fringe)		-	165 100
Describe Recorded Data (stream gauge, monitorin	g well, aerial photos, previous inspections), if av	/ailable:	
Remarks:			

### W09-W01 VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: Absolute Dominant Indicator **Dominance Test worksheet:** 30 Tree Stratum (Plot size: \_\_\_\_ \_\_) % Cover Species? Status **Number of Dominant Species** \_ (A) That Are OBL, FACW, or FAC: **Total Number of Dominant** Species Across All Strata: (B) Percent of Dominant Species 100% That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: 0 \_ x 1 = \_ OBL species 0% = Total Cover 85\_\_\_ x 2 = \_ 170 Sapling/Shrub Stratum (Plot size: \_\_\_\_\_\_15 ) FACW species 1. Quercus palustris 20 60 30 **FACW** FAC species \_\_ x3=\_ 5 x 4 = \_ 2. Cornus alba 20 15 **FACW** FACU species 0 0 3 Acer rubrum 15 Υ \_\_ x 5 = FAC UPL species 5 110 \_\_ (A) 250 Ulmus rubra Ν FAC Column Totals: 2.3 Prevalence Index = B/A = \_\_\_ **Hydrophytic Vegetation Indicators:** \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% ✓ 3 - Prevalence Index is ≤3.0¹ \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting 65% = Total Cover data in Remarks or on a separate sheet) Herb Stratum (Plot size: \_\_\_\_\_\_5 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) **FACW** 1. Juncus effusus 40 2. Solidago canadensis **FACU** <sup>1</sup>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 45% = Total Cover height. Woody Vine Stratum (Plot size: 30 ) Hydrophytic Vegetation Yes V No Present?

0% = Total Cover

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

Plot is representative of the wetland overall, with many saplings 20-25' nearing the edge of PFO.

Note, no saplings above 30' throughout wetland. Designated PSS

~51% BG

W09-W01

Sampling Point:

Profile Desc	ription: (Describe t	to the dept	h needed to docur	nent the i	ndicator	or confirm	the absence	e of indicat	ors.)	
Depth	Matrix		Redo	x Features						
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	<u>Texture</u>		Remarks	
0-6	7.5YR 4/3	70	2.5Y 7/6	25	С	M	Loam			
			7.5YR 5/8	5						
6-7	2.5YR 3/2	100					Clay			
	2.511( 5/2				-		Clay			
								· <del></del>		
1Type: C=Co	oncentration, D=Depl	etion RM=	Peduced Matrix MS	S=Macked	Sand Gr	aine	<sup>2</sup> Location: E	I =Dore Lini	ng, M=Matrix.	
Hydric Soil I		elion, Rivi-	Reduced Matrix, Mis	5-IVIASKEU	Sand Gi	allis.	Indic	ators for P	roblematic Hy	dric Soils <sup>3</sup> .
Histosol			Dark Surface	(97)					A10) <b>(MLRA 1</b>	
	pipedon (A2)		Polyvalue Be		ce (S8) <b>(I</b>	/II RΔ 147			e Redox (A16)	<del>-</del> '')
Black His			Thin Dark Su					(MLRA 1		
	n Sulfide (A4)		Loamy Gleye	, ,	•	141, 140,		-	oodplain Soils (	(F19)
	l Layers (A5)		Depleted Ma					(MLRA 1		(1.10)
	ck (A10) (LRR N)		Redox Dark		6)		~		Material (TF2)	
	Below Dark Surface	e (A11)	Depleted Dai		•				w Dark Surface	(TF12)
	ark Surface (A12)	` ,	Redox Depre						ain in Remarks)	
	lucky Mineral (S1) <b>(L</b>	.RR N,	Iron-Mangan		•	LRR N,	<u> </u>	` '	,	
	\ 147, 148)		MLRA 13		. ,	•				
	leyed Matrix (S4)		Umbric Surfa	-	MLRA 13	36, 122)	<sup>3</sup> ln	dicators of h	ydrophytic veg	etation and
	edox (S5)		Piedmont Flo						rology must be	
Stripped	Matrix (S6)						·	unless distu	bed or problem	natic.
Restrictive L	ayer (if observed):									
Type: Ha	ırdpan									
Depth (inc	ches): 7						Hydric So	il Present?	Yes	No
Remarks:	,						<u> </u>			
	d within 148/S and q	ualifies for p	oroblematic indicato	r Red Pare	ent Mater	ial.				

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date: 04/30/2013
Applicant/Owner: U.S. Navy			Sampling Point: W09-W02
-	Section, Township, Range:		
Landform (hillslope, terrace, etc.): Depression			Slone (%): 0
Subregion (LRR or MLRA): 148 / S Lat			
Soil Map Unit Name: Lawrenceville Silt Loam, 0-3%	Slopes		
Are climatic / hydrologic conditions on the site typical f			
Are Vegetation, Soil, or Hydrology			
Are Vegetation, Soil, or Hydrology		d, explain any answers	
SUMMARY OF FINDINGS – Attach site n		•	,
Hydrophytic Vegetation Present? Yes	No Is the Sampled Are		
Hydric Soil Present? Yes	No Is the Sampled Are within a Wetland?		_ No
Wetland Hydrology Present? Yes	Within a Wetland?	res	
The plot is located on the margin of an inundated PE restructure.	M area and the PSS area that surrounds it.	Plot is in a large depre	ession with hard pan
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicat	ors (minimum of two required)
Primary Indicators (minimum of one is required; chec	k all that apply)	Surface Soil C	Cracks (B6)
<u> </u>	True Aquatic Plants (B14)		etated Concave Surface (B8)
	Hydrogen Sulfide Odor (C1)	Drainage Patt	
	Oxidized Rhizospheres on Living Roots (C		
	Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6)	Dry-Season v	Vater Table (C2)
	Thin Muck Surface (C7)		sible on Aerial Imagery (C9)
<del>-</del>	Other (Explain in Remarks)		ressed Plants (D1)
Iron Deposits (B5)	(	✓ Geomorphic F	
Inundation Visible on Aerial Imagery (B7)		Shallow Aquit	
Water-Stained Leaves (B9)		Microtopograp	ohic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral	Test (D5)
Field Observations:			
	Depth (inches):0		
	Depth (inches):0		•
Saturation Present? Yes No	_ Depth (inches):0	d Hydrology Present	? Yes <u>/</u> No
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspections), if	available:	
0.25" standing water at plot			
Remarks:			
The plot is located in an inundated area. H2S observ	red.		

	Absolute	Dominant	Indicator	Dominance Test worksheet:
ree Stratum (Plot size:30 ))	% Cover	Species?	<u>Status</u>	Number of Dominant Species That Are OBL, FACW, or FAC:5 (A)
				Total Number of Dominant Species Across All Strata: 5 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B
-				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
•	0%			OBL species60 x 1 =60
apling/Shrub Stratum(Plot size:15		= Total Cov	er	FACW species 45 x 2 = 90
Fraxinus pennsylvanica	25	Υ	FACW	FAC species5 x 3 =15
Ulmus rubra			FAC	FACU species0 x 4 =0
Quercus palustris			FACW	UPL species
				Column Totals: 110 (A) 165 (B)
				Prevalence Index = B/A =1.5
				Hydrophytic Vegetation Indicators:
-				✓ 1 - Rapid Test for Hydrophytic Vegetation
				✓ 2 - Dominance Test is >50%
				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
0	35%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
lerb Stratum (Plot size:5		.,	0.51	Problematic Hydrophytic Vegetation¹ (Explain)
Scirpus pendulus		<u>Y</u>	OBL	
Carex stricta	15	<u>Y</u>	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Typha latifolia	15	<u>Y</u>	OBL	be present, unless disturbed or problematic.
Agrimonia parviflora	15	Y	FACW	Definitions of Four Vegetation Strata:
Eleocharis obtusa	_ 5	N	OBL	
Persicaria sagittata	5	<u>N</u>	OBL	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.
1				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
2	75%	 = Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Voody Vine Stratum (Plot size:)		= Total Cov	er	height.
•				
•				
•				Hydrophytic
				Vegetation
				Present? Yes No
	0%	= Total Cov	er	

ofile Desc	ription: (Describe	to the dep	th needed to docur	nent the i	ndicator o	or confirm	the absence	of indicate	ors.)	
epth	Matrix		Redo	x Feature	S					
nches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>		Remarks	
0-2	10YR 3/1	100					SM			
2-5	7.5YR 4/3	93	5YR 4/6	5	С	M	SC			
			7.5YR 4/6	2	C	PL				
5-7	10YR 4/2	85	5YR 3/4	15			Clay	Restrictive	e layer at 7"	
	oncentration, D=Dep	letion, RM	=Reduced Matrix, MS	- S=Masked	Sand Gra	ains.			ng, M=Matrix.	dric Soils
Black Hi Hydroge Stratified 2 cm Mu Depleted Thick Da Sandy M MLRA Sandy G	(A1) pipedon (A2) stic (A3) en Sulfide (A4) d Layers (A5) uck (A10) (LRR N) d Below Dark Surface ark Surface (A12) flucky Mineral (S1) (LA 147, 148) Gleyed Matrix (S4) Redox (S5)		Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Ma Redox Dark 3 Depleted Dai Redox Depre Iron-Mangan MLRA 13 Umbric Surfa Piedmont Flo	elow Surfa urface (S9) ed Matrix ( trix (F3) Surface (F rk Surface essions (F esse Massi 6) ace (F13) (	(MLRA 1) (MLRA 1) (F2) (F6) (F7) (F7) (F12) (IMLRA 13)	47, 148) LRR N, 6, 122)	148) (	Coast Prairie (MLRA 14 Piedmont Flo (MLRA 13 Red Parent I Very Shallow Other (Expla	oodplain Soils	(F19) e (TF12) ) getation an
Stripped	Matrix (S6)			•	, ,	`	-		bed or probler	
	Layer (if observed):									
• • • • • • • • • • • • • • • • • • • •	ay Hardpan							un :-	. <i>V</i>	
Depth (incomerks:	us observed when ex		-1 -2 A depleted as			O b t - d -	1	I Present?	Yes	No
licator F3.		Ü		·	·			·	·	

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date:	04/30/2013
Applicant/Owner: U.S. Navy			Sampling Point	
	Section, Township, Range:			
Landform (hillslope, terrace, etc.): Depression			Slone	
Subregion (LRR or MLRA): 148 / S Lat:				
Soil Map Unit Name: Lawrenceville silt loam, 0-3% slo	ppes Long			
Are climatic / hydrologic conditions on the site typical fo				
Are Vegetation, Soil, or Hydrology				, No
Are Vegetation, Soil, or Hydrology		, explain any answer		
SUMMARY OF FINDINGS – Attach site ma			,	tures, etc.
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	- No within a Wetland?		No	
Remarks: Plot is situated roughly 1' higher in elevation than paire	<b>'</b>	pression. Plot is within	n a scrub-shrub ve	egetated area.
HYDROLOGY				
Wetland Hydrology Indicators:		Secondary Indicat	ors (minimum of t	wo required)
Primary Indicators (minimum of one is required; check	all that apply)	Surface Soil (		
Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Veg		urface (B8)
	Hydrogen Sulfide Odor (C1)	Drainage Pat		` ,
	Oxidized Rhizospheres on Living Roots (C3			
	Presence of Reduced Iron (C4)		Vater Table (C2)	
	Recent Iron Reduction in Tilled Soils (C6)	Crayfish Burr		
	Thin Muck Surface (C7)		sible on Aerial Ima	gery (C9)
<del>-</del>	Other (Explain in Remarks)		ressed Plants (D1)	
Iron Deposits (B5)		Geomorphic I		
Inundation Visible on Aerial Imagery (B7)		Shallow Aquit	ard (D3)	
Water-Stained Leaves (B9)			phic Relief (D4)	
Aquatic Fauna (B13)		FAC-Neutral		
Field Observations:				
Surface Water Present? Yes No	Depth (inches):			
	Depth (inches):			
		Hydrology Present	t? Yes	No 🗸
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitoring w	ell, aerial photos, previous inspections), if a	vailable:		
Remarks:  No indicators were observed and only a moderate am	ount of moisture was present in the soil pro-	file		
The indicators were observed and only a moderate and	ount of moisture was present in the son pro-			

### W09-U01 VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: Absolute Dominant Indicator **Dominance Test worksheet:** 30 Tree Stratum (Plot size: % Cover Species? Status **Number of Dominant Species** That Are OBL, FACW, or FAC: \_\_\_ (A) **Total Number of Dominant** (B) Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: 0 \_ x 1 = \_ OBL species 0% = Total Cover 10\_\_\_ x 2 = \_ Sapling/Shrub Stratum (Plot size: \_\_\_\_\_\_15 ) FACW species 0 0 1. Lonicera tatarica 50 **FACU** FAC species \_\_\_ x 3 = \_ 120 x 4 = \_ 480 Prunus americana 10 **FACU** FACU species 3. Cornus alba 5 25 10 **FACW** \_\_ x 5 = UPL species 135\_\_\_ (A) 4. Elaeagnus umbellata 5 525 Ν UPL Column Totals: 3.9 Prevalence Index = B/A = \_\_\_ **Hydrophytic Vegetation Indicators:** \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation \_\_\_ 2 - Dominance Test is >50% \_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup> \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting 75% = Total Cover data in Remarks or on a separate sheet) Herb Stratum (Plot size: \_\_\_\_\_\_5 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. Solidago canadensis 60 **FACU** <sup>1</sup>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 60% = Total Cover Woody Vine Stratum (Plot size: 30 ) Hydrophytic Vegetation Yes \_\_\_\_\_ No \_\_\_ Present? Remarks: (Include photo numbers here or on a separate sheet.) note shift in emergent dominants-Juncus lost solidago increases bare ground about 40%. Also much Lonicera t.

Doint: W09-U01

Sampling Point:

0-6	Matrix Color (moist)	0/		x Features		Loc <sup>2</sup>	Toydura		Domeste	
0-0	Color (moist)	<u>%</u> .	Color (moist)	<u>%</u>	Type <sup>1</sup>		<u>Texture</u>		Remarks	
	10YR 4/3	85	7.5YR 5/8	10		M	CL			
			5YR 4/6	5	С	M				
								-		
	_									
<del></del> .										
	ncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ins.	<sup>2</sup> Location: P			
dric Soil Ir	ndicators:						Indic	ators for Pr	oblematic Hy	dric Soils <sup>3</sup> :
Histosol (	A1)		Dark Surface	(S7)			2	cm Muck (A	A10) <b>(MLRA 1</b> -	47)
Histic Epi	pedon (A2)		Polyvalue Be				148) (	Coast Prairie	Redox (A16)	
Black His	tic (A3)		Thin Dark Su	rface (S9)	(MLRA 1	47, 148)		(MLRA 14	7, 148)	
Hydroger	Sulfide (A4)		Loamy Gleye	d Matrix (F	<del>-</del> 2)		F	Piedmont Flo	odplain Soils	(F19)
Stratified	Layers (A5)		Depleted Ma	trix (F3)				(MLRA 13	6, 147)	
2 cm Muc	k (A10) <b>(LRR N)</b>		Redox Dark	Surface (F	6)		F	Red Parent N	/laterial (TF2)	
Depleted	Below Dark Surface	(A11)	Depleted Dar	k Surface	(F7)		\	ery Shallow	Dark Surface	(TF12)
Thick Dar	k Surface (A12)		Redox Depre	ssions (F8	3)		0	Other (Explai	in in Remarks)	)
Sandy Mu	ucky Mineral (S1) <b>(L</b>	RR N,	Iron-Mangan	ese Masse	es (F12) <b>(</b> I	RR N,				
MLRA	147, 148)		MLRA 13	6)						
_ Sandy Gl	eyed Matrix (S4)		Umbric Surfa	ce (F13) <b>(I</b>	MLRA 13	6, 122)	<sup>3</sup> Inc	licators of hy	drophytic veg	etation and
_ Sandy Re	edox (S5)		Piedmont Flo	odplain So	oils (F19)	(MLRA 14	<b>8)</b> v	vetland hydr	ology must be	present,
_ Stripped I	Matrix (S6)						u	nless disturt	oed or problem	natic.
	ayer (if observed):									
Type: Har	dpan									
Depth (incl	nes): _7"						Hydric Soi	Present?	Yes	No_
							1 -			
marks:		indicator R	ed Parent Material I	nowever pl	ot fails bo	th hydrolo	gy and vegeta	tion.		
	ality for problematic									
	alify for problematic									
	ality for problematic									
	ality for problematic									
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	alify for problematic									
	alify for problematic									
	alify for problematic									
emarks: ot would qua	alify for problematic									
	alify for problematic									
	alify for problematic									
	alify for problematic									
	alify for problematic									
	alify for problematic									
	alify for problematic									

WETI	AND	ID.	<b>13/13/</b> _	<b>\/\/1</b>	r

### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
✓ yes □ no □ could not be determined because wetland extends beyond the ROW  If no, explain hydrologic connection:  Isolated PFO depression next to old road.	Is the wetland:  directly abutting adjacent (not directly but hydrologically connected)  Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier  Explain:
Associated Stream:  yes  no  If yes, list ID: SS (Use separate datasheet for each associated stream)  Approximate distance of wetland to stream (straight aerial feet):	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface perennial surface no surface flow  Surface flow characteristic from wetland to associated stream: discrete overland sheet flow confined other, explain:

## **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS	City/County: Montgome	ery	Sampling Date:04/06/2013
Applicant/Owner: U.S. Navy			Sampling Point: W10-W01
	Section, Township, Rar		<u> </u>
Landform (hillslope, terrace, etc.): Depression			Slone (%): <sup>0</sup>
Subregion (LRR or MLRA): 148/LRRS La			
Soil Map Unit Name: Lawrenceville silt loam 0-3% s	lopes		
Are climatic / hydrologic conditions on the site typical	for this time of year? Yes No	(If no, explain in F	Remarks.)
Are Vegetation, Soil, or Hydrology			
Are Vegetation, Soil, or Hydrology		eded, explain any answe	
SUMMARY OF FINDINGS – Attach site r			
Hydrophytic Vegetation Present? Yes	No Is the Sampled	Δrea	
Hydric Soil Present? Yes	No within a Wetlan		No
Wetland Hydrology Present? Yes  Remarks:	No		
HYDROLOGY		O dom din dia	( ) ! · · · · · · · · · · · · · · · · · ·
Wetland Hydrology Indicators:	0.00 - 1.00 - 1.00 - 1.00		ators (minimum of two required)
Primary Indicators (minimum of one is required; che		Surface Soil	
	True Aquatic Plants (B14)		getated Concave Surface (B8)
	<ul><li>Hydrogen Sulfide Odor (C1)</li><li>Oxidized Rhizospheres on Living Roots</li></ul>		atterns (B10)
	_ Oxidized Knizospheres on Living Roots _ Presence of Reduced Iron (C4)		Water Table (C2)
	Recent Iron Reduction in Tilled Soils (C		
1	Thin Muck Surface (C7)		isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Remarks)		Stressed Plants (D1)
Iron Deposits (B5)		✓ Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aqu	
✓ Water-Stained Leaves (B9)			aphic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutra	I Test (D5)
Field Observations:	_ ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	Depth (inches): 1		
		tland Hydrology Prese	m42 Vos ✔ No
(includes capillary fringe)		-	nt? Yes <u> </u>
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspections)	), if available:	
Remarks: Clear moss line at base of trees within wetland and	not present outside of it		
Clear moss line at base of trees within wetland and	not present outside or it.		

Sampling Point: W10-W01
of Dominant Species OBL, FACW, or FAC:2 (A)
nber of Dominant Across All Strata: <sup>2</sup> (B)
f Dominant Charles
of Dominant Species OBL, FACW, or FAC:100% (A/B)
ce Index worksheet:
% Cover of: Multiply by:
x 1 =
x z =
Nes x
ecies x 4 =
X 5 =
otals:90
valence Index = B/A = 2.9
ytic Vegetation Indicators:
apid Test for Hydrophytic Vegetation
ominance Test is >50%
revalence Index is ≤3.0 <sup>1</sup>
orphological Adaptations <sup>1</sup> (Provide supporting
ata in Remarks or on a separate sheet)  lematic Hydrophytic Vegetation <sup>1</sup> (Explain)
ematic hydrophytic vegetation (Explain)
s of hydric soil and wetland hydrology must
s of riyand soil and wetland riyarology must nt, unless disturbed or problematic.
ns of Four Vegetation Strata:
-
oody plants, excluding vines, 3 in. (7.6 cm) or iameter at breast height (DBH), regardless of
arrictor at broadt height (BBH), regardeds of
Shrub – Woody plants, excluding vines, less
DBH and greater than 3.28 ft (1 m) tall.
Il herbaceous (non-woody) plants, regardless and woody plants less than 3.28 ft tall.
71
ine – All woody vines greater than 3.28 ft in
and a
ytic on
Yes No

... W10-W01

SOIL

Sampling Point:

0-2 2-6 6-12 12-16	Color (moist) 10YR 3/2			x Features		1 - 2	T	Demonde
2-6 6-12		100	Color (moist)		Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u> L	Remarks Contains PDOM
6-12			40VD 4/4					Contains 1 Down
	10YR 4/2	95	10YR 4/4		<u> </u>	M	SL	· -
12-16	10YR 4/3	85	7.5YR 3/4	15	C	M	CL	
	10YR 4/4	95	10YR 4/6	5	C	M	C	
		· ——						
		<del></del> .						
								-
		<del></del> ·						
ype: C=Conc	entration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked	——— Sand Gra	ins.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.
dric Soil Ind		·						ators for Problematic Hydric Soils <sup>3</sup>
_ Histosol (A1	1)		Dark Surface					2 cm Muck (A10) <b>(MLRA 147)</b>
_ Histic Epipe			Polyvalue Be		. , .		148) (	Coast Prairie Redox (A16)
_ Black Histic			Thin Dark Su	. ,	•	47, 148)		(MLRA 147, 148)
_ Hydrogen S			Loamy Gleye		-2)		F	Piedmont Floodplain Soils (F19)
_ Stratified La			Depleted Ma	. ,			_	(MLRA 136, 147)
	(A10) (LRR N)		Redox Dark	•	,			Red Parent Material (TF2)
_	elow Dark Surfac	e (A11)	Depleted Da					Very Shallow Dark Surface (TF12)
_	Surface (A12)		Redox Depre				<u> </u>	Other (Explain in Remarks)
	ky Mineral (S1) <b>(I</b>	LRR N,	Iron-Mangan		s (F12) <b>(</b> I	RR N,		
MLRA 14			MLRA 13	•			3.	
	ved Matrix (S4)		Umbric Surfa			-		dicators of hydrophytic vegetation and
_ Sandy Red	, ,		Piedmont Flo	oodplain Sc	ils (F19)	(MLRA 14	-	wetland hydrology must be present,
_ Stripped Ma							1	unless disturbed or problematic.
Type:	er (if observed):	i						
Depth (inche	is).						Hydric Soi	I Present? Yes No
emarks:			<del></del>				1 Tryanto doi	111000Ht. 103 110
	t center of wetland		o mot min ottaniang		gnoutme	ot or and y	oan Approxii	mately 4-6 inches of standing water at

Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		_ Sampling Date: _	04/06/2013
Applicant/Owner: U.S. Navy						
			n, Township, Range:			
Landform (hillslope, terrace, etc.):					Slop	e (%): 0
Subregion (LRR or MLRA): 148/LF						
Soil Map Unit Name: Lawrencevil	le silt loam 0-3% slopes	3	Long			
Are climatic / hydrologic conditions	on the site typical for th	nis time of year? Yo	es No	(If no, explain in	Remarks.)	
Are Vegetation, Soil						No
Are Vegetation, Soil						
SUMMARY OF FINDINGS -						itures, etc.
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes	No	Is the Sampled Area within a Wetland?	Yes	No	
Wetland Hydrology Present?  Remarks:	Yes	No				
LIVEROLOGY						
HYDROLOGY Wetland Hydrology Indicators				Ondam, India		
Wetland Hydrology Indicators:	no in required; chack al	I that annly)			cators (minimum of t	wo requirea)
Primary Indicators (minimum of o			244\	Surface So		····face (DQ)
Surface Water (A1) High Water Table (A2)		ue Aquatic Plants (I drogen Sulfide Odd			egetated Concave S atterns (B10)	unace (Do)
Saturation (A3)			es on Living Roots (C3)	Moss Trim		
Water Marks (B1)		esence of Reduced			n Water Table (C2)	
Sediment Deposits (B2)			n in Tilled Soils (C6)	Crayfish Bu		
Drift Deposits (B3)		in Muck Surface (C		Saturation	Visible on Aerial Ima	gery (C9)
Algal Mat or Crust (B4)	Ot	her (Explain in Rem	narks)	Stunted or	Stressed Plants (D1	)
Iron Deposits (B5)					c Position (D2)	
Inundation Visible on Aerial I	magery (B7)			Shallow Aq		
Water-Stained Leaves (B9)					raphic Relief (D4)	
Aquatic Fauna (B13) Field Observations:				FAC-INEULIA	al Test (D5)	
	es No <u> </u>	onth (inches):				
1	es No D					
	es No D			lydrology Prese	ent? Yes	No 🗸
(includes capillary fringe)						
Describe Recorded Data (stream	gauge, monitoring well	, aerial photos, prev	vious inspections), if ava	ilable:		
Remarks: Nearing saturation between 10-1.	2 inches					
l isamig saturation zermeen is						

names of plants. Sampling Point: W10-U01
Absolute Dominant Indicator Dominance Test worksheet:
% Cover 65Species? YesStatus FACNumber of Dominant Species That Are OBL, FACW, or FAC:1(A)
Total Number of Dominant
Species Across All Strata:3 (B)
Percent of Dominant Species
That Are OBL, FACW, or FAC:33.33% (A/B)
Describerate Index workshoots
Prevalence index worksneet:
Total % Cover of: Multiply by:
= Total Cover   OBL species x i =
racw species x z
TAC species
X4
UFL species X5 -
Column Totals (A) (B)
Prevalence Index = B/A = 3.4
Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
A Marphalagical Adentational (Dravida cumparting
60% = Total Cover data in Remarks or on a separate sheet)
5 Yes FACU — Problematic Hydrophytic Vegetation¹ (Explain)
<del> </del>
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
= Total Cover   Woody vine - All woody vines greater than 3.28 ft in height.
- Hydrophytic
- <del> </del>
Vegetation Present? Yes No

Point: W10-U01

Sampling Point: \_\_\_\_\_\_

(inches) 0-12	Matrix	0/		K Features	1 - 2	T = 1, et :	D	
0-12	Color (moist)	<u>%</u>	Color (moist)	%Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks	
	10YR 4/3	100				SL		
12-16	10YR 5-6	100				CL		
<del></del> .								
			_					
ype: C=Co	ncentration, D=Depl	etion, RM=	Reduced Matrix, MS	=Masked Sand G	rains.	<sup>2</sup> Location: Pl	_=Pore Lining, M=Matrix.	
dric Soil Ir		·					ators for Problematic Hydric S	oils³:
_ Histosol (	A1)		Dark Surface	(S7)		2	cm Muck (A10) (MLRA 147)	
_ Histic Epi	pedon (A2)		Polyvalue Be	low Surface (S8)	MLRA 147,	148) (	Coast Prairie Redox (A16)	
_ Black His				rface (S9) <b>(MLRA</b>	147, 148)		(MLRA 147, 148)	
	Sulfide (A4)		Loamy Gleye			<u> </u>	Piedmont Floodplain Soils (F19)	
	Layers (A5)		Depleted Mat			_	(MLRA 136, 147)	
	k (A10) <b>(LRR N)</b>	(0.4.4)	Redox Dark S				Red Parent Material (TF2)	21
	Below Dark Surface	e (A11)		k Surface (F7)			/ery Shallow Dark Surface (TF12	<u>2)</u>
_	k Surface (A12) ucky Mineral (S1) <b>(L</b>	DD N	Redox Depre	ssions (Fo) ese Masses (F12)	/I PP N		Other (Explain in Remarks)	
_	147, 148)	.NN IN,	MLRA 136		(LKK N,			
	eyed Matrix (S4)			ce (F13) <b>(MLRA 1</b>	36, 122)	<sup>3</sup> Inc	licators of hydrophytic vegetation	n and
_ Sandy Re				odplain Soils (F19			vetland hydrology must be prese	
	Matrix (S6)		<del>_</del>	,	, <b>(</b>	-	nless disturbed or problematic.	•
estrictive La	ayer (if observed):							
Туре:								
Depth (incl	nes):					Hydric Soil	Present? Yes No	~
	,							
						•		
emarks:								
emarks:								
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### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
yes v no could not be determined because wetland extends beyond the ROW If no, explain hydrologic connection: flows off base, situated in stormwater outfall #14.	Is the wetland:  directly abutting  adjacent (not directly but hydrologically connected)  Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection  Ecological connection  Separated by berm/barrier  Explain:
Associated Stream:  yes no Drains NE off base to NHD mapped stream If yes, list ID: SS-via ditch. (Use separate datasheet for each associated stream)	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow
Approximate distance of wetland to stream (straight aerial feet): ~650 feet  -two separate wetland boundaries culvert D07 connects both wetland boundaries under the road -PEM/PFO W02 does not have a paired plot located in small PFO area within four mature Weeping Willows.	Surface flow characteristic from wetland to associated stream:   discrete  confined  other, explain:

## **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

	Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		_ Sampling Date: _	04/02/2013
Investigator(s): Z. Fink, J. Carlo  Section, Township, Range:  Landform (hillslope, terrace, etc.): Drainage Way  Local relief (concave, convex, none): Concave  Slope (%): 1  Subregion (LRR or MLRA): 148/LRRS  Lat: 2697379.5  Long: 328242.6  Datum: NADB3  Soli Map Unit Name: UDORTHONTS, Shale and sandstone, 0-9% slope  NWI classification: PEM  Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no. explain in Remarks.)  Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No  Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No  SUMMARY OF FINDINGS - Attach site maps showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No  Wetland Hydrology Indicators: Perinary Indicators (minimum of two required)  Wetland Hydrology Indicators: Perinary Indicators (minimum of two required)  Primary Indicators (minimum of one is required; check all that apply) Surface Soil Tocaks (86)  Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8)  Hydrology Indicators (minimum of one is required; check all that apply) Surface Soil Tocaks (B6)  Surface Water (A1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2)  Saluration (A3) Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16)  Joy-Season Water Table (A2) Presence of Reduced Iron (C4)	Applicant/Owner: U.S. Navy						
Landform (hillslope, terrace, etc.): Drainage Way Local relief (concave, convex, none): Concave Slope (%): 1 Subregion (LRR or MLRA): 148/LRRS Lat: 2697379.5 Long: 328242.6 Day. 328242							
Subregion (LRR or MLRA): 148/LRRS Lat: 2697379.5 Long: 328242.6 Datum: NAD83 Soil Map Unit Name: UDORTHCNTS. Shale and sandstone, 0-8% slope NWI classification: PEM Are climatic / hydrologic conditions on the site typical for this time of year? Yes V No (If no, explain in Remarks.)  Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No (If no, explain in Remarks.)  SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No						Slop	e (%): 1
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (lf no, explain in Remarks.)  Are Vegetation Soil or Hydrology significantly disturbed?							
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 Is the Sampled Area within a Wetland? Yes No Wetland Hydrology Present? Yes No Surface Soil Cracks (Be) Surface Soil Cracks (Be) Surface Soil Cracks (Be) Surface Soil Cracks (Be) Primary Indicators (minimum of one is required: check all that apply) Surface Soil Cracks (Be) Surface Soil Cracks (Be) Primary Indicators (minimum of one is required: check all that apply) Surface Soil Cracks (Be) Primary Indicators (minimum of two required) Primary Indicators (minimum of one is required: check all that apply) Surface Soil Cracks (Be) Primary Indicators (minimum of two required) Primary Indicators (Indicators (I	Soil Map Unit Name: UDORTH	CNTS, Shale and sand	dstone, 0-8% slope	Long	NWI classifi	cation: PEM	
Are Vegetation, Soil, or Hydrologynaturally 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?	Are climatic / hydrologic condition	ns on the site typical fo	or this time of year? Ye	es No	(If no, explain in I	Remarks.)	
Are Vegetation, Soil, or Hydrologynaturally 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?	Are Vegetation, Soil	, or Hydrology	significantly disturb	bed? Are "Norma	l Circumstances"	present? Yes	No
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present? Yes V No Weltand Hydrology Present? Yes V No Weltand Hydrology Present? Yes No Weltand Hydrology Present? Yes No Suthin a Wetland? Yes No Weltand Hydrology Present? Yes No Surface Soil Cracks (Bellower in elevation than paired plot U01-situated in swale  HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydrogen Sulfide Odor (C1) Sparsely Vegetated Concave Surface (Bellower in Hydro							
Hydrology Present? Wetland Hydrology Present? Plot located 1.5 feet lower in elevation than paired plot U01-situated in swale  Wetland Hydrology Indicators: Primary Indicators (minimum of noe is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Voxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B10) Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Prim Ploposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B3) Iron Deposits (B3) Water Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturat							ntures, etc.
Remarks: Plot located 1.5 feet lower in elevation than paired plot U01-situated in swale	Hydric Soil Present?	Yes	_ No	-	Yes	No	
HYDROLOGY  Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Voidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Prif Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)  Field Observations: Surface Water Present? Yes No Depth (inches): Under Marks (B1) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Wetmands:  Wetmands (A1) Secondary Indicators (minimum of two required) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Crayfing Roots (C3) Moss Trim Lines (B16) Sparsely Vegetated Concave Surface (B8) Crayfing Roots (C3) Moss Trim Lines (B16) Crayfing Roots (C3) Moss Trim Lines (B16) Drift Deposits (B3) Crayfing Roots (C3) Moss Trim Lines (B16) Crayfing Roots (C3) Moss Trim Lines (B10) Crayfing Roots (C3) Crayfing Roots (C3) Moss Trim Lines (B10) Crayfing Roots (C3) Moss Trim Lines (B10) Crayfing Posterns (B10) Crayfing Roots (C3) Crayfing R	· · · · · · · · · · · · · · · · · · ·	Yes	_ No				
Wetland Hydrology Indicators:       Secondary Indicators (minimum of two required)         Primary Indicators (minimum of one is required; check all that apply)       Surface Soil Cracks (B6)         Surface Water (A1)       True Aquatic Plants (B14)       Sparsely Vegetated Concave Surface (B8)         High Water Table (A2)       Hydrogen Sulfide Odor (C1)       Drainage Patterns (B10)         Saturation (A3)							
Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  High Water Table (A2)  Hydrogen Sulfide Odor (C1)  Saturation (A3)  Water Marks (B1)  Presence of Reduced Iron (C4)  Dry-Season Water Table (C2)  Sediment Deposits (B2)  Prim Algal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Water-Stained Leaves (B9)  Aquatic Fauna (B13)  Field Observations:  Surface Water Present?  Yes No Depth (inches):  Water Table (Path Agents (B1))  Surface Soil Cracks (B6)  Sparsely Vegetated Concave Surface (B8)  Dry-Season Water Table (C2)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Crayfish Burrows (C8)  Crayfish Burrows (C8)  Stunted or Stressed Plants (D1)  Geomorphic Position (D2)  Shallow Aquitard (D3)  Microtopographic Relief (D4)  FAC-Neutral Test (D5)  Field Observations:  Surface Water Present?  Yes No Depth (inches):  Saturation Present?  Yes No Depth (inches):  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:							
Surface Water (A1)							wo required)
High Water Table (A2)							(5.0)
✓ Saturation (A3)       ✓ Oxidized Rhizospheres on Living Roots (C3)       Moss Trim Lines (B16)         Water Marks (B1)       — Presence of Reduced Iron (C4)       — Dry-Season Water Table (C2)         — Sediment Deposits (B2)       — Recent Iron Reduction in Tilled Soils (C6)       — Crayfish Burrows (C8)         — Drift Deposits (B3)       — Thin Muck Surface (C7)       — Saturation Visible on Aerial Imagery (C9)         — Algal Mat or Crust (B4)       — Other (Explain in Remarks)       — Stunted or Stressed Plants (D1)         — Iron Deposits (B5)       — Geomorphic Position (D2)         — Inundation Visible on Aerial Imagery (B7)       — Shallow Aquitard (D3)         — Water-Stained Leaves (B9)       — Microtopographic Relief (D4)         — Aquatic Fauna (B13)       — FAC-Neutral Test (D5)         Field Observations:         Surface Water Present?       Yes       No       ✓ Depth (inches):       — Wetland Hydrology Present? Yes       No       No       — Inches (Inches):       — No       — No       — No       — Inches (Inches):       — No       — Inches (Inches):       — No       — Inches (Inches):       — Inc	<del></del>				Surface (B8)		
Water Marks (B1)							
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8) Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) Microtopographic Relief (D4) Aquatic Fauna (B13) FAC-Neutral Test (D5) FAC-Neutral Test (D5) Staturation Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Saturation Present? Yes							
Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) Shallow Aquitard (D3) Microtopographic Relief (D4) Aquatic Fauna (B13) FAC-Neutral Test (D5) FAC-Neutral Test (D5) Saturation Present? Yes No Depth (inches): No Saturation Present? Yes No Saturation Present? Yes No Saturation Previous inspections), if available: No Saturation Previous Inspections   No Saturation Previous Inspection Previous Inspection Previous Insp	1 — ' '						
Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5) FAC-Neutral Test (D5) Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Depth (inches): No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): No Depth (inches): No Saturation Present? Yes No Depth (inches): No No No							agery (C9)
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)  Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					· <del></del>		
Water-Stained Leaves (B9) Aquatic Fauna (B13) FAC-Neutral Test (D5) Factor [D4] FAC-Neutral Test (D5) Factor [D5]	Iron Deposits (B5)				<u>✓</u> Geomorphic	Position (D2)	
Aquatic Fauna (B13) FAC-Neutral Test (D5)  Field Observations:  Surface Water Present? Yes No Depth (inches):  Water Table Present? Yes No Depth (inches):  Saturation Present? Yes No Depth (inches):  (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:	Inundation Visible on Aeria	l Imagery (B7)			Shallow Aqu	uitard (D3)	
Field Observations:  Surface Water Present? Yes No Depth (inches):  Water Table Present? Yes No Depth (inches):  Saturation Present? Yes No Depth (inches):  (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:	1	)			Microtopogr	raphic Relief (D4)	
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:	Aquatic Fauna (B13)				FAC-Neutra	al Test (D5)	
Water Table Present? Yes No Depth (inches):  Saturation Present? Yes No Depth (inches):  (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:							
Saturation Present? Yes No Depth (inches): 0-6 Wetland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:							
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:		Yes _ No	Depth (inches):	Wetland I	Hydrology Prese	nt? Yes	No
		m gauge, monitoring v	vell, aerial photos, pre	vious inspections), if ava	ailable:		
Saturated above day tayer.							
	Saturated above clay layer.						

'EGETATION (Four Strata) – Use scientific i	names of	plants.	Sampling Point: W11-W01
Tree Stratum (Plot size:30)	Absolute		Dominance Test worksheet:
Tree Stratum (Plot size:30) 1		Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
2			Total Number of Dominant
3			Species Across All Strata: 1 (B)
4			Percent of Dominant Species
5			That Are OBL, FACW, or FAC:(A/B)
6 7			Prevalence Index worksheet:
8			Total % Cover of: Multiply by:
	00/	= Total Cover	OBL species x 1 = 70
Sapling/Shrub Stratum (Plot size:)			FACW species 0 x 2 = 0
1			FAC species 0 x 3 = 0
2			FACU species X4 =
3			UPL species x 5 =
4			Column Totals: (A) (B)
5			Prevalence Index = B/A =1
6			Hydrophytic Vegetation Indicators:
7 8			✓ 1 - Rapid Test for Hydrophytic Vegetation
8			2 - Dominance Test is >50%
10.			✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
		= Total Cover	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)  1. Typha latifolia	70	Yes OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2.			
3.			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4.			Definitions of Four Vegetation Strata:
5			
6			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7			height.
8			Sapling/Shrub – Woody plants, excluding vines, less
9			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10			Herb – All herbaceous (non-woody) plants, regardless
11			of size, and woody plants less than 3.28 ft tall.
12	70%	Tatal Occurs	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		= Total Cover	height.
1			
2			
3			
4 5			Hydrophytic
6.			Vegetation Present? Yes V No No No
	0%	= Total Cover	
Remarks: (Include photo numbers here or on a separate			
Approximately 30% bare ground.			

W11-W01

Sampling Point:

SOIL

Depth (inches): 0.00 Hydric Soil Present? Yes No		Matrix	0/		x Features		12	T-1-1	Develop
2-10				Color (moist)		Type	Loc_	•	
10-16	0-2	10YR 3/2	100						PDOM Present
7.5YR 4/6 15 C M    Total Contentration	2-10	2.5Y 4/2	93	10YR 3/4	7	C	M/PL	SC	
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  processory of the Soil Indicators:    Indicators for Problematic Hydric Soils   Indicators for Problematic Hydric Soils	10-16	2.5Y 4/2	70	7.5YR 4/4	15	С	M	CL	
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  processory of the Soil Indicators:    Indicators for Problematic Hydric Soils   Indicators for Problematic Hydric Soils				7.5YR 4/6	15				
Indicators for Problematic Hydric Soils Histosol (A1)									-
Histosol (A1)		-							-
Histosol (A1)									
Histosol (A1)									
Histosol (A1)			·						
Indicators for Problematic Hydric Soils Histosol (A1)									
Histosol (A1)									
Histosol (A1)									
Histosol (A1)			letion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.
Histic Epipedon (A2)	iric Soil I	Indicators:						Indic	ators for Problematic Hydric Soils <sup>3</sup>
Black Histic (A3)	Histosol	(A1)		Dark Surface	(S7)			_ 2	2 cm Muck (A10) <b>(MLRA 147)</b>
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 136)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches): 0.00  Depleted Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F2)  Medox Dark Surface (F6)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Dark Surface (F7)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  MILRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No								148) (	Coast Prairie Redox (A16)
Stratified Layers (A5)						-	47, 148)		
2 cm Muck (A10) (LRR N)						F2)		_ '	
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) Depth (inches): 0.00  Depleted Dark Surface (F7) Peleted Dark Surface (F12) (LRR N, MLRA 136, 122) Pileted No. Peleted Dark Surface (F12) (LRR N, MLRA 136, 122) Pileted Dark Surface (F12) (LRR N, MLRA 136, 122) Pileted Dark Surface (F12) (LRR N, MLRA 136, 122) Pileted Dark Surface (F12) (LRR N, MLRA 136, 122) Pileted Dark Surface (F12) (LRR N, MLRA 136, 122) Pileted Dark Surface (F12) (LRR N, MLRA 136, 122) Pileted Dark Surface (F12) (LRR N, MLRA 136, 122) Pileted Dark Surface (F12) (LRR N, MLRA 136, 122) Pileted Dark Surface (F13) (MLRA 136, 122)					, ,	·(O)		,	
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Strictive Layer (if observed):  Type: Depth (inches): 0.00  Medox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No			- (Λ11)	· · · · · · · · · · · · · · · · · · ·		•			
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches): 0.00  Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  Jenn-Manganese Masses (F12) (MLRA 136, 122)  Je			= (A11)						
MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches): 0.00  MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No		, ,	RR N			•	I RR N	<u> </u>	Other (Explain in Nemarks)
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)   Sandy Redox (S5)   Piedmont Floodplain Soils (F19) (MLRA 148)   Stripped Matrix (S6)			-1111 14,			35 (I 12) <b>(</b>			
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic.  Stripped Matrix (S6) unless disturbed or problematic.  Type: Depth (inches): 0.00 Hydric Soil Present? Yes No		·				MLRA 13	6, 122)	<sup>3</sup> Inc	dicators of hydrophytic vegetation and
Strictive Layer (if observed):  Type:  Depth (inches): 0.00 Hydric Soil Present? Yes No									
Type: Depth (inches): 0.00 Hydric Soil Present? Yes No	Stripped	Matrix (S6)						ι	unless disturbed or problematic.
Depth (inches): 0.00 Hydric Soil Present? Yes V No	strictive l	_ayer (if observed):							
	Туре:								
								Hydric Soi	ll Present? Yes <u>✓</u> No
marks:	Depth (inc	ches): <u>0.00</u>							
		ches): 0.00							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
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		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
	Depth (independent)	ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							
		ches): <u>0.00</u>							

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date: 04/02/2013				
Applicant/Owner: U.S. Navy			Sampling Point: W11-W02				
Investigator(s): Z. Fink, J. Carlo	Section, Township, Range:		_ , , , _				
	Local relief (concave, convex, no		Slope (%); about 1				
	Lat: 2697024.7 Long: 328						
Soil Map Unit Name: UDORTHCNTS, Shale a	nd sandstone, 0-8% slopes	NWI classific	ation: PFO				
Are climatic / hydrologic conditions on the site ty	pical for this time of year? Yes No	(If no, explain in R	emarks.)				
Are Vegetation , Soil , or Hydrolo	gy significantly disturbed?	l Circumstances" p	resent? Yes No				
	gy naturally problematic? (If needed,						
	ite map showing sampling point location						
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes	Is the Sampled Area						
Wetland Hydrology Present? Yes	within a wetland?	Yes	No				
Remarks: No paired plot. W02 located roughly center of	wetland in small, sparse PFO area with 4 mature Sa	lix babylonica.					
HYDROLOGY							
Wetland Hydrology Indicators:			tors (minimum of two required)				
Primary Indicators (minimum of one is required	Surface Soil						
✓ Surface Water (A1)		getated Concave Surface (B8)					
High Water Table (A2)	<u>✓</u> Drainage Pat						
✓ Saturation (A3) ✓ Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16)							
Water Marks (B1) Sediment Deposits (B2)	<ul><li>Presence of Reduced Iron (C4)</li><li>Recent Iron Reduction in Tilled Soils (C6)</li></ul>	Dry-Season Crayfish Buri	Water Table (C2)				
Sediment Deposits (B2) Drift Deposits (B3)	Thin Muck Surface (C7)		sible on Aerial Imagery (C9)				
Algal Mat or Crust (B4)	Other (Explain in Remarks)		tressed Plants (D1)				
Iron Deposits (B5)		✓ Geomorphic					
Inundation Visible on Aerial Imagery (B7)		Shallow Aqui					
Water-Stained Leaves (B9)		Microtopogra					
Aquatic Fauna (B13)		FAC-Neutral	Test (D5)				
Field Observations:							
	Depth (inches):<1						
Water Table Present? Yes No	Depth (inches):						
Saturation Present? Yes No		Hydrology Presen	t? Yes / No				
(includes capillary fringe)  Describe Recorded Data (stream gauge, moni	oring well, aerial photos, previous inspections), if ava	ailable:					
	3 - , ,						
Remarks:							
Saturation and very little surface water above	clay layer.						

EGETATION (Four Strata) – Use scientific	names of	plants.		Sampling Point: W11-W02
Trae Stratum (Plot size: 30 )	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:30)  1. Salix babylonica	<u>% Cover</u> 20	Species? Yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:2 (A)
2				Total Number of Dominant
3				Species Across All Strata: 2 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				
7				Prevalence Index worksheet:
8				Total % Cover of: Multiply by:
	20%	= Total Cove	er	OBL species x 1 = 50
Sapling/Shrub Stratum (Plot size:15)				FACW species x 2 = 40
1				FAC species
2				FACU species x 4 = 0
3				UPL species0 x 5 =0
4				Column Totals:(A)(B)
5				D 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
6				Prevalence Index = B/A =1.3
7				Hydrophytic Vegetation Indicators:
8				1 - Rapid Test for Hydrophytic Vegetation
9.				∠ 2 - Dominance Test is >50%
10.				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size: 5		= Total Cove	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
1 Typha latifolia	50	Yes	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
··-				
2				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12				Was devices Allowed devices are start than 2.20 ft in
Woody Vine Stratum (Plot size:30)	50%	= Total Cove	er	Woody vine – All woody vines greater than 3.28 ft in height.
1				
2				
3				
4				Hodoobada
5				Hydrophytic Vegetation
6				Present? Yes No
	0%	= Total Cove	er	
Remarks: (Include photo numbers here or on a separate Approximately 50% bare ground and leaf litter.	e sheet.)			1

W11-W02

Profile Desc	ription: (Describe t	to the dept	h needed to docur	nent the ir	ndicator	or confirm	the absence	of indicate	ors.)	
Depth	Matrix		Redo	x Features	;					
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	Texture		Remarks	
0-3	10YR 3/2	100					SL	some PD0	OM	
3-8	10YR 4/2	90	7.5YR 3/4	10	С	M/PL	SL			_
8-16	10YR 4/2	65	10YR 4/4	15			CL			
			7.5YR 4/4	20				-		
				· ——						
				. ——						<del></del>
				· ——						
										_
¹Type: C=Co	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: Pl	L=Pore Linii	ng, M=Matrix.	
Hydric Soil I			, , , , , , , , , , , , , , , , , , , ,						oblematic Hy	dric Soils <sup>3</sup> :
Histosol	(A1)		Dark Surface	(S7)			2	cm Muck (	A10) <b>(MLRA 1</b> 4	17)
	pipedon (A2)		Polyvalue Be		ce (S8) <b>(N</b>	/ILRA 147,			Redox (A16)	<i>'</i>
Black His	stic (A3)		Thin Dark Su	rface (S9)	(MLRA	147, 148)		(MLRA 14	17, 148)	
	n Sulfide (A4)		Loamy Gleye	•	<del>-</del> 2)		F		oodplain Soils (	F19)
	I Layers (A5)		Depleted Ma	, ,				(MLRA 13		
	ck (A10) (LRR N)	(4.4.4)	Redox Dark	•	•				Material (TF2)	(==10)
	Below Dark Surface	e (A11)	Depleted Date						V Dark Surface	
	ark Surface (A12) lucky Mineral (S1) <b>(L</b>	RR N	Redox Depre	•	•	I RR N	_ '	лпег (⊏хріа	in in Remarks)	
	147, 148)	ixix i <b>v</b> ,	MLRA 13		3 (1 12) <b>(</b>	LIXIX IV,				
	ileyed Matrix (S4)		Umbric Surfa	-	MLRA 13	36. 122)	<sup>3</sup> Inc	dicators of h	ydrophytic vege	etation and
	edox (S5)		Piedmont Flo			-			ology must be	
Stripped	Matrix (S6)						u	nless distur	bed or problem	atic.
Restrictive L	ayer (if observed):									
Type:										
Depth (inc	ches): 0.00						Hydric Soi	I Present?	Yes	No
Remarks:										
										l
										l
										l

Project/Site: Willow Grove EIS	City/County: Montgor	mery	Sampling Date: 04/02/2013
Applicant/Owner: U.S. Navy			Sampling Point: W11-U01
	Section, Township, R		<u> </u>
Landform (hillslope, terrace, etc.): Drainageway			Slope (%); 1 - 5
Subregion (LRR or MLRA): 148/LRRS Lat: 26			
Soil Map Unit Name: UDORTHDENTS, shale and sandst	one	NWI classific	cation: UPL
Are climatic / hydrologic conditions on the site typical for the	is time of year? Yes No	(If no, explain in R	demarks.)
Are Vegetation, Soil, or Hydrology			
Are Vegetation, Soil, or Hydrology			
SUMMARY OF FINDINGS – Attach site map			
Hydrophytic Vegetation Present? Yes I Hydric Soil Present? Yes I	No within a Wetla		No
Wetland Hydrology Present? Yes I Remarks:	10 <u> </u>		
HYDROLOGY			
Wetland Hydrology Indicators:			ators (minimum of two required)
Primary Indicators (minimum of one is required; check all		Surface Soil	
Surface Water (A1) Tru		getated Concave Surface (B8)	
High Water Table (A2) Hy	Drainage Pa		
	idized Rhizospheres on Living Roo esence of Reduced Iron (C4)		
	cent Iron Reduction in Tilled Soils		Water Table (C2)
	n Muck Surface (C7)		isible on Aerial Imagery (C9)
<del>-</del>	ner (Explain in Remarks)	<del></del>	tressed Plants (D1)
Iron Deposits (B5)	(— р		Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aqu	, <i>,</i>
Water-Stained Leaves (B9)			aphic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral	Test (D5)
Field Observations:			
	epth (inches):		
	epth (inches):		
Saturation Present? Yes No De (includes capillary fringe)	epth (inches): V	Vetland Hydrology Preser	nt? Yes No
Describe Recorded Data (stream gauge, monitoring well,	aerial photos, previous inspectior	ns), if available:	
Remarks:			
on slope			

recies? res	UPL	Number of Dominant Species That Are OBL, FACW, or FAC:
otal Cove  otal Cove  fes  No	er UPL er FACU	Species Across All Strata:4
otal Cove	UPL  Per  FACU  FACU	Species Across All Strata:4
otal Cove	UPL  Per  FACU  FACU	That Are OBL, FACW, or FAC:
otal Cove	UPL  Per  FACU  FACU	That Are OBL, FACW, or FAC:
otal Cove	UPL  Per  FACU  FACU	Prevalence Index worksheet:  Total % Cover of: Multiply by:  OBL species 0 x 1 = 0  FACW species 0 x 2 = 0  FAC species 0 x 3 = 0  FACU species 70 x 4 = 280  UPL species 65 x 5 = 325  Column Totals: 135 (A) 605 (B)  Prevalence Index = B/A = 4.5  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportindata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
ves otal Cove	UPL  Per  FACU  FACU	Total % Cover of:  OBL species  0
ves otal Cove	UPL  Per  FACU  FACU	OBL species 0 x1 = 0  FACW species 0 x2 = 0  FAC species 0 x3 = 0  FACU species 70 x4 = 280  UPL species 65 x5 = 325  Column Totals: 135 (A) 605 (B)  Prevalence Index = B/A = 4.5  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportindata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
res	UPL  Per  FACU  FACU	FACW species 0 x 2 = 0  FAC species 0 x 3 = 0  FACU species 70 x 4 = 280  UPL species 65 x 5 = 325  Column Totals: 135 (A) 605 (B)  Prevalence Index = B/A = 4.5  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)
otal Cove	er FACU FACU	FACW species
otal Cove	er FACU FACU	FACU species 70 x 4 = 280  UPL species 65 x 5 = 325  Column Totals: 135 (A) 605 (B)  Prevalence Index = B/A = 4.5  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)
otal Cove	FACU FACU	UPL species 65 x 5 = 325  Column Totals: 135 (A) 605 (B)  Prevalence Index = B/A = 4.5  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
otal Cove	FACU FACU	Column Totals: 135 (A) 605 (B)  Prevalence Index = B/A = 4.5  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
otal Cove	FACU FACU	Prevalence Index = B/A =
otal Cove	FACU FACU	Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
otal Cove	FACU FACU	Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
otal Cove	FACU FACU	1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
otal Cove	FACU FACU	2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
otal Cove	FACU FACU	3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
otal Cove	FACU FACU	4 - Morphological Adaptations <sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  Indicators of hydric soil and wetland hydrology must
/es No	FACU FACU	data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
No	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
<u> </u>		
No .	UPL	
		be present, unless disturbed or problematic.
		Definitions of Four Vegetation Strata:
		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o
		more in diameter at breast height (DBH), regardless of
		height.
		Sapling/Shrub – Woody plants, excluding vines, less
<del></del> -		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
otal Cove	er	height.
		Hydrophytic Vegetation
		Present? Yes No
tal Cove	er	
		tal Cover

w11-U01

Sampling Point:

Profile Desc	ription: (Describe t	o the depth	needed to docur	nent the i	ndicator	or confirm	the ab	sence of indicate	ors.)	
Depth	Matrix			x Features						
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Text	•	Remarks	1
0 - 14	10YR 3/3	100								
14 - 16	10YR 3/3	85	7.5YR 3/4	15	С	M				
				-						
				- ——						
				. ——						
				- —						
<sup>1</sup> Type: C=Co	oncentration, D=Depl	etion, RM=R	Reduced Matrix, MS	S=Masked	Sand Gr	ains.	<sup>2</sup> Locati	on: PL=Pore Lini		
Hydric Soil I	ndicators:							Indicators for P	roblematic H	lydric Soils³:
Histosol			Dark Surface						A10) <b>(MLRA</b>	
	pipedon (A2)		Polyvalue Be		. , .		148)	Coast Prairie		5)
Black His			Thin Dark Su		-	147, 148)		(MLRA 14		
	n Sulfide (A4)		Loamy Gleye		F2)				oodplain Soils	s (F19)
	l Layers (A5) ck (A10) <b>(LRR N)</b>		Depleted Ma	, ,	·6)			(MLRA 13	<b>յ6, 147)</b> Material (TF2	
	Below Dark Surface	(A11)	Depleted Dai	•	•				v Dark Surfac	
	ark Surface (A12)	, (, (, 1, 1,	Redox Depre						in in Remark	
	lucky Mineral (S1) <b>(L</b>	RR N,	Iron-Mangan	•	•	LRR N,				/
	147, 148)		MLRA 13							
	leyed Matrix (S4)		Umbric Surfa			-		<sup>3</sup> Indicators of h		
	edox (S5)		Piedmont Flo	oodplain S	oils (F19)	(MLRA 14	<del>1</del> 8)		rology must b	
	Matrix (S6)							unless distur	bed or proble	ematic.
	ayer (if observed):									
Type:										./
Depth (inc	ches):		<u>—</u>				Hydr	ic Soil Present?	Yes	No
Remarks:										

WETLAND ID: WW-W12

### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
✓ yes	
no no	Is the wetland:
could not be determined because wetland extends beyond	directly abutting
the ROW	adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:	
	Wetland adjacency determination (if not directly abutting):
	Discrete wetland hydrologic connection
	Ecological connection Separated by berm/barrier
	Explain:
	Explain.
Associated Stream:	
yes  v  no	Surface flow type from wetland to associated stream:
✓ no If yes, list ID: SS-	intermittent surface ephemeral surface
(Use separate datasheet for each associated stream)	
tose separate datasneer for each associated stream,	perennial surface no surface flow
Approximate distance of wetland to stream (straight aerial	
feet): Isolated storm-water retention pond.	Surface flow characteristic from wetland to associated stream:
Vegetated primarily with Typha I.	discrete overland sheet flow
vegetateu primaniy with Typha i.	confined
	Carety explains

## **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date:04/02/2013			
Applicant/Owner: U.S. Navy			Sampling Point: W12-W01			
Investigator(s): Z. Fink, J. Carlo	Section, Township, Range:					
	Local relief (concave, convex, no		Slope (%): <sup>0</sup>			
Subregion (LRR or MLRA): 148/LRRS						
Soil Map Unit Name:Urban land, 0-8% slopes	Long.					
Are climatic / hydrologic conditions on the site typic						
Are Vegetation, Soil, or Hydrology	· — —	•	•			
Are Vegetation, Soil, or Hydrology		explain any answe				
	e map showing sampling point location					
			,portaint routur oo, oto:			
Hydrophytic Vegetation Present? Yes	No Is the Sampled Area	_				
Hydric Soil Present? Yes Wetland Hydrology Present? Yes	No within a Wetland?	Yes	No			
Remarks:	NO					
HYDROLOGY						
Wetland Hydrology Indicators:			ators (minimum of two required)			
Primary Indicators (minimum of one is required; of		Surface Soil Cracks (B6)				
✓ Surface Water (A1)	True Aquatic Plants (B14)		getated Concave Surface (B8)			
High Water Table (A2)	Hydrogen Sulfide Odor (C1)		atterns (B10)			
✓ Saturation (A3)  — Water Marks (B1)	✓ Oxidized Rhizospheres on Living Roots (C3)  — Presence of Reduced Iron (C4)	Moss Trim L	Water Table (C2)			
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Crayfish Bui				
Orift Deposits (B3)	Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)				
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)		<u>✓</u> Geomorphic				
Inundation Visible on Aerial Imagery (B7)		Shallow Aqu	uitard (D3)			
Water-Stained Leaves (B9)		Microtopogr	aphic Relief (D4)			
Aquatic Fauna (B13)		FAC-Neutra	I Test (D5)			
Field Observations:	Donath (in the case of addition plot					
	Depth (inches): 1 adj to plot  Depth (inches):					
		Hydrology Prese	nt? Yes 🗸 No			
(includes capillary fringe)			int: Tes NO			
Describe Recorded Data (stream gauge, monitor	ing well, aerial photos, previous inspections), if ava	ailable:				
Remarks: Saturated above clay layer.						
Saturated above day layer.						

ee Stratum (Plot size:30)	% Cover		Indicator	Dominance Test worksheet:		
		Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
						. , ,
				Total Number of Dominant Species Across All Strata:	3	(B)
				·		. ( /
				Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)
						. (700)
				Prevalence Index worksheet:		
					Multiply by:	_
	0%	= Total Cov	er	OBL species x 1 =		_
pling/Shrub Stratum (Plot size:15)				FACW species x 2 =		_
				FAC species x 3 =		_
				FACU species0 x 4 =		_
				UPL species0 x 5 =		_
				Column Totals:80 (A)	100	(B)
				Prevalence Index = B/A =	1.3	
				Hydrophytic Vegetation Indicator	rs:	
				✓ 1 - Rapid Test for Hydrophytic	Vegetation	
				✓ 2 - Dominance Test is >50%		
				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>		
-	0%	= Total Cov		4 - Morphological Adaptations <sup>1</sup>		
erb Stratum (Plot size:5		- 10tai 00 <b>v</b>	Ci	data in Remarks or on a ser		
Typha latifolia	40	Yes	OBL	Problematic Hydrophytic Veget	ation (Expla	ın)
Juncus effusus	20	Yes	FACW	1		
Eleocharis acicularis	20	Yes	OBL	<sup>1</sup> Indicators of hydric soil and wetlan be present, unless disturbed or prol		must
				Definitions of Four Vegetation St		
				Tree – Woody plants, excluding vin more in diameter at breast height (I		
				height.	2211), 10gara	
				Sapling/Shrub – Woody plants, ex	cluding vino	s loss
				than 3 in. DBH and greater than 3.2		
				Hark All barbassaya (non wood)	\ mlanta rage	a ralla a a
				<b>Herb</b> – All herbaceous (non-woody of size, and woody plants less than		ardiess
20	80%	= Total Cov	er	<b>Woody vine</b> – All woody vines greatheight.	ater than 3.28	8 ft in
oody Vine Stratum (Plot size:)						
				Hydrophytic		
				Vegetation		
				Present? Yes	No	
		= Total Cov	er			

W12-W01

Sampling Point:

Profile Desc	ription: (Describe t	o the dept	h needed to docur	nent the i	ndicator	or confirm	the absence	of indicate	ors.)	
Depth	Matrix		Redo	x Features	3					
(inches)	Color (moist)	%	Color (moist)	. <u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>		Remarks	
0-6	2.5Y	85	7.5YR 3/4	15	C	M/PL	SC			
6-11	10YR 3/3	65	7.5YR 4/4	35	С	M	CL	Refused o	lue to rock fill	
						·				
<sup>1</sup> Type: C=Co	oncentration, D=Depl	etion. RM=	Reduced Matrix. MS	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: P	L=Pore Lini	ng, M=Matrix.	
Hydric Soil I			Tourse manny, m			<u> </u>	Indic	ators for P	oblematic Hy	dric Soils³:
Histosol			Dark Surface	(S7)			2	2 cm Muck (	A10) <b>(MLRA 1</b> 4	<b>17</b> )
	pipedon (A2)		Polyvalue Be		ce (S8) <b>(I</b>	MLRA 147,			Redox (A16)	•
Black His			Thin Dark Su					(MLRA 14	17, 148)	
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix (I	F2)		_ [	Piedmont Flo	oodplain Soils (	F19)
	l Layers (A5)		Depleted Ma	. ,				(MLRA 13		
	ck (A10) (LRR N)		Redox Dark	•	,				Material (TF2)	
	Below Dark Surface	(A11)	Depleted Dai						V Dark Surface	
	ark Surface (A12)	DD N	Redox Depre	•	•	I DD N	— (	Other (Expla	in in Remarks)	
	lucky Mineral (S1) <b>(L</b> <b>\ 147, 148)</b>	KK N,	Iron-Mangan MLRA 13		es (F12) (	LKK N,				
	eleyed Matrix (S4)		Umbric Surfa	-	MIRA 13	36 122)	3Inc	dicators of h	ydrophytic vege	etation and
	edox (S5)		Piedmont Flo						ology must be	
	Matrix (S6)			. Сар.а	()	(	-		bed or problem	
	ayer (if observed):									
Type:										
Depth (inc	ches).						Hydric Soi	I Present?	Yes	No
Remarks:			<del></del>				1,			
	to fill at 11 inches.									

Project/Site: Willow Grove EIS	City/County: Montgo	mery	_ Sampling Date:04/02/2013		
Applicant/Owner: U.S. Navy			Sampling Point: W12-U01		
	Section, Township, F				
Landform (hillslope, terrace, etc.): Man-made Berm			Slope (%): 5 - 10		
Subregion (LRR or MLRA): 148/LRRS Lat					
Are climatic / hydrologic conditions on the site typical f					
Are Vegetation, Soil, or Hydrology					
Are Vegetation, Soil, or Hydrology		needed, explain any answ			
SUMMARY OF FINDINGS – Attach site m					
		Todationo, transcott	, important routaros, otor		
Hydrophytic Vegetation Present? Yes	- No Is the Sample		_		
Hydric Soil Present? Yes	No V within a Wetl	and? Yes	No		
Wetland Hydrology Present? Yes	No				
HYDROLOGY					
Wetland Hydrology Indicators:			cators (minimum of two required)		
Primary Indicators (minimum of one is required; chec		Surface So			
	True Aquatic Plants (B14)		egetated Concave Surface (B8)		
	Hydrogen Sulfide Odor (C1)		atterns (B10)		
	Oxidized Rhizospheres on Living Ro				
	Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils		n Water Table (C2)		
	Thin Muck Surface (C7)		Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Stunted or Stressed Plants (D1)			
Iron Deposits (B5)	,		c Position (D2)		
Inundation Visible on Aerial Imagery (B7)		Shallow Aq			
Water-Stained Leaves (B9)			raphic Relief (D4)		
Aquatic Fauna (B13)		FAC-Neutra	al Test (D5)		
Field Observations:					
	_ Depth (inches):				
	_ Depth (inches):		.,		
Saturation Present? Yes No	_ Depth (inches): <b>V</b>	Netland Hydrology Prese	ent? Yes No		
Describe Recorded Data (stream gauge, monitoring	uwell, aerial photos, previous inspection	ns), if available:			
Remarks:					
On dry slope.					

	Absolute	Dominant	Indicator	Dominance Test worksheet:
ree Stratum (Plot size:30)	% Cover	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:0 (A)
				Total Number of Dominant Species Across All Strata:4 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC:0%(A/E
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
				OBL species0 x 1 =0
apling/Shrub Stratum (Plot size:15)		= Total Cov	er	FACW species0 x 2 =0
Acer saccharum	10	Yes	FACU	FAC species
Rubus armeniacus	10	YES	UPL	FACU species 40 x 4 = 160
				UPL species25 x 5 =125
				Column Totals: 65 (A) 285 (B
				Column Totals (A) (B
				Prevalence Index = B/A =4.4
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
 0.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
v	20%	= Total Cov	er	4 - Morphological Adaptations (Provide supporting
lerb Stratum (Plot size:)			·	data in Remarks or on a separate sheet)
Allium vineale	25	Yes	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Veronica filiformis	10	Yes	UPL	1 adicates of budgie call and watered budgets and accept
Berteroa incana	5	No	<u>UPL</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Taraxacum officinale	5	No	FACU	Definitions of Four Vegetation Strata:
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of 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.
0				Havb All barbassaya (non woody) planta regardless
1				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
2				
Voody Vine Stratum (Plot size:)		= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
-				Hydrophytic
·				Vegetation Present? Yes No ✓
		= Total Cov		Present? resNo
	0%			

OIL					Sampling Point:
		o the dep	th needed to document the indicator or confi	rm the absenc	e of indicators.)
Depth inches)	Matrix Color (moist)	%	Redox Features Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>	_ Texture	Remarks
0 - 16	10YR 3/3	100	Color (moist) /0 Type Loc	_ <u>rexture</u> L	No redox. Dry.
0 - 10	101103/3				- No redux. Bry.
					_
				_	
					-
				_	
					_
Type: C=Co	ncentration D=Denie	etion RM=	Reduced Matrix, MS=Masked Sand Grains.	<sup>2</sup> Location: F	PL=Pore Lining, M=Matrix.
ydric Soil Ir		otion, raivi	reduced Matrix, MC Masked Carla Grains.		cators for Problematic Hydric Soils <sup>3</sup> :
_ Histosol (			Dark Surface (S7)		2 cm Muck (A10) (MLRA 147)
	ipedon (A2)		Polyvalue Below Surface (S8) (MLRA 14		Coast Prairie Redox (A16)
_ Black His			Thin Dark Surface (S9) (MLRA 147, 148		(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Matrix (F3)		(MLRA 136, 147)
2 cm Mud	ck (A10) (LRR N)		Redox Dark Surface (F6)		Red Parent Material (TF2)
_ Depleted	Below Dark Surface	(A11)	Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
Thick Dar	rk Surface (A12)		Redox Depressions (F8)	_	Other (Explain in Remarks)
Sandy M	ucky Mineral (S1) <b>(Li</b>	RR N,	Iron-Manganese Masses (F12) (LRR N,		
	147, 148)		MLRA 136)		
	leyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)		dicators of hydrophytic vegetation and
	edox (S5)		Piedmont Floodplain Soils (F19) (MLRA	•	wetland hydrology must be present,
	Matrix (S6)				unless disturbed or problematic.
estrictive L	ayer (if observed):				
Туре:					.,
	hes):		<u></u>	Hydric So	il Present? Yes No
Depth (inc					

WETLAND ID: WW-W13

### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
yes no could not be determined because wetland extends beyond the ROW	Is the wetland:  directly abutting  adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection: Wetland is mapped along unnamed NHD stream. However, a defined bed and bank was not observed within survey area. Wetland does drain off base via culvert and drainage line D12 to the same NHD stream where bed and bank is present further down flow.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:  v yes  no  If yes, list ID: SS-Unnamed NHD with OF base (Use separate datasheet for each associated stream)  Approximate distance of wetland to stream (straight aerial feet): ~ 100 feet	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow  Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow  confined  other, explain: perennial to stream via

## **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		_ Sampling Date: _	04/06/2013	
Applicant/Owner: U.S. Navy							
Investigator(s): Z. Fink, J. Carlo			n, Township, Range:				
Landform (hillslope, terrace, etc.):					Slop	e (%): 0-2	
Subregion (LRR or MLRA): 148/L							
Soil Map Unit Name: Buckinghar	m silt loam 0-3% slopes		Long			1	
Are climatic / hydrologic conditions	s on the site typical for	this time of year? You	es No	(If no, explain in	Remarks.)		
Are Vegetation, Soil	or Hydrology	significantly disturb	ped? Are "Normal	l Circumstances"	present? Yes	/ No	
Are Vegetation, Soil							
SUMMARY OF FINDINGS						atures, etc.	
Hydrophytic Vegetation Present? Hydric Soil Present?	? Yes V	No	Is the Sampled Area within a Wetland?	Yes_	No		
Wetland Hydrology Present?	Yes	No					
LIVEROLOGY							
HYDROLOGY							
Wetland Hydrology Indicators		-11.4141-3			ators (minimum of t	wo required)	
Primary Indicators (minimum of o			344	Surface Soi		S f (D0)	
✓ Surface Water (A1)		rue Aquatic Plants (I			egetated Concave S	Surface (Bo)	
✓ High Water Table (A2)     ✓ Saturation (A3)		lydrogen Sulfide Odd	es on Living Roots (C3)	<u>✓</u> Drainage P			
Water Marks (B1)		Presence of Reduced			Water Table (C2)		
Sediment Deposits (B2)			n in Tilled Soils (C6)	Crayfish Bu			
Drift Deposits (B3)		hin Muck Surface (C			√isible on Aerial Ima	agery (C9)	
Algal Mat or Crust (B4)	<del></del>	other (Explain in Rem		Stunted or Stressed Plants (D1)			
Iron Deposits (B5)				✓ Geomorphic	c Position (D2)		
Inundation Visible on Aerial	Imagery (B7)			Shallow Aq	uitard (D3)		
Water-Stained Leaves (B9)					raphic Relief (D4)		
Aquatic Fauna (B13)				FAC-Neutra	al Test (D5)		
Field Observations:	_						
	res No □						
	Yes No						
Saturation Present? \(\) (includes capillary fringe)	res No	Depth (inches):	0-1 Wetland F	Hydrology Prese	ent? Yes	No	
Describe Recorded Data (stream	n gauge, monitoring we	ell, aerial photos, prev	vious inspections), if ava	ilable:			
Remarks:							
Saturated from surface to water	table. Plot adjacent to	drainage with flowin	g water.				

## **VEGETATION**

ee Stratum (Plot size:30)		Species?	Status	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:
anling/Shruh Stratum (Plot size: 30 )		= Total Cov	er er	X1
npling/Shrub Stratum (Plot size:30) Cornus alba	50	Yes	FACW	FACW species x 2 = 110 FAC species 15 x 3 = 45
Acer rubrum		Yes	FAC	FAC species
Quercus palustris	<del></del> 5	No	FACW	FACU species X4 =
			TACV	UPL species x 5 =
				Column Totals:(A)(B)
				Prevalence Index = B/A =2.6
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				✓ 2 - Dominance Test is >50%
				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
l		= Total Cov		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
erb Stratum (Plot size:5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
				Definitions of Four Vegetation offata.
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
				height.
				Carling/Chaule Weeds plants assoluding since less
				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.
	0%	= Total Cov	er -	<b>Woody vine</b> – All woody vines greater than 3.28 ft in
oody Vine Stratum (Plot size: 15		V	E46!!	height.
Lonicera morrowii		Yes	FACU	
				Hydrophytic
				Vegetation
				Present? Yes No
	20%	= Total Cov	er er	

W13-W01

Sampling Point:

SOIL

Profile Desc	ription: (Describe t	o the dept	h needed to docun	nent the i	ndicator	or confirm	the absence	e of indicate	ors.)	
Depth	Matrix		Redox	x Features	3					
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	<u>Texture</u>		Remarks	
0 - 3	7.5YR 3/4	100					L			
3 - 8	7.5YR 4/2	90	7.5YR 3/4	10			SL			
8-10	7.5YR 3/4	90	7.5YR 4/6	10			SC	_		
	7.011(0)4		7.011( 4/0		<u> </u>				4011 -1 1 1	
								refusal at	10" due to larg	e rocks
								_		
								_		
								_		
¹Type: C=Cc	ncentration, D=Depl	etion RM=	Reduced Matrix MS	=Masked	Sand Gr	ains	<sup>2</sup> Location: 1	- ———— Pl =Pore I ini	ng, M=Matrix.	
Hydric Soil I		Cuon, Min-	rteduced Matrix, Mc	-iviaskeu	Oand On	airis.			roblematic Hy	dric Soils <sup>3</sup> :
Histosol			Dark Surface	(S7)					A10) <b>(MLRA 1</b>	
	ipedon (A2)		Polyvalue Be		ce (S8) <b>(N</b>	/ILRA 147.	148)		e Redox (A16)	'''
Black His			Thin Dark Su					(MLRA 14		
_	n Sulfide (A4)		Loamy Gleye		•	· · · , · · · · ,			oodplain Soils (	(F19)
	Layers (A5)		Depleted Mat		,		_	(MLRA 1		,
	ck (A10) (LRR N)		Redox Dark S	. ,	6)				Material (TF2)	
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface	(F7)		_	Very Shallov	w Dark Surface	(TF12)
Thick Da	rk Surface (A12)		Redox Depre				_	Other (Expla	ain in Remarks)	
	ucky Mineral (S1) <b>(L</b>	RR N,	Iron-Mangane		es (F12) <b>(</b>	LRR N,				
	147, 148)		MLRA 130	-						
	leyed Matrix (S4)		Umbric Surfa			-			ydrophytic veg	
	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	-		rology must be	
	Matrix (S6)							unless distu	bed or problem	natic.
Restrictive L	ayer (if observed):									
Туре:										
Depth (inc	hes):						Hydric Sc	il Present?	Yes	No
Remarks:							•			
Rocks and gr	avel present and thro	oughout pro	ofile. Refusal at 10 i	nches due	e to large	rocks				
										l
										l
										l
										l
										l

Project/Site: Willow Grove EIS	3	City/C	County Montgomery		Sampling Date: _	04/06/2013
Applicant/Owner: U.S. Navy						
Investigator(s): Z. Fink, J. Car	rlo	Section	on, Township, Range:	<u>-</u>		
Landform (hillslope, terrace, et						e (%)· 0-2
Subregion (LRR or MLRA): 14	, -		•			, ,
Soil Map Unit Name: Bucking			Long			
Are climatic / hydrologic condi		un Albeita Airenta and Company O. M.				
• •	**	•		•	•	
Are Vegetation, Soil _						No
Are Vegetation, Soil _				xplain any answe	•	
SUMMARY OF FINDING	3S – Attach site m	ap showing sam	pling point location	ns, transects	, important fea	tures, etc.
Hydrophytic Vegetation Pres	ent? Yes	_ No	lo the Compled Area			
Hydric Soil Present?	Yes	_ No <b>✓</b>	Is the Sampled Area within a Wetland?	Yes	No	
Wetland Hydrology Present?	Yes	No	Widini a Wodana.			
Remarks: Plot is located in a forested a	area adiacent to PSS wet	land roughly 1 foot hid	ther in elevation than pair	ed plot W01.		
		and roughly recorns	grior in olo ranon inan pan	ou p.o		
HYDROLOGY						
Wetland Hydrology Indicat					ators (minimum of to	wo required)
Primary Indicators (minimum				Surface Soil	• ,	f (D0)
Surface Water (A1)		True Aquatic Plants (			getated Concave S	urface (B8)
High Water Table (A2)  Saturation (A3)		Hydrogen Sulfide Od		Drainage Pa Moss Trim L		
Water Marks (B1)		Presence of Reduced			Water Table (C2)	
Sediment Deposits (B2)		Recent Iron Reductio	, ,	Crayfish Bur		
Drift Deposits (B3)		Thin Muck Surface (C			isible on Aerial Ima	ngery (C9)
Algal Mat or Crust (B4)		Other (Explain in Rer			tressed Plants (D1)	
Iron Deposits (B5)	_	Caror (Explain in red	na no,		Position (D2)	,
Inundation Visible on Ae	erial Imagery (B7)			Shallow Aqu		
Water-Stained Leaves (I			•		aphic Relief (D4)	
Aquatic Fauna (B13)			•	FAC-Neutral		
Field Observations:						
Surface Water Present?	Yes No	Depth (inches):				
Water Table Present?	Yes No	Depth (inches):				
Saturation Present?	Yes No	Depth (inches):	0-3 Wetland H	ydrology Preser	nt? Yes <u> </u>	No
(includes capillary fringe)  Describe Recorded Data (str	eam gauge, monitoring v	vell, aerial photos, pre	vious inspections), if avail	lable:		
· ·		,	, ,			
Remarks:						
Saturated at the surface only	y, moisture decreasing wi	th depth.				

ee Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Status	Dominance Test worksheet:  Number of Dominant Species
Acer rubrum	10	Yes	FAC	That Are OBL, FACW, or FAC:3 (A)
Populos grandidentata	10	Yes	FACU	Total Number of Dominant
Salix fragilis		Yes	FAC	Species Across All Strata: 6 (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: (A/B
				Prevalence Index worksheet:
				Total % Cover of:  OBL species  Multiply by:  x 1 = 0
oling/Chruh Stratum (Diet eine: 15		= Total Cov	er	FACW species
oling/Shrub Stratum (Plot size:15 Juniperus virginiana	35	Yes	FACU	FAC species 40 x 3 = 120
Rosa multiflora		Yes	FACU	FACU species 65 x 4 = 260
Acer rubrum	10	No	FAC	UPL species
				Column Totals: (A) (B)
				Prevalence Index = B/A =3.6
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0 <sup>1</sup>
rb Stratum (Plot size:5)		= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)
)				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> 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) o
				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.
	0%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
ody Vine Stratum (Plot size: 30 )	10	Voc	EAC	Hoight.
Lonicera japonica		Yes	FAC	
				Hydrophytic
				Vegetation Present? Yes No ✓
		= Total Cov		Present? Yes No
	1070	= 10121 C07		

W13-U01

Sampling Point:

Depth	Matrix			K Features	1 . 2	<b>+</b> ·	5
inches)	Color (moist)	%	Color (moist)		pe <sup>1</sup> Loc <sup>2</sup>	<u>Texture</u>	<u>Remarks</u>
0-12	7.5YR	100				SCL	
			_				
							-
						-	-
							-
							<u> </u>
ype: C=Cc	ncentration, D=Depl	etion, RM=	Reduced Matrix, MS	=Masked Sand	d Grains.	<sup>2</sup> Location: P	PL=Pore Lining, M=Matrix.
dric Soil I	ndicators:						cators for Problematic Hydric Soils <sup>3</sup> :
_ Histosol	(A1)		Dark Surface	(S7)		:	2 cm Muck (A10) (MLRA 147)
_ Histic Ep	ipedon (A2)		Polyvalue Be	low Surface (S	B) <b>(MLRA 147</b> ,	148)	Coast Prairie Redox (A16)
_ Black His				rface (S9) <b>(ML</b> I		<del>_</del>	(MLRA 147, 148)
_ Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (F2)			Piedmont Floodplain Soils (F19)
_ Stratified	Layers (A5)		Depleted Mat	rix (F3)			(MLRA 136, 147)
	ck (A10) (LRR N)		Redox Dark S	Surface (F6)			Red Parent Material (TF2)
_ Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface (F7)			Very Shallow Dark Surface (TF12)
	rk Surface (A12)		Redox Depre			(	Other (Explain in Remarks)
	ucky Mineral (S1) <b>(L</b>	.RR N,		ese Masses (F´	12) <b>(LRR N</b> ,		
	147, 148)		MLRA 136			2	
	leyed Matrix (S4)			ce (F13) <b>(MLR</b>			dicators of hydrophytic vegetation and
	edox (S5)		Piedmont Flo	odplain Soils (F	F19) <b>(MLRA 1</b> 4	-	wetland hydrology must be present,
	Matrix (S6)						unless disturbed or problematic.
estrictive L	ayer (if observed):						
Type:							_
Depth (inc	hes):					Hydric Soi	il Present? Yes No 🛂
emarks:						ļ	

WETLAND ID: WW-W14

### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?  yes  no  could not be determined because wetland extends beyond the ROW	Wetland Association to Stream  Is the wetland: ☐ directly abutting ☑ adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection: The wetland system drains SW off base through culvert and drainage D15. The drainage continues SW to the gulf course and likely runs to a NHD mapped stream off base.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:  yes no If yes, list ID: SS-Unnamed NHD. (Use separate datasheet for each associated stream)  Approximate distance of wetland to stream (straight aerial feet): ~ 1000 feet	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow  Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow  confined other, explain:

## **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		_ Sampling Date: _	4/5/2013
Applicant/Owner: U.S. Navy						
Investigator(s): Z. Fink, J. Carlo			on, Township, Range:			
Landform (hillslope, terrace, etc.):					Slop	e (%): 1-3
Subregion (LRR or MLRA): 148/L						
Soil Map Unit Name: CROTON			Long			
Are climatic / hydrologic condition						
* · ·	• •	•			•	/ Na
Are Vegetation, Soil						No
Are Vegetation, Soil					vers in Remarks.)	
SUMMARY OF FINDINGS	- Attach site ma	ap showing sam	pling point location	ons, transects	s, important fea	itures, etc.
Hydrophytic Vegetation Present	? Yes <u>′</u>	No	Is the Compled Area			
Hydric Soil Present?	Yes 🗸	No	Is the Sampled Area within a Wetland?	Yes 🗸	, No	
Wetland Hydrology Present?  Remarks:	Yes	No				
HYDROLOGY						
Wetland Hydrology Indicators					cators (minimum of t	wo required)
Primary Indicators (minimum of		all that apply) True Aquatic Plants (E		Surface So		
Surface Water (A1)	Sparsely V _✓ Drainage P	egetated Concave S	urface (B8)			
High Water Table (A2)						
Saturation (A3) Water Marks (B1)		Oxidized Rhizosphere Presence of Reduced			Lines (B16) n Water Table (C2)	
Water Marks (B1) Sediment Deposits (B2)		Recent Iron Reduction			urrows (C8)	
Drift Deposits (B3)		Thin Muck Surface (C			Visible on Aerial Ima	igery (C9)
Algal Mat or Crust (B4)	<del></del>	Other (Explain in Rem		·	Stressed Plants (D1	
Iron Deposits (B5)	<del></del>	( )	,	<u>✓</u> Geomorphi		,
Inundation Visible on Aerial	Imagery (B7)			Shallow Aq		
Water-Stained Leaves (B9)				Microtopog	raphic Relief (D4)	
Aquatic Fauna (B13)				FAC-Neutra	al Test (D5)	
Field Observations:			.1			
	Yes No					
	Yes No			le de la composición		NI-
Saturation Present? (includes capillary fringe)	Yes No	Depth (inches):	Wetland I	Hydrology Prese	ent? Yes	No
Describe Recorded Data (stream	n gauge, monitoring w	ell, aerial photos, prev	vious inspections), if ava	ailable:		
Remarks: Saturated from surface to water	r table.					

### W14-W01 VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point: \_ Absolute Dominant Indicator **Dominance Test worksheet:** 30 Tree Stratum (Plot size: % Cover Species? Status **Number of Dominant Species** That Are OBL, FACW, or FAC: \_\_\_ (A) **Total Number of Dominant** 3 (B) Species Across All Strata: Percent of Dominant Species 100% That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: <sup>5</sup> \_\_\_ x 1 = \_ OBL species 0% = Total Cover 95\_\_\_ x 2 = \_ 190 Sapling/Shrub Stratum (Plot size: \_\_\_\_\_30 FACW species 0 0 1. Cornus alba 15 **FACW** FAC species x 3 = 0 \_\_\_ x 4 = \_ 2. Salix fragilis 0 5 Yes FAC FACU species 0 0 UPL species x 5 = 100\_\_\_\_(A) 195 Column Totals: Prevalence Index = B/A = \_\_\_ **Hydrophytic Vegetation Indicators:** \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% ✓ 3 - Prevalence Index is ≤3.0¹ \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting 20% = Total Cover data in Remarks or on a separate sheet) Herb Stratum (Plot size: \_\_\_\_\_\_5 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. Onoclea sensibilis 80 **FACW** Yes 2. Carex stricta No OBL <sup>1</sup>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 85% = Total Cover Woody Vine Stratum (Plot size: \_\_\_\_\_\_) Hydrophytic Vegetation Yes V No Present? Remarks: (Include photo numbers here or on a separate sheet.) C. alba coverage is much thicker in other areas within flags 1-46 NE of the lake/pond.

W14-W01

SOIL

Sampling Point:

7-9 10Yl 9-15 7.5Y	R 4/2 (1) R 4/6 (1) R 4/2 (1) R 4/2 (1) R 4/2 (1)	92	7.5YR 4/4 7.5YR 4/6 7.5YR 4/6	% 8 40 25	C C	M	SC L SL SCL		Remarks	
7-9 10YI 9-15 7.5Y 15-16 10YI  Type: C=Concentration lydric Soil Indicators Histosol (A1) Histic Epipedon (A2)	R 4/2 (1) R 4/6 1 R 4/2 (1) R 5/2 (1	60 00 75	7.5YR 4/4 7.5YR 4/6	40	<u>C</u>	M	L SL			
9-15 7.5Y 15-16 10YI  Type: C=Concentration ydric Soil Indicators Histosol (A1) Histic Epipedon (A2)	R 4/6 1	75	7.5YR 4/6				SL			
ype: C=Concentration/dric Soil Indicators Histosol (A1) Histic Epipedon (A2)	n, D=Depletion	75		25	C	M				
ype: C=Concentratio rdric Soil Indicators Histosol (A1) Histic Epipedon (A2)	n, D=Depletion			25	C	M	SCL			
ydric Soil Indicators _ Histosol (A1) _ Histic Epipedon (A2	:	n, RM=Red	uced Matrix, MS							
rdric Soil Indicators _ Histosol (A1) _ Histic Epipedon (A2	:	n, RM=Red	uced Matrix, MS							
rdric Soil Indicators _ Histosol (A1) _ Histic Epipedon (A2	:	n, RM=Red	uced Matrix, M			·				
ydric Soil Indicators _ Histosol (A1) _ Histic Epipedon (A2	:	n, RM=Red	uced Matrix, MS	· —— -						
rdric Soil Indicators _ Histosol (A1) _ Histic Epipedon (A2	:	n, RM=Red	uced Matrix, MS	· —— -						
rdric Soil Indicators _ Histosol (A1) _ Histic Epipedon (A2	:	n, RM=Red	uced Matrix, MS							
rdric Soil Indicators _ Histosol (A1) _ Histic Epipedon (A2	:	n, RM=Red	uced Matrix, MS							
rdric Soil Indicators _ Histosol (A1) _ Histic Epipedon (A2	:	n, RM=Red	uced Matrix, MS							
dric Soil Indicators Histosol (A1) Histic Epipedon (A2	:	i, ixivi–ixeu	uceu mainx, m	S-Mackad S	Sand Grain		Location: B	I -Doro Linir	ng, M=Matrix.	
Histosol (A1) Histic Epipedon (A2				o-iviaskeu c	ballu Glali	15.			oblematic H	vdric Soils <sup>3</sup>
Histic Epipedon (A			_ Dark Surface	(S7)					A10) <b>(MLRA</b>	
	2)	_	_ Polyvalue Be		(S8) <b>(ML</b>	RA 147, 1			Redox (A16	-
	,	_	_ Thin Dark Su				-, <u> </u>	(MLRA 14		•
Hydrogen Sulfide (	A4)		_ _ Loamy Gleye			,	!	-	odplain Soils	(F19)
Stratified Layers (A	5)		Depleted Ma	trix (F3)				(MLRA 13	6, 147)	
2 cm Muck (A10) (I	•	_	_ Redox Dark						/laterial (TF2	
Depleted Below Da			_ Depleted Dai	•	•				Dark Surfac	
Thick Dark Surface		. –	_ Redox Depre				— '	Other (Expla	in in Remark	s)
Sandy Mucky Mine		N, _	_ Iron-Mangan		s (F12) <b>(LF</b>	RR N,				
MLRA 147, 148) Sandy Gleyed Mate			MLRA 13 Umbric Surfa		II DA 126	122\	3 <sub>ln</sub>	dicators of b	ydrophytic ve	actation and
_ Sandy Gleyed Mati _ Sandy Redox (S5)	IX (34)	_	_ Piedmont Flo			-			ology must b	
Stripped Matrix (S6	;)	_	_ 1 10011101111110	ouplain ou	13 (1 13) (11	ILIXA 140	-		ped or proble	
estrictive Layer (if o	•									
_	,									
Depth (inches):							Hydric So	I Present?	Yes	No
marks:							.,			

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date:4/6/2013
Applicant/Owner: U.S. Navy			Sampling Point: W14-W02
	Section, Township, Range		
Landform (hillslope, terrace, etc.): Depression (Beau			Slone (%): 0-2
Subregion (LRR or MLRA): 148/LRRS La			
Soil Map Unit Name: Penn-Lansdale complex 8-15	% slopes	NWI classif	fication: PFO
Are climatic / hydrologic conditions on the site typical			
Are Vegetation, Soil, or Hydrology			
Are Vegetation, Soil, or Hydrology SUMMARY OF FINDINGS - Attach site			
	, No	·	
Hydric Soil Present? Yes	, Li lo uno campica ra		′ No
Wetland Hydrology Present?	, No within a Wetland?	Yes	NO
Plot located in SW portion of wetland in forested, flo	oded area. No paired UU2 plot. Ponded wa	ater in this area is du	e to beaver activity.
HYDROLOGY			
Wetland Hydrology Indicators:			cators (minimum of two required)
Primary Indicators (minimum of one is required; che		Surface So	
Surface Water (A1)	_ True Aquatic Plants (B14)		egetated Concave Surface (B8)
<u> </u>	✓ Hydrogen Sulfide Odor (C1)	<u>✓</u> Drainage P	
	<ul> <li>Oxidized Rhizospheres on Living Roots (</li> <li>Presence of Reduced Iron (C4)</li> </ul>		Lines (B16)
	<ul><li>Recent Iron Reduction in Tilled Soils (C6)</li></ul>		n Water Table (C2) urrows (C8)
	Thin Muck Surface (C7)		Visible on Aerial Imagery (C9)
	_ Other (Explain in Remarks)	<del></del>	Stressed Plants (D1)
Iron Deposits (B5)	,	<u>✓</u> Geomorphi	
Inundation Visible on Aerial Imagery (B7)		Shallow Aq	
Water-Stained Leaves (B9)		Microtopog	raphic Relief (D4)
<u>✓</u> Aquatic Fauna (B13)		FAC-Neutra	al Test (D5)
Field Observations:			
	Depth (inches):1		
	Depth (inches):3		
Saturation Present? Yes No (includes capillary fringe)	Depth (inches):0 Wetla	nd Hydrology Prese	ent? Yes V No No
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspections), i	f available:	
Remarks:			
Saturated surface to water table.			
Surface water present adjacent to plot at 1"			
Aquatic Fauna-tadpole			

Absolute	Dominant		Dominance Test worksheet:	
<u>% Cover</u> 70	Species? Yes	Status FAC	Number of Dominant Species That Are OBL_EACW_or EAC:  3	(A)
10	No	FACW	mat Are OBE, I ACW, OF I AC.	(^)
	No	FACU	Total Number of Dominant Species Across All Strata: 4	(B)
			·	(5)
			Percent of Dominant Species That Are ORL FACW or FAC: 75%	%(A/E
			marAre obc, r Aow, or r Ac.	(/\/L
			Prevalence Index worksheet:	
			Total % Cover of: Multiply	
85%	= Total Cov	er	Obt species x i =	2
,			TACVI species X2 =	22
			x3 =	255
	Yes	FAC	1 ACO species X4 =	80
			UPL species	0
			Column Totals: 118 (A)	359 (B
			Prevalence Index = R/A =	3
				ation
				ation
			l <del>-</del>	
			I —	ide sunnortir
	= Total Cov	er	data in Remarks or on a separate	
1	No	OBI	Problematic Hydrophytic Vegetation <sup>1</sup>	(Explain)
			<sup>1</sup> Indicators of hydric soil and wetland hydr	
			<u> </u>	tic.
			Definitions of Four Vegetation Strata:	
			Tree – Woody plants, excluding vines, 3 in	
			0 \ "	regardless o
			neight.	
			Sapling/Shrub – Woody plants, excluding	
			than 3 in. DBH and greater than 3.26 it (1	m) tan.
			Herb – All herbaceous (non-woody) plants	
			of size, and woody plants less than 3.28 ft	t tall.
	= Total Cov	er	Woody vine – All woody vines greater that	an 3.28 ft in
	= Total Cov		<b>Woody vine</b> – All woody vines greater that height.	an 3.28 ft in
	= Total Cov Yes	er FAC		an 3.28 ft in
3%	Yes			an 3.28 ft in
<u>3%</u> 5	Yes			an 3.28 ft in
<u>3%</u> 5	Yes		height.	an 3.28 ft in
5	Yes		height.  Hydrophytic Vegetation	
5	Yes		height.  Hydrophytic	
	70 10 5 85% ) 15 10	70 Yes 10 No 10 No 5 No  85% = Total Cov 15 Yes 10 Yes  10 No 1 No 1 No	70 Yes FAC  10 No FACW  5 No FACU  85% = Total Cover  15 Yes FACU  10 Yes FAC  11 No OBL  1 No OBL  1 No FACW	70

W14-W02

Color (moist)	Depth	Matrix	0′		x Features		1 - 2	<b>T</b> 1	D
4-11									Remarks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Thick of the concentration of the concentrati	0-4	10YR 4/2	85	7.5YR 3/4			M/PL	SL	
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  ydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Thin Dark Surface (S9) (MLRA 147, 148)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (MLRA 147, 148)  Peletrad Matrix (F3)  Redox Dark Surface (F6)  Depleted Below Dark Surface (A11)  Depleted Dark Surface (F7)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 146)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Sestrictive Layer (if observed):  Type:  Type:  Iron-Manganese Masses (F19) (MLRA 148)  Sandy Mucky (if observed):  Type:  Iron-Manganese Masses (F19) (MLRA 148)  Sandy Mucky (if observed):  Type:  Iron-Manganese Masses (F19) (MLRA 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  wetland hydrology must be prese unless disturbed or problematic.	4-11	10YR 4/2	95	7.5YR 3/4	5	C	M	CL	
Histosol (A1)	11-16	10YR 4/2	85	10YR 4/4	15	С	M	CL	
Histosol (A1)									
Histosol (A1)									
Histosol (A1)									
dric Soil Indicators:Indicators for Problematic Hydric Street Hydric Street Hydric Street Hydric Street Hydric Street Hydric Street Hydric Hydric Street Hydric Hydric Street Hydric Hydrogen Street Hydric H									
Indicators for Problematic Hydric Structure Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Below Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Stripped Matrix (S4)  Stripped Matrix (S6)  Stripped Matrix (S6)  Mindicators for Problematic Hydric Structure Soil (MLRA 147, 148)  Loamy Gleyed Matrix (S6)  Depletate Gelow Surface (S8) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Merch 147, 148)  Depleted Matrix (F3)  Merch 147, 148)  Depleted Dark Surface (F6)  Depleted Dark Surface (F7)  Tothe Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  Sandy Redox (S5)  Depleted Matrix (S4)  Depleted Dark Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Type:  Type:									
dric Soil Indicators:Indicators for Problematic Hydric Street Hydric Street Hydric Street Hydric Street Hydric Street Hydric Street Hydric Hydric Street Hydric Hydric Street Hydric Hydrogen Street Hydric H									
Indicators for Problematic Hydric Structure Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Below Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Stripped Matrix (S4)  Stripped Matrix (S6)  Stripped Matrix (S6)  Mindicators for Problematic Hydric Structure Soil (MLRA 147, 148)  Loamy Gleyed Matrix (S6)  Depletate Gelow Surface (S8) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Merch 147, 148)  Depleted Matrix (F3)  Merch 147, 148)  Depleted Dark Surface (F6)  Depleted Dark Surface (F7)  Tothe Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  Sandy Redox (S5)  Depleted Matrix (S4)  Depleted Dark Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Type:  Type:									
Indicators for Problematic Hydric Structure Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Below Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Stripped Matrix (S4)  Stripped Matrix (S6)  Stripped Matrix (S6)  Mindicators for Problematic Hydric Structure Soil (MLRA 147, 148)  Loamy Gleyed Matrix (S6)  Depletate Gelow Surface (S8) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Merch 147, 148)  Depleted Matrix (F3)  Merch 147, 148)  Depleted Dark Surface (F6)  Depleted Dark Surface (F7)  Tothe Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  Sandy Redox (S5)  Depleted Matrix (S4)  Depleted Dark Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Type:  Type:									
Histosol (A1)									
dric Soil Indicators:       Indicators for Problematic Hydric Strictive Layer (if observed):         Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)       2 cm Muck (A10) (MLRA 147)	pe: C=Co	oncentration, D=Depl	letion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: Pl	L=Pore Lining, M=Matrix.
Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F3) 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) Strictive Layer (if observed): Type:  Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148)  Strictive Layer (if observed): Type:								Indic	ators for Problematic Hydric Soils <sup>5</sup>
Black Histic (A3)	Histosol (	(A1)		Dark Surface	(S7)			2	cm Muck (A10) <b>(MLRA 147)</b>
Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) 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) Strictive Layer (if observed): Type:  Loamy Gleyed Matrix (F2) Depleted Matrix (F2) MRCRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Cher (Explain in Remarks)  MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148)  Strictive Layer (if observed):  Type:  —— Piedmont Floodplain Soils (F19)  MLRA 136, 147)  —— Red Parent Material (TF2)  —— Very Shallow Dark Surface (TF12)  —— Other (Explain in Remarks)  SIndicators of hydrophytic vegetation wetland hydrology must be prese unless disturbed or problematic.	Histic Ep	ipedon (A2)		Polyvalue Be	low Surfac	ce (S8) <b>(N</b>	ILRA 147	, 148) (	Coast Prairie Redox (A16)
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)  Strictive Layer (if observed):  Type:		` '				-	147, 148)		
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)  Strictive Layer (if observed):  Type:		, ,				F2)		F	
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) Strictive Layer (if observed):  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)  "Very Shallow Dark Surface (TF12) "Other (Explain in Remarks)  "Indicators of hydrophytic vegetation wetland hydrology must be prese unless disturbed or problematic.  "Indicators of hydrophytic vegetation wetland hydrology must be prese unless disturbed or problematic.								_	
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Strictive Layer (if observed):  Type:			- (0.44)						• • •
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Strictive Layer (if observed):  Type:  Iron-Manganese Masses (F12) (LRR N, MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  wetland hydrology must be prese unless disturbed or problematic.			e (A11)						
MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Stripped Matrix (S6)  MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  wetland hydrology must be prese unless disturbed or problematic.  Type:			DD N		•	•	I DD N		otner (Explain in Remarks)
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)  Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be prese unless disturbed or problematic.  Strictive Layer (if observed):  Type:	-		-NN IN,			55 (1 12 <i>)</i> (	LKK N,		
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be prese unless disturbed or problematic.  Strictive Layer (if observed):  Type:						MLRA 13	6. 122)	<sup>3</sup> Inc	licators of hydrophytic vegetation and
_ Stripped Matrix (S6) unless disturbed or problematic.  estrictive Layer (if observed):  Type:							-		
Туре:				<del></del>	·	,	`	-	
···	Stripped	Matrix (S6)						ч	mode dictarbed of problematic.
								1	moco dictarbod or problematic.
Depth (inches): No	estrictive L								most distallists of problematic.
	estrictive L Type:	ayer (if observed):							
	ictive L pe: epth (inc	ayer (if observed):		_					
	strictive L Type: Depth (inc	ayer (if observed):							
	strictive L Type: Depth (inc	ayer (if observed):		_					
	Strictive L Type: Depth (inc	ayer (if observed):							
	Strictive L Type: Depth (inc	ayer (if observed):							
	strictive L Type: Depth (inc	ayer (if observed):		_					
	strictive L Type: Depth (inc	ayer (if observed):							
	strictive L Type: Depth (inc	ayer (if observed):							
	strictive L Type: Depth (inc	ayer (if observed):							
	Strictive L Type: Depth (inc	ayer (if observed):							
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	strictive L Type: Depth (inc	ayer (if observed):							
	strictive L Type: Depth (inc	ayer (if observed):							
	strictive L Type: Depth (inc	ayer (if observed):							
	estrictive L Type: Depth (inc	ayer (if observed):							
	Type: Depth (inc	ayer (if observed):							
	Type: Depth (inc	ayer (if observed):							
	estrictive L Type:	ayer (if observed):							
	Type: Depth (inc	ayer (if observed):							
	estrictive L Type: Depth (inc	ayer (if observed):							
	estrictive L Type: Depth (inc	ayer (if observed):							
	strictive L Type: Depth (inc	ayer (if observed):							

Project/Site: Willow Grove EIS	<b>;</b>	City/C	ounty: Montgomery		Sampling Date: _	04/05/2013
Applicant/Owner: U.S. Navy						
Investigator(s): Z. Fink, J. Car	lo	Section				
Landform (hillslope, terrace, et					Slop	e (%): <sup>2-5</sup>
Subregion (LRR or MLRA): 14						
Soil Map Unit Name: Croton		3	Long			•
Are climatic / hydrologic condit						/
Are Vegetation, Soil						No
Are Vegetation, Soil				explain any answe		
SUMMARY OF FINDING	S – Attach site	map snowing sam	pling point location	ons, transects	, important fea	itures, etc.
Hydrophytic Vegetation Prese		✓ No	Is the Sampled Area			
Hydric Soil Present?	Yes	No	within a Wetland?	Yes	No	
Wetland Hydrology Present? Remarks:	Yes	No				
Plot is located on a natural be	am associated with a	a large wettariu Swale. Fi	ot is located foughly 2 te	eet riighei iif elevat	ion than wettand pi	Oi.
HYDROLOGY						
Wetland Hydrology Indicate				Secondary Indica	ators (minimum of t	wo required)
Primary Indicators (minimum				Surface Soil	` '	
Surface Water (A1)		True Aquatic Plants (			getated Concave S	urface (B8)
High Water Table (A2) Saturation (A3)	_	Hydrogen Sulfide Od		Drainage Pa		
Water Marks (B1)		<ul><li>Oxidized Rhizosphere</li><li>Presence of Reduced</li></ul>			Water Table (C2)	
Sediment Deposits (B2)	_	Recent Iron Reductio	, ,	Crayfish Bur		
Drift Deposits (B3)		Thin Muck Surface (C			isible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)		Other (Explain in Ren	narks)	Stunted or S	tressed Plants (D1	)
Iron Deposits (B5)				Geomorphic	Position (D2)	
Inundation Visible on Ae				Shallow Aqu	, ,	
Water-Stained Leaves (E	39)				aphic Relief (D4)	
Aquatic Fauna (B13)				FAC-Neutral	Test (D5)	
Field Observations:	Man Na (	A Danish (Salahara)				
Surface Water Present? Water Table Present?		Depth (inches): Depth (inches):	16			
Saturation Present?		Depth (inches): 0-2		Hydrology Preser	at? Voc	No
(includes capillary fringe)					it: 1es	NO
Describe Recorded Data (stre	eam gauge, monitorir	ng well, aerial photos, pre	vious inspections), if ava	ailable:		
Remarks: Top 0-2 near saturation. Mo	isture decreases with	n denth until water table a	t 16 inches			
Top o 2 fical saturation. Wo	istare accreases with	r deptir dritti water table a	t to mones.			

Acer rubrum	00	Absolute	Dominant	Indicator	Dominance Test worksheet:
Salix fragilis   35   Yes   FAC   Total Number of Dominant Species Across All Strata:   7					
Total Number of Lornmant   7	Salix fragilis	35	Yes	FAC	That Ale OBE, I AOW, OI I Ao (A)
Percent of Dominant Species   That Are OBL, FACW, or FAC:   71.43%					1 7
Prevalence Index worksheet:					Species Across Air Strata (b)
Prevalence Index worksheet:   Total % Cover of.   Multiply by.					
Prevalence index worksheet:   Total % Cover of					That Are OBL, FACW, or FAC: (A/E
Claim   Cover   Claim   Claim   Cover   Claim   Clai					Prevalence Index worksheet:
Septime   Stratum   (Plot size:   15   )					Total % Cover of: Multiply by:
FACW species   25   x2 =   50	-	000/			
Comusabla	anling/Shrub Stratum (Plot size: 15		= Total Cov	er	05 50
Acer rubrum	Cornus alba	25	Yes	FACW	00 040
Rosa multiflora					05
Column Totals: 130 (A) 390  Prevalence Index = B/A = 3  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  50% = Total Cover  15					
Prevalence Index = B/A = 3   Hydrophytic Vegetation Indicators:   1 - Rapid Test for Hydrophytic Vegetation     2 - Dominance Test is >50%   2 - Dominance Test is >50%     3 - Prevalence Index is ≤3.0   4 - Morphological Adaptations   (Provide suppraints)     5 - Problematic Hydrophytic Vegetation   (Explaints)     1 - Problematic Hydrophytic Vegetation   (Explaints)     1 - Problematic Hydrophytic Vegetation   (Provide suppraints)     5 - Problematic					100 000
Hydrophytic Vegetation Indicators:    1 - Rapid Test for Hydrophytic Vegetation					Column Totals:(A)(B
Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supptata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  1 - Morphological Adaptations¹ (Provide supptata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  1 - Morphological Adaptations¹ (Provide supptata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  1 - Morphological Adaptations¹ (Provide supptata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  1 - Morphological Adaptations¹ (Provide supptata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  1 - Morphological Adaptations¹ (Provide supptata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  1 - Morphological Adaptations¹ (Provide supptata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  1 - Morphological Adaptations¹ (Provide supptata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  1 - Morphological Adaptations¹ (Provide supptata in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  1 - Morphological Adaptations¹ (Provide supptation)  2 - Morphological Adaptations¹ (Provide supptation)  3 - Morphological Adaptations¹ (Provide supptation)  4 - Morphological Adaptations in Amorphological Adaptat					Prevalence Index = B/A = 3
1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide sup data in Remarks or on a separate sheet)  4 - Morphological Adaptations¹ (Provide sup data in Remarks or on a separate sheet)  4 - Problematic Hydrophytic Vegetation¹ (Explain Stratum or in Indicators of hydric soil and wetland hydrology metals be present, unless disturbed or problematic.  5 - Definitions of Four Vegetation Strata:  Tree − Woody plants, excluding vines, 3 in. (7.6 cmore in diameter at breast height (DBH), regardle height.  5 - All herbaceous (non-woody) plants, regardle height.  5 - All herbaceous (non-woody) plants, regardle size, and woody plants less than 3.28 ft (1 m) tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 - Yes FAC 5 - FA					
2 - Dominance Test is >50%					
Some stratum (Plot size: 5   15   Yes   FACU	·				
Some   Total Cover   Some   Total Cover   Some					1 <del></del>
Sapling/Shrub - Woody plants, excluding vines, 3 in. 0.5	0				
Allium vineale  15 Yes FACU  — Problematic Hydrophytic Vegetation (Explain Allium vineale)  — Problematic Hydrophytic Vegetation (Itexplain Allium vineale)  — Problematic Hydrophytic Vegetation (Itexplain Vindicators of hydric soil and wetland hydrology method by the present, unless disturbed or problematic.  — Definitions of Four Vegetation Strata:  Tree — Woody plants, excluding vines, 3 in. (7.6 of more in diameter at breast height (DBH), regardle height.  — Sapling/Shrub — Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica	E	50%	= Total Cov	er	data in Remarks or on a separate sheet)
Tree		45	V	E4011	1
Indicators of hydric soil and wetland hydrology may be present, unless disturbed or problematic.	Allium vineale		Yes	FACU	
be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 of more in diameter at breast height (DBH), regardle height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 Yes FAC  Hydrophytic Vegetation Present? Yes No	2				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Tree – Woody plants, excluding vines, 3 in. (7.6 of more in diameter at breast height (DBH), regardle height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regar of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size:	3				
Tree – Woody plants, excluding vines, 3 in. (7.6 of more in diameter at breast height (DBH), regardle height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regar of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica	l				Definitions of Four Vegetation Strata:
more in diameter at breast height (DBH), regardle height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regar of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size:	5				
height.  Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regar of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 Yes FAC  Hydrophytic Vegetation Present? Yes No	i				
Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regar of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 Yes FAC  Hydrophytic Vegetation Present? Yes No	·				
than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regar of size, and woody plants less than 3.28 ft tall.  Woody Vine Stratum (Plot size: 30 )  Lonicera japonica 5 Yes FAC  Hydrophytic Vegetation Present? Yes No					One line (Ohanda - Manda alamba anabadian aira alamba
0	)				
1	0.				
2					Herb – All herbaceous (non-woody) plants, regardless
15%   = Total Cover   Woody vine   All woody vines greater than 3.28   height.					of size, and woody plants less than 3.26 it tall.
Voody Vine Stratum (Plot size: 30 ) Lonicera japonica 5 Yes FAC  Hydrophytic Vegetation Present? Yes ✓ No		15%	= Total Cov	er	Woody vine - All woody vines greater than 3.28 ft in
Hydrophytic Vegetation Present? Yes Volume No	(1 lot olzo:		10101 001	OI .	height.
Hydrophytic Vegetation Present? Yes No	Lonicera japonica	5	Yes	FAC	
Hydrophytic Vegetation Present? Yes No					
Hydrophytic Vegetation Present? Yes No					
5					
= Total Cover					1 •
	·	5%	- Total Cov		100 <u> </u>
			- Total Cov	еі	
Approximately 75% bare ground/leaf litter in herb stratum.	Remarks: (Include photo numbers here or on a separa Approximately 75% bare ground/leaf litter in herb strat				

W14-U01

Sampling Point:

Profile Desc	ription: (Describe t	o the dept	h needed to docun	nent the ir	ndicator	or confirm	the abs	ence of indicato	ors.)		
Depth	Matrix		Redo	x Features	3						
(inches)	Color (moist)	%	Color (moist)	<u> </u>	Type <sup>1</sup>	_Loc <sup>2</sup>	Textu		Remarks		
0-2	10YR 4/2	93	7.5YR 3/4	7	C	M	SC				
2-16	10YR 4/3	100					SC				
1- 0.0				<del></del> .			2				
	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.		n: PL=Pore Linir		udula Cal	1-3.
Hydric Soil I			5 1 0 1	(07)			'	ndicators for Pr			15 :
Histosol			Dark Surface	. ,	· (CO) (*	ALDA 447	440\		A10) <b>(MLRA</b> 1	•	
Histic Ep	nipedon (A2)		Polyvalue Be Thin Dark Su				146)	Coast Prairie (MLRA 14	e Redox (A16)	1	
	stic (A3) n Sulfide (A4)		Loamy Gleye		-	177, 140)			oodplain Soils	(F19)	
	I Layers (A5)		Depleted Mar		2)		-	(MLRA 13	•	(1 13)	
	ck (A10) (LRR N)		Redox Dark		6)			-	Material (TF2)		
	Below Dark Surface	e (A11)	Depleted Dar				-		/ Dark Surface		
	rk Surface (A12)	` ,	Redox Depre				_		in in Remarks		
Sandy M	lucky Mineral (S1) <b>(L</b>	RR N,	Iron-Mangan	ese Masse	s (F12) <b>(</b>	LRR N,					
	\ 147, 148)		MLRA 13	6)							
	leyed Matrix (S4)		Umbric Surfa					<sup>3</sup> Indicators of h			
	edox (S5)		Piedmont Flo	odplain So	oils (F19)	(MLRA 14	8)		ology must be		,
	Matrix (S6)							unless distur	bed or proble	natic.	
Restrictive L	ayer (if observed):										
Type:			<u> </u>								
Depth (inc	ches):		<del></del>				Hydric	Soil Present?	Yes	_ No	<u> </u>
Remarks:		50									
does not mee	et thickness requirem	ents for F3	•								

WETI	AND	ID.	$\mathbf{W}\mathbf{W}_{-}$	W15

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?  yes  x no  could not be determined because wetland extends beyond the ROW	Wetland Association to Stream  Is the wetland:     directly abutting     adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  PEM. The wetland is located in a depression between airstrips.  The wetland is fed by seep H02. Ephemeral discrete drainage from the wetland leads to storm drain D17.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:  yes   X  no  If yes, list ID: SS	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow  Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow
	confined other, explain:

## **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		Sampling Date: _	05/03/2013
Applicant/Owner: U.S. Navy			,		Sampling Point	
Investigator(s): Z. Fink / R. Wardw	/ell	Section	on, Township, Range: H			
Landform (hillslope, terrace, etc.):						ne (%)· 1-2
Subregion (LRR or MLRA): 148 / S						
Soil Map Unit Name: Udorthents,						1
Are climatic / hydrologic conditions	on the site typical for	this time of year? You	es No	(If no, explain in R	emarks.)	
Are Vegetation, Soil						No
Are Vegetation, Soil				explain any answe		
SUMMARY OF FINDINGS	- Attach site ma	p showing sam	pling point locatio	ns, transects	, important fea	atures, etc.
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes Yes	No	Is the Sampled Area within a Wetland?	Yes 🗸	No	
Wetland Hydrology Present?	Yes	No				
airfield.						
HYDROLOGY						
Wetland Hydrology Indicators:					ators (minimum of t	wo required)
Primary Indicators (minimum of o				Surface Soil		(DO)
Surface Water (A1) High Water Table (A2)		rue Aquatic Plants (I			getated Concave S	Surface (Bo)
<ul><li> High Water Table (A2)</li><li>_✓ Saturation (A3)</li></ul>		lydrogen Sulfide Odd	es on Living Roots (C3)	Drainage Pa Moss Trim L		
Water Marks (B1)		resence of Reduced			Water Table (C2)	
Sediment Deposits (B2)			n in Tilled Soils (C6)	Crayfish Bur		
Drift Deposits (B3)		hin Muck Surface (C			isible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)		Other (Explain in Rem			tressed Plants (D1	
Iron Deposits (B5)		, .	,	<u>✓</u> Geomorphic		,
Inundation Visible on Aerial I	magery (B7)			Shallow Aqu	itard (D3)	
Water-Stained Leaves (B9)				Microtopogra		
Aquatic Fauna (B13)				FAC-Neutral	Test (D5)	
Field Observations:						
	′es No I					
	res No I		l l			
Saturation Present? You (includes capillary fringe)	res No I	Depth (inches):	0-2" Wetland H	Hydrology Preser	nt? Yes	No
Describe Recorded Data (stream	gauge, monitoring we	ll, aerial photos, prev	vious inspections), if ava	ilable:		
Remarks:						
Inundated areas were observed i	in the interior of the we	etland away from this	s plot.			

20	Absolute	Dominant		Dominance Test worksheet:
ree Stratum(Plot size:30) 		Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
				Total Number of Dominant Species Across All Strata: 2 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A
i				
·				Prevalence Index worksheet:
				Total % Cover of: Multiply by:  ORL species 55 × 1 = 55
45	0%	= Total Cov	er	ODL species X1 =
apling/Shrub Stratum (Plot size:15				racvi species xz =
•				FAC species x 3 =
•				FACU species x4 =
				UFL species X3 =
-				Column Totals:85
-				Prevalence Index = B/A =1.4
				Hydrophytic Vegetation Indicators:
				✓ 1 - Rapid Test for Hydrophytic Vegetation
				✓ 2 - Dominance Test is >50%
				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
0	0%	= Total Cov	er	4 - Morphological Adaptations¹ (Provide support data in Remarks or on a separate sheet)
lerb Stratum (Plot size:5				Problematic Hydrophytic Vegetation¹ (Explain)
Scirpus atrovirens	40	Y	OBL	Problematic Hydrophytic Vegetation (Explain)
Juncus effusus		Y	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Carex lurida	15	N	OBL	be present, unless disturbed or problematic.
Eleocharis tenuis		N	FACW	Definitions of Four Vegetation Strata:
i				Too We should be sold by a discount (7.0 cm)
i				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) more in diameter at breast height (DBH), regardless
				height.
·				Sapling/Shrub – Woody plants, excluding vines, les
				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
0				Horte All leaders are (ready weeks) wheater responding
1				Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.
2				
Voody Vine Stratum (Plot size:30)	85%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft ir height.
• -				
i				
l				
i				Hydrophytic Vegetation
				Present? Yes No
S	0%	= Total Cov		

W15-W01

Sampling Point:

SOIL

inches)	Matrix	%		x Features		Loc <sup>2</sup>	T = 1 dt 1 m =		Damanda	
0-2	Color (moist) 10YR 3/1	100	Color (moist)	%	Type <sup>1</sup>	LOC	Texture SM	-	Remarks	
		<del></del>	7.5\/D.5/0					-		
2-5	10YR 5/2	80	7.5YR 5/8	15	<u>C</u>	<u>M</u>	CL			
			2.5YR 3/6	5	C	M/PL				
5-12	10YR 5/2	70	7.5YR 5/8	20	<u>C</u>	M	CL			
			2.5YR 4/8	10	C	M				
12-14	10YR 5/2	70	7.5YR 6/6	15	С	M	С			
			2.5Y 7/6	15						
		. ——								
		. —— -								
		. ——								
	ncentration, D=Depl	letion, RM=	Reduced Matrix, M	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: Pl			-l-:- C-:I- <sup>3</sup>
dric Soil II			Davis Confess	(07)					roblematic Hy	
_ Histosol (	ipedon (A2)		Dark Surface Polyvalue Be		- (S8) <b>(N</b>	NI RΔ 147			A10) <b>(MLRA 1</b> 4 e Redox (A16)	47)
_ Histic Epi _ Black His			Tolyvalde Be				(	MLRA 14		
	n Sulfide (A4)		Loamy Gleye	, ,	•	,,	F	•	oodplain Soils (	(F19)
	Layers (A5)		<u>✓</u> Depleted Ma		,			(MLRA 13	•	( )
_ 2 cm Mud	ck (A10) (LRR N)		Redox Dark		3)		F	ed Parent I	Material (TF2)	
_ Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surface	(F7)		\	ery Shallov	v Dark Surface	(TF12)
	rk Surface (A12)		Redox Depre				c	ther (Expla	in in Remarks)	)
	ucky Mineral (S1) (L	_RR N,	Iron-Mangan		s (F12) <b>(</b>	LRR N,				
	147, 148)		MLRA 13	•			3,			
	leyed Matrix (S4)		Umbric Surfa			-			ydrophytic veg	
	edox (S5) Matrix (S6)		Piedmont Flo	oodplain Sc	olis (F 19)	(WLKA 14			rology must be bed or problem	
	ayer (if observed):						T	iless distui	bed of problem	iatic.
Type:										
Depth (inc	hes).						Hydric Soil	Present?	Yes	No
emarks:			<del></del>				1.,,			
	yer qualifying for the	depleted m	natrix indicator begi	ns immedia	ately belo	w the orga	nic layer.			

Project/Site: Willow Grove EIS	City/County: Montgor	mery	Sampling Date: 05/03/2013
Applicant/Owner: U.S. Navy	, ,		Sampling Point: W15-U01
	Section, Township, R		
Landform (hillslope, terrace, etc.): slight slope			
Subregion (LRR or MLRA): 148 / S Lat: 2			
Soil Map Unit Name:Udorthents, Shale and Sandstone	, 0-8% slopes	NWI classific	ation: UPL
Are climatic / hydrologic conditions on the site typical for	this time of year? Yes No _	(If no, explain in R	emarks.)
Are Vegetation, Soil, or Hydrology	_ significantly disturbed? Are	"Normal Circumstances" p	resent? Yes No
Are Vegetation, Soil, or Hydrology			
SUMMARY OF FINDINGS – Attach site ma			
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes	No within a Wetla		No
Wetland Hydrology Present? Yes  Remarks:	No		
This plot is situated roughly 1" higher in elevation than properties. The plot is located in a mowed herbaceous area of the		ove a PEM wetiand depres	sion.
HYDROLOGY			
Wetland Hydrology Indicators:			tors (minimum of two required)
Primary Indicators (minimum of one is required; check a		Surface Soil	
	rue Aquatic Plants (B14)		getated Concave Surface (B8)
	lydrogen Sulfide Odor (C1)	Drainage Pate (C3)	
	oxidized Rhizospheres on Living Roo Presence of Reduced Iron (C4)		Water Table (C2)
	Recent Iron Reduction in Tilled Soils		
	hin Muck Surface (C7)		sible on Aerial Imagery (C9)
	Other (Explain in Remarks)		tressed Plants (D1)
Iron Deposits (B5)	carer (Explain in Normanie)		Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aqui	, ,
Water-Stained Leaves (B9)			phic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral	
Field Observations:			
Surface Water Present? Yes No	Depth (inches):		
	Depth (inches):		
		etland Hydrology Presen	it? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring we	Il agrial photos, provious inspection	us) if available:	
Describe Necolded Data (stream gauge, monitoring we	ii, aeriai priotos, previous irispection	is), ii avallable.	
Remarks:			
The plot is located on a well-drained slope above the w	etland and did not qualify for any hy	drology indicators.	

ee Stratum (Plot size:30)		Species?	Status	Number of Dominant Species	
				That Are OBL, FACW, or FAC: 0	(A)
				Total Number of Dominant Species Across All Strata: 1	(B)
				Percent of Dominant Species That Are OBL, FACW, or FAC:  0%	(A/B
				Prevalence Index worksheet:	
				Total % Cover of: Multiply by	<u>/:</u>
	00/	= Total Cov		OBL species0 x 1 =0	
pling/Shrub Stratum (Plot size:15 )		- Total Cov	/ei	FACW species0 x 2 =0	
,				FAC species0 x 3 =0	
				FACU species86 x 4 =344	1
				UPL species0 x 5 =0	
				Column Totals: 86 (A) 344	(B)
					` ′
				Prevalence Index = B/A =4	
				Hydrophytic Vegetation Indicators:	
				1 - Rapid Test for Hydrophytic Vegetatio	n
				2 - Dominance Test is >50%	
				3 - Prevalence Index is ≤3.0 <sup>1</sup>	
erb Stratum (Plot size:5)		= Total Cov	/er	4 - Morphological Adaptations <sup>1</sup> (Provide data in Remarks or on a separate she	supportinet)
Festuca arundinacea	80	Υ	FACU	Problematic Hydrophytic Vegetation¹ (Ex	(plain)
Taraxacum officinale	5	N	FACU		
Apocynum cannabinum	1	N	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrolo	gy must
				be present, unless disturbed or problematic.	
	-			Definitions of Four Vegetation Strata:	
				Tree – Woody plants, excluding vines, 3 in. (	7.6 cm) o
				more in diameter at breast height (DBH), reg	ardless of
				height.	
				Sapling/Shrub – Woody plants, excluding vi	
				than 3 in. DBH and greater than 3.28 ft (1 m)	tall.
				<b>Herb</b> – All herbaceous (non-woody) plants, re	egardless
•				of size, and woody plants less than 3.28 ft ta	II.
	000/			Woody vine – All woody vines greater than 3	3 28 ft in
oody Vine Stratum (Plot size:)	86%	= Total Cov	/er	height.	J.20 It III
				Hydrophytic	
				Vegetation	
				Present? Yes No	_
	0%	= Total Cov	/er		

.. W15-U01

the late of N	Matrix			x Features	·1 · ?	·		D	
inches)	Color (moist) 10YR 3/2	%	Color (moist)	<u> </u>	ype <sup>1</sup> Loc <sup>2</sup>	Text		Remarks	
0-3		100				. <u> </u>			
3-13	10YR 4/3	97	7.5YR 6/6	3	<u>C</u> <u>M</u>	. <u> </u>	<u> </u>		
				· — — —					
						· ——	<del></del>		
							<del></del>		
			De desertado Martido Mai			21	Di Dani Lini		
	ncentration, D=Deple	tion, Rivi=i	Reduced Matrix, Mi	S=IVIASKED Sa	ing Grains.		on: PL=Pore Linion Indicators for P		dric Soils <sup>3</sup>
_ Histosol			Dark Surface	(\$7)				A10) <b>(MLRA 1</b> 4	
_	ipedon (A2)				(S8) <b>(MLRA 14</b> 7	. 148)		Redox (A16)	<del>'</del> '')
Black His					ILRA 147, 148)	, ,	(MLRA 14	, ,	
	n Sulfide (A4)		Loamy Gleye					oodplain Soils (	(F19)
Stratified	Layers (A5)		Depleted Ma	trix (F3)			(MLRA 13	86, 147)	
	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface (F6)				Material (TF2)	
	Below Dark Surface	(A11)		rk Surface (F	7)			v Dark Surface	
	rk Surface (A12)		Redox Depre		(540) (1.55.11		Other (Expla	in in Remarks)	
	ucky Mineral (S1) (LF	RR N,			(F12) <b>(LRR N,</b>				
	147, 148) leyed Matrix (S4)		MLRA 13	•	.RA 136, 122)		<sup>3</sup> Indicators of h	vdrophytic voa	otation and
	edox (S5)				(F19) <b>(MLRA 1</b>	48)		ology must be	
	Matrix (S6)		1 leathone 1 le	oapiaiii coiio	(I IO) (IIILITA I	40)		bed or problem	
	ayer (if observed):							· ·	
Туре:			<u></u>						
Depth (inc	:hes):					Hydri	ic Soil Present?	Yes	No_
emarks:									
	was encountered at 1	3".							
	was choodinered at 1								
	was choodinered at 1								
	was encountered at 1								
	was encountered at 1								
	was choodinered at 1								
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	was choodinered at 1								

WETI	AND	ID.	<b>1</b> 3/13/_	<b>\/\/1</b>	6

### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
no could not be determined because wetland extends beyond the ROW If no, explain hydrologic connection: This wetland is situated in an isolated depression near two ponds (W17) and has weaker hydrology. Surface connections to W17.	Is the wetland:  directly abutting adjacent (not directly but hydrologically connected)  Wetland adjacency determination (if not directly abutting): Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:  yes  no  If yes, list ID: SS (Use separate datasheet for each associated stream)  Approximate distance of wetland to stream (straight aerial feet):	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface perennial surface no surface flow  Surface flow characteristic from wetland to associated stream: discrete overland sheet flow confined other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		_ Sampling Date: _	04/05/2013
Applicant/Owner: U.S. Navy						
Investigator(s): Z. Fink, J. Carlo			n, Township, Range:			
Landform (hillslope, terrace, etc.)					Slop	e (%): 2 - 5
Subregion (LRR or MLRA): 148/						
Soil Map Unit Name: Lansdale			Long			
Are climatic / hydrologic condition	ns on the site typical for	this time of year? Yo	es No	(If no, explain in I	Remarks.)	
Are Vegetation, Soil	, or Hydrology	significantly disturt	oed? Are "Norma	l Circumstances"	present? Yes	No
Are Vegetation, Soil						
SUMMARY OF FINDINGS	6 - Attach site ma	np showing sam	pling point locatio	ons, transects	s, important fea	ntures, etc.
Hydrophytic Vegetation Present Hydric Soil Present?	Yes	No	Is the Sampled Area within a Wetland?	Yes	No	
Wetland Hydrology Present? Remarks:	Yes	No				
HYDROLOGY						
Wetland Hydrology Indicators	ş.			Secondary Indic	ators (minimum of t	wo required)
Primary Indicators (minimum of		all that apply)		Surface Soi		.wo required,
Surface Water (A1)		Frue Aquatic Plants (I	314)		egetated Concave S	Surface (B8)
High Water Table (A2)		Hydrogen Sulfide Odd		<u>✓</u> Drainage Pa		/di.a.s. (= -,
Saturation (A3)			es on Living Roots (C3)	Moss Trim I		
Water Marks (B1)	F	Presence of Reduced	Iron (C4)	Dry-Season	Water Table (C2)	
Sediment Deposits (B2)		Recent Iron Reduction		Crayfish Bu		
Drift Deposits (B3)		Thin Muck Surface (C		· ·	/isible on Aerial Ima	
Algal Mat or Crust (B4)	_ (	Other (Explain in Rem	narks)		Stressed Plants (D1	)
Iron Deposits (B5)	I Imagany (P7)			✓ Geomorphic		
Inundation Visible on Aeria Water-Stained Leaves (B9)				Shallow Aqu	raphic Relief (D4)	
Aquatic Fauna (B13)	,			FAC-Neutra		
Field Observations:						
	Yes No	Depth (inches):				
•	Yes No		• • • • • • • • • • • • • • • • • • •			
Saturation Present?	Yes No			Hydrology Prese	nt? Yes <u> </u>	No
(includes capillary fringe)  Describe Recorded Data (stream	m gauge monitoring we	ell aerial photos prev	vious inspections) if ava	nilable <sup>.</sup>		
		,,,	,,,,,,			
Remarks:						
Nearing saturation from 0 - 3 in	ches.					

EGETATION (Four Strata) – Use scientific n	ames of	plants.		Sampling Point: W16-W01
Tree Stratum (Plot size:30)	Absolute	Dominant Species?		Dominance Test worksheet:
1)			Status	Number of Dominant Species That Are OBL, FACW, or FAC:5 (A)
2				
3.				Total Number of Dominant Species Across All Strata: 6 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 83.33% (A/B)
6				Prevalence Index worksheet:
7	- ——			Total % Cover of: Multiply by:
8				OBL species 15 x 1 = 15
Sapling/Shrub Stratum (Plot size:30)	:	= Total Cov	er	FACW species40 x 2 =80
1. Cornus alba	30	Yes	FACW	FAC species 20 x 3 = 60
2. Salix fragilis	10	Yes	FAC	FACU species 10 x 4 = 40
3.				UPL species0 x 5 =0
4.				Column Totals:85 (A)195 (B)
5				Prevalence Index = B/A =2.3
6	- —			Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				✓ 2 - Dominance Test is >50%
9	- ——			✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10.	40%	= Total Cov		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum (Plot size:5		- TUIAI COV	ei	data in Remarks or on a separate sheet)
1. Scirpus pendulus	15	Yes	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Juncus effusus	10	Yes	FACW	11-directors of budgie soil and watland budgalagy must
3. Solidago canadensis	10	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5	- ——			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
				height.
8 9.	- —			Sapling/Shrub – Woody plants, excluding vines, less
10.	- —			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11.	- ——			Herb – All herbaceous (non-woody) plants, regardless
12.				of size, and woody plants less than 3.28 ft tall.
45	35%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size:15)  1. Lonicera japonica	10	Yes	FAC	Height.
2				
4	- —			
5.	- —			Hydrophytic Vegetation
6.				Present? Yes No
	10%	= Total Cov	er	
Remarks: (Include photo numbers here or on a separate s Bare ground approximately 50%.	sheet.)			

W16-W01

Sampling Point:

SOIL

Profile Desc	ription: (Describe to	o the dept	h needed to docum	nent the ir	ndicator	or confirm	the absenc	e of indicate	ors.)	
Depth	Matrix		Redox	x Features	;					
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	Texture		Remarks	
0 - 3	10YR 4/3	100					SL			
3 - 7	10YR 4/2	85	10YR 4/6	13	C	M	L			
			5YR 3/4	2	C	PL				
7 - 13	2.5Y 4/2	90	7.5YR 3/3	5	С	М	L			
			10YR 4/6	5	С	М				_
			_							_
								-		_
										_
1Type: C=Ce	oncentration, D=Deple	otion DM-	Poduced Matrix, MS	-Maakad	Sand Cr		<sup>2</sup> Location: F	DI =Doro Lini	ng, M=Matrix.	_
Hydric Soil I		elion, Rivi-i	Reduced Matrix, Mc	-iviaskeu	Sand Gra	airis.			roblematic Hyd	dric Soils <sup>3</sup> .
-			Davis Confess	(07)						
Histosol			Dark Surface		o (CO) <b>/</b>	II D A 447			A10) <b>(MLRA 1</b> 4	17)
	ipedon (A2)		Polyvalue Be				148)		e Redox (A16)	
Black His			Thin Dark Su		•	47, 148)		(MLRA 14		E40)
	n Sulfide (A4)		Loamy Gleye		-2)		_		oodplain Soils (	F19)
	Layers (A5)		<u>✓</u> Depleted Mat	, ,				(MLRA 13		
	ck (A10) (LRR N)		Redox Dark S	•	•				Material (TF2)	
	Below Dark Surface	(A11)	Depleted Dar						v Dark Surface	
	rk Surface (A12)		Redox Depre	•				Other (Expla	in in Remarks)	
	lucky Mineral (S1) (L	RR N,	Iron-Mangane		es (F12) <b>(</b>	LRR N,				
	147, 148)		MLRA 136	-			2			
	leyed Matrix (S4)		Umbric Surfa			-			ydrophytic vege	
	edox (S5)		Piedmont Flo	odplain So	oils (F19)	(MLRA 14			rology must be	
	Matrix (S6)							unless distur	bed or problem	atic.
	ayer (if observed):									
Type: Ha								<b>.</b>	. <i>/</i>	
Depth (inc	ches): 13						Hydric So	il Present?	Yes	No
Remarks: Refusal at 13	inches due to hardpa	an								
	•									

Project/Site: Willow Grove EIS	City/County: Montgome	ery	Sampling Date:04/05/2013		
Applicant/Owner: U.S. Navy			Sampling Point: W16-U01		
Investigator(s): Z. Fink, J. Carlo	Section, Township, Ran				
Landform (hillslope, terrace, etc.): edge of depre			Slope (%): 0		
Subregion (LRR or MLRA): 148/LRS					
Soil Map Unit Name: Lansdale Loam 0-3% Slop	es	NWI classi	fication: UPL		
Are climatic / hydrologic conditions on the site type	oical for this time of year? Yes No	(If no, explain in	Remarks.)		
Are Vegetation, Soil, or Hydrolog					
Are Vegetation, Soil, or Hydrolog		eded, explain any ansv			
SUMMARY OF FINDINGS – Attach si					
Hydric Soil Present? Yes _	No Is the Sampled within a Wetland		No		
Wetland Hydrology Present? Yes _ Remarks:	No				
HYDROLOGY					
		Secondary Indi	factors (minimum of two required)		
Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required;	check all that anniv)	Secondary indi	cators (minimum of two required)		
Surface Water (A1)	True Aquatic Plants (B14)		/egetated Concave Surface (B8)		
High Water Table (A2)	Hydrogen Sulfide Odor (C1)		Patterns (B10)		
Saturation (A3)	Oxidized Rhizospheres on Living Roots				
Water Marks (B1)	Presence of Reduced Iron (C4)		n Water Table (C2)		
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C		urrows (C8)		
Drift Deposits (B3)	Thin Muck Surface (C7)	Saturation	Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Stunted or	Stressed Plants (D1)		
Iron Deposits (B5)			ic Position (D2)		
Inundation Visible on Aerial Imagery (B7)			quitard (D3)		
Water-Stained Leaves (B9)			graphic Relief (D4)		
Aquatic Fauna (B13)		FAC-Neuti	ral Test (D5)		
Field Observations: Surface Water Present? Yes No	Depth (inches):				
	Depth (inches):				
		land Hydrology Pres	ent? Yes No		
(includes capillary fringe)			- HO		
Describe Recorded Data (stream gauge, monito	oring well, aerial photos, previous inspections)	, if available:			
Damadus					
Remarks: No indicators, little moisture content in soil.					
,					

30	Absolute	Dominant		Dominance Test worksheet:	
Tree Stratum (Plot size:30) Acer rubrum	30	Species? Yes	FAC	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%	_ (A/B)
				Prevalence Index worksheet:	
				Total % Cover of: Multiply by:	
				OBL species $0 \times 1 = 0$	_
Sapling/Shrub Stratum (Plot size:15)		= Total Cov	er	FACW species 0 x 2 = 0	_
Rosa multiflora	15	Yes	FACU	FAC species 40 x 3 = 120	_
				FACU species 40 x 4 = 160	_
				UPL species 0 x 5 = 0	_
·				Column Totals: 80 (A) 280	— (B)
•				Column Totals (A)	— (b)
				Prevalence Index = B/A = 3.5	
)				Hydrophytic Vegetation Indicators:	
·				1 - Rapid Test for Hydrophytic Vegetation	
				2 - Dominance Test is >50%	
· <u> </u>				3 - Prevalence Index is ≤3.0 <sup>1</sup>	
0	. =	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide su data in Remarks or on a separate sheet	
Herb Stratum (Plot size:5 )   Solidago canadensis	25	Yes	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Expla	ain)
2.				<sup>1</sup> Indicators of hydric soil and wetland hydrology	must
B				be present, unless disturbed or problematic.	muot
k				Definitions of Four Vegetation Strata:	
i				Tree – Woody plants, excluding vines, 3 in. (7.6	(cm)
i				more in diameter at breast height (DBH), regard	
				height.	
8				Sapling/Shrub – Woody plants, excluding vine	s. less
)				than 3 in. DBH and greater than 3.28 ft (1 m) ta	
0				Herb – All herbaceous (non-woody) plants, rega	ardless
1				of size, and woody plants less than 3.28 ft tall.	ai dicoo
2				Woody vine – All woody vines greater than 3.2	0 # :
Voody Vine Stratum (Plot size: 30 )	25%	= Total Cov	er	height.	ס ונ ווו
Voody Vine Stratum (Plot size:30) Lonicera japonica	10	Yes	FAC		
<u> </u>			-		
3					
l				Hydrophytic	
5				Vegetation	
S				Present? Yes No	
	10%	= Total Cov	er		
Remarks: (Include photo numbers here or on a separa Approximately 70% bare ground.	ite sheet.)				
Approximately 70% bare ground.					

. W16-U01

Depth	<u>Matrix</u>	0/		x Features			<b>.</b>	5
nches)	Color (moist)	<u>%</u>	Color (moist)		Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-3	10YR 3/3	100					SL	
3-7	10YR 3/3	98	7.5YR 5/6	2	C	M	L	
7-16	7.5YR 4/4	90	10YR 6/8	10	C	М	L	
				. ——				
pe: C=C	oncentration, D=Depl	letion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: PL:	=Pore Lining, M=Matrix.
	Indicators:						Indica	tors for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Dark Surface	(S7)			2	cm Muck (A10) <b>(MLRA 147)</b>
	oipedon (A2)		Polyvalue Be				148) Co	oast Prairie Redox (A16)
	stic (A3)		Thin Dark Su	, ,	•	47, 148)		(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gleye		F2)		Pi	edmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Mat		·(O)			(MLRA 136, 147)
	ick (A10) <b>(LRR N)</b> d Below Dark Surface	· (A11)	Redox Dark S Depleted Dar					ed Parent Material (TF2) ery Shallow Dark Surface (TF12)
	ark Surface (A12)	5 (A11)	Redox Depre				· · · · · · · · · · · · · · · · · · ·	ther (Explain in Remarks)
_	Mucky Mineral (S1) <b>(L</b>	.RR N.	Iron-Mangan	•	•	LRR N.		iner (Explain in Nemarks)
_	A 147, 148)	,	MLRA 13		, (	,		
	Gleyed Matrix (S4)		Umbric Surfa	•	MLRA 13	6, 122)	<sup>3</sup> Indi	cators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo			-		etland hydrology must be present,
_ Stripped	l Matrix (S6)						un	less disturbed or problematic.
estrictive	Layer (if observed):							
Type:							1	
турс								
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):		<u>_</u>				Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):		_				Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No
Depth (in	ches):						Hydric Soil	Present? Yes No V
Depth (in	ches):						Hydric Soil	Present? Yes No V

WETLAND ID: WW-W17

### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
ves no could not be determined because wetland extends beyond the ROW  If no, explain hydrologic connection:  No outlet in this area. Wetland includes two areas of PSS vegetated ponded water, separated by a road.	Is the wetland:  directly abutting adjacent (not directly but hydrologically connected)  Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:  yes no If yes, list ID: SS (Use separate datasheet for each associated stream)  Approximate distance of wetland to stream (straight aerial feet):	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface perennial surface no surface flow  Surface flow characteristic from wetland to associated stream: discrete overland sheet flow confined other, explain:

## **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS			City/C	county: Montgomery		Sampling Date: _	04/05/2013
Applicant/Owner: U.S. Navy							
Investigator(s): Z. Fink, J. Carl	0		Section	on, Township, Range: _			
Landform (hillslope, terrace, et							
Subregion (LRR or MLRA): 14							
Soil Map Unit Name: Lansdal							
Are climatic / hydrologic condit		• •	-		•	•	,
Are Vegetation, Soil	, or Hy	drology	significantly distur	bed? Are "Norma	al Circumstances" p	present? Yes	No
Are Vegetation, Soil	, or Hyd	drology	naturally problema	atic? (If needed,	explain any answe	rs in Remarks.)	
SUMMARY OF FINDING	S – Atta	ch site m	ap showing sam	pling point location	ons, transects	, important fea	itures, etc.
Hydrophytic Vegetation Prese	ant?	Yes	_ No				
Hydric Soil Present?		Yes /	No	Is the Sampled Area		NI-	
Wetland Hydrology Present?		Yes 🔽	No	within a Wetland?	res	No	
Remarks:							
Plot placed in edge of wetland	most pond t	ed portion of	wetland, approximate	ely 1' lower in elevation	than paired U01 pl	ot.	
HYDROLOGY							
Wetland Hydrology Indicate	ors:				Secondary Indica	ators (minimum of t	wo required)
Primary Indicators (minimum	of one is rec	quired; check	all that apply)		Surface Soil	Cracks (B6)	
✓ Surface Water (A1)			True Aquatic Plants (	B14)	Sparsely Ve	getated Concave S	urface (B8)
<u>✓</u> High Water Table (A2)		_	Hydrogen Sulfide Ode	or (C1)	Drainage Pa	tterns (B10)	
✓ Saturation (A3)		<u> </u>	Oxidized Rhizosphere	es on Living Roots (C3)	Moss Trim L	ines (B16)	
Water Marks (B1)			Presence of Reduced	d Iron (C4)	Dry-Season	Water Table (C2)	
Sediment Deposits (B2)			Recent Iron Reductio	n in Tilled Soils (C6)	Crayfish Bur	rows (C8)	
Drift Deposits (B3)		_	Thin Muck Surface (C	27)	Saturation V	ïsible on Aerial Ima	igery (C9)
Algal Mat or Crust (B4)		_	Other (Explain in Ren	narks)	Stunted or S	tressed Plants (D1)	)
Iron Deposits (B5)					Geomorphic	Position (D2)	
Inundation Visible on Aei	ial Imagery	(B7)			Shallow Aqu	itard (D3)	
Water-Stained Leaves (E	9)				Microtopogra		
Aquatic Fauna (B13)					FAC-Neutral	Test (D5)	
Field Observations:							
Surface Water Present?			Depth (inches):				
Water Table Present?			Depth (inches):				
Saturation Present? (includes capillary fringe)	Yes	_ No	Depth (inches):	0-4 Wetland	Hydrology Preser	nt? Yes	No
Describe Recorded Data (stre	am gauge,	monitoring w	vell, aerial photos, pre	vious inspections), if av	ailable:		
Remarks:							
near ponded water that is 6-1	2" deep						

## VEGETATION (Four Strata) - Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: \_\_\_\_\_\_)

Sapling/Shrub Stratum (Plot size: \_\_\_\_\_\_) 1. Salix discolor

Herb Stratum (Plot size: \_\_\_\_\_\_)

Woody Vine Stratum (Plot size: \_\_\_\_\_\_)

3. Cornus alba

1. Phragmites austulis 70 y

2. Salix fragilis

bsolute			Dominance Test	workshee	et:		
% Cover	Species?	Status	Number of Domin That Are OBL, FA			3	(A)
			Total Number of I Species Across A			3	(B)
			Percent of Domin That Are OBL, FA	•		100%	(A/B
			Prevalence Index	workshe	et.		
			Total % Cove			ultiply by:	
			OBL species	0	x 1 =	0	_
0%	= Total Cov	er	FACW species	115	- ^ · · · · · · · · · · · · · · · · · ·	230	_
40	у	FACW	FAC species _	30	- ^2 . x3=	90	_
30	у у	FAC	FACU species	0	- x 4 =	0	_
5		FACW	UPL species	0	- x5=	0	_
			Column Totals: _	145	(A)	320	_ _ (B)
			Prevalence	Index = B	/A =	2.2	_
			Hydrophytic Veg	etation In	dicators	:	
			1 - Rapid Tes	t for Hydro	phytic V	egetation	
			👱 2 - Dominano	e Test is >	50%		
			✓ 3 - Prevalenc	e Index is	≤3.0 <sup>1</sup>		
75%	= Total Cov	er	4 - Morpholog data in Re			Provide sup rate sheet)	
70	у	FACW	Problematic I	Hydrophyti	c Vegeta	tion¹ (Expla	iin)
			<sup>1</sup> Indicators of hyd be present, unless				must
			Definitions of Fo	ur Vegeta	tion Stra	ıta:	
			Tree – Woody pla more in diameter height.				
			Sapling/Shrub – than 3 in. DBH an				
			Herb – All herbac of size, and wood				ırdless
70%	= Total Cov	er	Woody vine – All height.	woody vir	ies great	er than 3.28	3 ft in
			Hydrophytic Vegetation		.,		
0%	= Total Cov	 er	Present?	Yes	<u> </u>	o	
eet.)	==•		<u> </u>				

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

Primarily Salix species along margins of pond with Phragmites a. in the interior in

W17-W01

Sampling Point:

epth nches)	Matrix Color (moist)	%	Color (moist)	x Features %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-3	10YR 2/1	100	Coloi (IIIolst)		<u> iype</u>		rexture	contains PDOM
								- Contains 1 Down
3-7	10YR 4/2	90	7.5YR 3/4	10	C	M/PL	SL	
7-12	5YR 4/3	80	7.5YR 4/6	20	C	M	L	
								-
								• -
0-0-		lation DM	-Dadusad Matrix M	C-Maalaad			21	N - Dana Lining M-Matrix
	ncentration, D=Depi ndicators:	letion, Rivi	=Reduced Matrix, M	S=IVIASKEG	Sand Gr	ains.	Location: P	L=Pore Lining, M=Matrix. cators for Problematic Hydric Soils
Histosol (			Dark Surface	o (S7)				2 cm Muck (A10) (MLRA 147)
	ipedon (A2)		Polyvalue Be	. ,	ce (S8) <b>(N</b>	/II RA 147.		Coast Prairie Redox (A16)
Black His			Thin Dark St				140,	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		-	., ,	1	Piedmont Floodplain Soils (F19)
	Layers (A5)		✓ Depleted Ma		•		_	(MLRA 136, 147)
2 cm Mud	ck (A10) (LRR N)		Redox Dark	Surface (F	6)			Red Parent Material (TF2)
•	Below Dark Surface	e (A11)	Depleted Da					Very Shallow Dark Surface (TF12)
	rk Surface (A12)		Redox Depre		•		_ '	Other (Explain in Remarks)
	ucky Mineral (S1) (L	_RR N,	Iron-Mangar		es (F12) <b>(</b>	LRR N,		
	147, 148)		MLRA 13	-	MI DA 13	e 122\	3 <sub>lp</sub> .	dicators of hydrophytic vegetation and
	leyed Matrix (S4) edox (S5)		Umbric Surfa Piedmont Flo			-		wetland hydrology must be present,
Saliuy IN	edox (33)		Fledition( )	ouplain S	Jiis (1 1 <i>3)</i>	(IVILINA 14	-	
Stripped	Matrix (S6)							inless distribed of problematic
	Matrix (S6) aver (if observed):						T .	unless disturbed or problematic.
strictive L	ayer (if observed):							uniess disturbed or problematic.
strictive L	ayer (if observed):							
strictive L Type: Depth (inc	ayer (if observed):							il Present? Yes No
Type: Depth (inc	ayer (if observed):		<u> </u>					
trictive L ype: Depth (inc	ayer (if observed): hes):		<u> </u>					
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					
trictive L ype: Depth (inc	ayer (if observed): hes):		<u> </u>					
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					.,
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					.,
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					.,
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					.,
trictive L ype: epth (inc	ayer (if observed): hes):		<u> </u>					.,
trictive L ype: Depth (inc	ayer (if observed): hes):		<u> </u>					
trictive L Type: Depth (inc	ayer (if observed): hes):		<u> </u>					
Type: Depth (inc	ayer (if observed): hes):		<u> </u>					
Type: Depth (inc	ayer (if observed): hes):		<u> </u>					
Type: Depth (inc	ayer (if observed): hes):		<u> </u>					
trictive L ype: Depth (inc	ayer (if observed): hes):		<u> </u>					.,
trictive L ype: Depth (inc	ayer (if observed): hes):		<u> </u>					
trictive L ype: Depth (inc	ayer (if observed): hes):		<u> </u>					

Project/Site: Willow Grove EIS	City/County: Montgo	omery	_ Sampling Date:04/05/2013	
Applicant/Owner: U.S. Navy			Sampling Point: W17-U01	
••	Section, Township, F		<u> </u>	
Landform (hillslope, terrace, etc.): Burm			Slone (%): 2	
Subregion (LRR or MLRA): 148/LRRS Lat				
Soil Map Unit Name: Landsdale Loam 0-3% slopes	<u> </u>	NWI classif	Datum	
Are climatic / hydrologic conditions on the site typical f				
Are Vegetation, Soil, or Hydrology				
Are Vegetation, Soil, or Hydrology	naturally problematic? (If	needed, explain any answ	ers in Remarks.)	
SUMMARY OF FINDINGS - Attach site n	nap showing sampling point	locations, transects	s, important features, etc.	
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes	No Is the Sampl within a Wet		No	
Wetland Hydrology Present? Yes	No Willim a Wet	idild: 165		
Plot is approximately 1 foot higher than paired U01.		·		
HYDROLOGY				
Wetland Hydrology Indicators:		Secondary India	cators (minimum of two required)	
Primary Indicators (minimum of one is required; chec		Surface So	il Cracks (B6) egetated Concave Surface (B8)	
	= · · · · · · · · · · · · · · · · · · ·			
	Hydrogen Sulfide Odor (C1)		atterns (B10)	
	Oxidized Rhizospheres on Living Ro			
	Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils		n Water Table (C2)	
	Thin Muck Surface (C7)		Visible on Aerial Imagery (C9)	
Algal Mat or Crust (B4)	Other (Explain in Remarks)	· <del></del>	Stressed Plants (D1)	
Iron Deposits (B5)	Culor (Explain in terms)		c Position (D2)	
Inundation Visible on Aerial Imagery (B7)		Shallow Aq		
Water-Stained Leaves (B9)			raphic Relief (D4)	
Aquatic Fauna (B13)		FAC-Neutra	al Test (D5)	
Field Observations:				
	_ Depth (inches):			
	_ Depth (inches):			
Saturation Present? Yes No	_ Depth (inches): \	Wetland Hydrology Prese	ent? Yes No	
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspectio	ns), if available:		
Remarks:				

	names of	<u> </u>		
<u>Free Stratum</u> (Plot size:)	Absolute	Dominant		Dominance Test worksheet:
I		Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:0 (A)
2.				
3.				Total Number of Dominant Species Across All Strata:  0 (B)
i.				Opecies Acioss All Ottata.
5.				Percent of Dominant Species That Are OBL FACW or FAC 0% (A/F
S				That Are OBL, FACW, or FAC: (A/E
				Prevalence Index worksheet:
7.				Total % Cover of: Multiply by:
3	001	= Total Cov	,	OBL species0 x 1 =0
Sapling/Shrub Stratum (Plot size:)		= 10tai 00v	er	FACW species0 x 2 =0
Rosa multiflora	5	Yes	FACU	FAC species 10 x 3 = 30
2.				FACU species30 x 4 =120
				UPL species x5 = 100
				Column Totals: 60 (A) 250 (B)
l				Column Totals
5				Prevalence Index = B/A = 4.2
S				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
3				2 - Dominance Test is >50%
)				3 - Prevalence Index is ≤3.0¹
0		T-451 Cox		4 - Morphological Adaptations <sup>1</sup> (Provide supportin
Herb Stratum (Plot size:5		= Total Cov		data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)
Carex pensylvanica		Yes	UPL	Problematic Hydrophytic vegetation (Explain)
Andropogon virginicus	10	No	FACU	1. It is a second to the second to the second budge loggy much
Panicum virgatum	10	No	FAC	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Solidago canadensis	5	No	FACU	Definitions of Four Vegetation Strata:
5. Allium vineale	5	No	FACU	
Taraxacum officinale	5	No	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of
7.				more in diameter at breast height (DBH), regardless o height.
3.				
). D				Sapling/Shrub – Woody plants, excluding vines, less
0.				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12	55%	= Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Noody Vine Stratum (Plot size:30)		= 10tal Cov	er	height.
l				
2.				
3				
I				Hydrophytic
5				Vegetation Present? Yes No
				Present? Yes No
S	0%	= Total Cov		•

w17-U01

Depth	Matrix			<u>Features</u>	<del>-</del> 1	<del>. , ,</del>	_			_	
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u></u> %	Type <sup>1</sup>	Loc <sup>2</sup>	Text	ire		Remark	<u>s</u>
0-3	10YR 3/2	100					L				
3-5	10YR 2/1	100					SL	<u> </u>			
5-11	10YR 4/3	95	10YR 4/6	5	С	M	L				
		· —— ·									
		· ·									
ype: C=Co	ncentration, D=Dep	letion, RM=	Reduced Matrix, MS	=Masked	Sand Gra	ins.	<sup>2</sup> Locatio	n: PL=Pc	re Linin	g, M=Matrix	<b>X</b> .
/dric Soil lı	ndicators:										Hydric Soils <sup>3</sup> :
_ Histosol (			Dark Surface							10) <b>(MLR</b> A	
	ipedon (A2)		Polyvalue Bel				, 148)			Redox (A1	6)
_ Black His			Thin Dark Su		-	47, 148)		-	LRA 147		In (F40)
	n Sulfide (A4) Layers (A5)		Loamy Gleye		(2)				nont Floo LRA 136	odplain Soi 3 147)	IS (F 19)
_	ck (A10) <b>(LRR N)</b>		Redox Dark S	. ,	3)			-		aterial (TF:	2)
	Below Dark Surface	e (A11)	Depleted Dark		•					Dark Surfa	•
	rk Surface (A12)		Redox Depre					Other	(Explair	n in Remar	ks)
	ucky Mineral (S1) (L	_RR N,	Iron-Mangane		s (F12) <b>(</b> I	RR N,					
	147, 148)		MLRA 136	•	AL DA 40	c 400\		31	£		
	leyed Matrix (S4)		Umbric Surface	ce (F13) <b>(N</b>	/ILKA 13	b, 122)		Indicate	ors ot ny		egetation and
Sandy Dr	aday (SE)		Diodmont Flor			-	10\		nd hydro	loay must	ha procent
	edox (S5) Matrix (S6)		Piedmont Flo			-	<b>48</b> )	wetla			be present, ematic
_ Stripped	edox (S5) Matrix (S6) .ayer (if observed):	:	Piedmont Flo			-	48)	wetla		ology must ed or probl	
_ Stripped	Matrix (S6)		Piedmont Flor			-	48)	wetla			
_ Stripped estrictive L Type:	Matrix (S6) ayer (if observed):		Piedmont Flor			-		wetla	s disturb	ed or probl	
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):		_	odplain So		-		wetla unles	s disturb		ematic.
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):		Piedmont Flor	odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):			odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):			odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):			odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):			odplain So		-		wetla unles	s disturb	ed or probl	ematic.
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_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):			odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):			odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):			odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):			odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inceemarks:	Matrix (S6)  .ayer (if observed): :hes):			odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inceparates:	Matrix (S6)  .ayer (if observed): :hes):		_	odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inceparates:	Matrix (S6)  .ayer (if observed): :hes):		_	odplain So		-		wetla unles	s disturb	ed or probl	ematic.
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_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):		_	odplain So		-		wetla unles	s disturb	ed or probl	ematic.
Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):		_	odplain So		-		wetla unles	s disturb	ed or probl	ematic.
Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):		_	odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc emarks:	Matrix (S6)  .ayer (if observed): :hes):		_	odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc	Matrix (S6)  .ayer (if observed): :hes):		_	odplain So		-		wetla unles	s disturb	ed or probl	ematic.
_ Stripped estrictive L Type: Depth (inc	Matrix (S6)  .ayer (if observed): :hes):		_	odplain So		-		wetla unles	s disturb	ed or probl	ematic.

WETI	AND	ID.	X/XX/_	W18

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?    X   yes   no   could not be determined because wetland extends beyond the ROW	Wetland Association to Stream  Is the wetland:     directly abutting     adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  PEM/PSS/PFO. The wetland boundary is near the boundary of W19 and the stream which drains it but a surface connection was not observed. Possible storm event OSF or subsurface connection to W19 and associated stream however the wetland is essentially isolated.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:  yes  in no  If yes, list ID: SS (Use separate datasheet for each associated stream)  Approximate distance of wetland to stream (straight aerial feet):	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface perennial surface no surface flow  Surface flow characteristic from wetland to associated stream: discrete overland sheet flow confined other, explain:

## **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS		City/C	county: Montgomery		_ Sampling Date: _	05/03/2013
Applicant/Owner: U.S. Navy					Sampling Poin	
Investigator(s): Z. Fink / R. War	dwell	Section	on, Township, Range: <u></u>			
Landform (hillslope, terrace, etc.						e (%): 1-3
Subregion (LRR or MLRA): 148						
Soil Map Unit Name:Udorthen						
Are climatic / hydrologic conditio					•	
Are Vegetation, Soil						/ No
Are Vegetation, Soil				explain any answe		
SUMMARY OF FINDINGS						atures, etc.
Hydrophytic Vegetation Preser	nt? Yes	No				
Hydric Soil Present?	Yes Yes	No	Is the Sampled Area	V V	No	
Wetland Hydrology Present?	Yes	No	within a Wetland?	res+	NO	
This plot is located at the edge The plot is roughly is roughly 1	of a circular depression ' lower in elevation than	in a PSS/PFO veget paired plot U01.	tated area of the wetland	d within the bound	ary delineated by t	lags 1 to 13.
HYDROLOGY						
Wetland Hydrology Indicator	's:			Secondary Indica	ators (minimum of t	wo required)
Primary Indicators (minimum o	f one is required; check	all that apply)		Surface Soil	Cracks (B6)	
Surface Water (A1)		Γrue Aquatic Plants (Ι		Sparsely Ve	getated Concave S	Surface (B8)
High Water Table (A2)		Hydrogen Sulfide Odd		<u>✓</u> Drainage Pa		
Saturation (A3)			es on Living Roots (C3)	Moss Trim L		
Water Marks (B1)		Presence of Reduced			Water Table (C2)	
Sediment Deposits (B2)			n in Tilled Soils (C6)	Crayfish Bui		(C0)
Drift Deposits (B3) Algal Mat or Crust (B4)	· <del></del>	Γhin Muck Surface (C Other (Explain in Ren		' <del></del>	/isible on Aerial Ima Stressed Plants (D1	
Iron Deposits (B5)	_ `	Allei (Explain in Non	ildinə)	✓ Geomorphic		)
Inundation Visible on Aeria	al Imagery (B7)			Shallow Aqu	, ,	
✓ Water-Stained Leaves (B9					aphic Relief (D4)	
Aquatic Fauna (B13)	,			FAC-Neutra		
Field Observations:						
Surface Water Present?	Yes No	Depth (inches):				
Water Table Present?	Yes No	Depth (inches):				
Saturation Present?	Yes No			Hydrology Prese	nt? Yes <u> </u>	No
(includes capillary fringe)  Describe Recorded Data (streat	am gauge, monitoring we	ell. aerial photos, pre	vious inspections), if ava	ailable:		
	33.,	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Remarks:						
This plot is located at the edge	of a wetland depression	n. Standing water wa	as present in the interior	of this boundary a	at the time of deline	ation.

Absolute <u>% Cover</u> 40	Dominant Species?		Dominance Test worksheet:
		Status	No make a set Demain and Consains
	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
10	Y	FAC	Total Number of Deminent
			Total Number of Dominant Species Across All Strata:  5 (B)
			Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/
			That Ale OBL, FACW, of FAC(A/
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
50%	- Total Cav		OBL species0 x 1 =0
	- Total Cov	ei	FACW species50 x 2 =100
40	Υ	FACW	FAC species 80 x 3 = 240
25	Y	FAC	FACU species0 x 4 =0
		FAC	UPL species0 x 5 =0
			Column Totals: 130 (A) 340 (E
			Column Totals (A) (E
			Prevalence Index = B/A =2.6
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			✓ 2 - Dominance Test is >50%
			✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
			1 <del></del>
70%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporti data in Remarks or on a separate sheet)
			Problematic Hydrophytic Vegetation¹ (Explain)
	Y	FACW	Troblematio Tryarophytic Vegetation (Explain)
			1 adia atawa afi bu dhia adil and uustland bu dhala ay muust
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
			Definitions of Four Vegetation Strata:
			benintions of Four Vegetation offata.
			Tree – Woody plants, excluding vines, 3 in. (7.6 cm)
			more in diameter at breast height (DBH), regardless of height.
			noight.
			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, regardles
			of size, and woody plants less than 3.28 ft tall.
100/			Woody vine – All woody vines greater than 3.28 ft in
10%	= Total Cov	er	height.
			Hydrophytic
			Vegetation
			Present? Yes No
0%	= Total Cov	er	
			<u> </u>
	70% 10 10%		50%

W18-W01

Sampling Point:

SOIL

0-4 10 YR 4/2 90 7.5YR 5/6 5 C M  4-12 7.5YR 5/6 85 7.5YR 6/2 10 D M SL  5 YR 5/8 5 C M  Roughly 1-2" of duff above mineral layers    PL=Pore Lining, M=Matrix.   Indicators for Problematic Hydric Soils   Indicators for Problematic Hydric S	0-4 10 YR 4/2 90 7.5YR 5/6 5 C M  4-12 7.5YR 5/6 85 7.5YR 6/2 10 D M SL  5 YR 5/8 5 C M  Roughly 1-2" of duff above miner layers    Per C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   Per Concentration, D=Depletion, RM=Reduced Matrix, GST   Per Concentration, D=Depletion, RM=Reduced Matrix		<u>Matrix</u>			x Features		. 2	_	
1.5   1.5	4-12	inches)							•	Remarks
A-12	A-12	0-4	10 YR 4/2	90 -						·
S YR 5/8   5   C   M   Roughly 1-2° of duff above mineral layers   Indicators: Indicators: Indicators for Problematic Hydric Soils'   Histosol (A1)	pe: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.    Part				7.5YR 3/4	5		M		
Roughly 1-2" of duff above mineral layers   la	Roughly 1-2" of duff above miner layers    Pe: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   2 Location: PL=Pore Lining, M=Matrix.	4-12	7.5YR 5/6	85	7.5YR 6/2	10	D	M	SL	
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  ydric Soil Indicators:  Histosol (A1)  Histosol (A2)  Black Histic (A3)  Histoson (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Matrix (F3)  Depleted Dark Surface (F0)  Thick Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  MLRA 136, 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Seripped Matrix (S4)  Depleted Dark Surface (F13) (MLRA 146, 122)  Sandy Redox (S5)  Seripped Matrix (S6)  Stripped Matrix (	pe: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  dric Soil Indicators:  Histosol (A1)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Black Histic (A3)  Thin Dark Surface (S9) (MLRA 147, 148)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Com Muck (A10) (LRR N)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Stripped Matrix (S6)  Thin Dark Surface (A12)  Redox Dark Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 147, 148)  MIRA 136,  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Depleted Below Dark Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes V No marks:				5 YR 5/8	5	С	M		
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  ydric Soil Indicators:  Histosol (A1)  Histosol (A2)  Black Histic (A3)  Histosol (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Matrix (F3)  Depleted Dark Surface (F6)  Thick Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 146)  MLRA 147, 148)  MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Sirpiped Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Stripped Ma	pe: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  dric Soil Indicators:  Histosol (A1)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Black Histic (A3)  Thin Dark Surface (S9) (MLRA 147, 148)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Com Muck (A10) (LRR N)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Stripped Matrix (S6)  Thin Dark Surface (A12)  Redox Dark Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 147, 148)  MIRA 136,  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Depleted Below Dark Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes V No marks:									Roughly 1-2" of duff above mineral
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  ydric Soil Indicators:  Histosol (A1)  Histosol (A2)  Black Histic (A3)  Coast Prairie Redox (A16)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F2)  Depleted Below Dark Surface (A11)  Depleted Below Dark Surface (A11)  Depleted Dark Surface (F6)  Sandy Mucky Mineral (S1) (LRR N)  MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Depleted Dark Surface (F13) (MLRA 136, 142)  Sandy Redox (S5)  Striped Matrix (S6)  Black Histic (A3)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  MLRA 136, 147)  Redox Dark Surface (F6)  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Type:  Depth (inches):  Hydric Soil Present? Yes   No  MEmarks:	pe: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  dric Soil Indicators:  Histosol (A1)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Black Histic (A3)  Thin Dark Surface (S9) (MLRA 147, 148)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Com Muck (A10) (LRR N)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  MIRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Stripped Matrix (S6)  Thick Dark Surface (F13) (MLRA 136, 142)  Piedmont Floodplain Soils (F19)  Wery Shallow Dark Surface (F12)  John Clark N, MLRA 147, 148)  MIRA 147, 148)  MIRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland 136, 147)  John Clark N, MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes V No									• •
Histosol (A1)	dric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Del Below Dark Surface (A11)  Thio-Manganese Masses (F12) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Stripped Matrix (S4)  Depleted Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches):  Thistic Epipedon (A2)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Loamy Gleyed Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Depleted Dark Surface (F6)  Redox Depressions (F8)  Liron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No_marks.									- iayoro
Histosol (A1)	dric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Del Below Dark Surface (A11)  Thio-Manganese Masses (F12) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Stripped Matrix (S4)  Depleted Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches):  Thistic Epipedon (A2)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Loamy Gleyed Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Depleted Dark Surface (F6)  Redox Depressions (F8)  Liron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No_marks.									· -
Histosol (A1)	dric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Del Below Dark Surface (A11)  Thio-Manganese Masses (F12) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Stripped Matrix (S4)  Depleted Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches):  Thistic Epipedon (A2)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Loamy Gleyed Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Depleted Dark Surface (F6)  Redox Depressions (F8)  Liron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No_marks.									
Histosol (A1)	dric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Del Below Dark Surface (A11)  Thio-Manganese Masses (F12) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Stripped Matrix (S4)  Depleted Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches):  Thistic Epipedon (A2)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Loamy Gleyed Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Depleted Dark Surface (F6)  Redox Depressions (F8)  Liron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No_marks.									
Histosol (A1)	dric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Del Below Dark Surface (A11)  Thio-Manganese Masses (F12) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Stripped Matrix (S4)  Depleted Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches):  Thistic Epipedon (A2)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Loamy Gleyed Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Depleted Dark Surface (F6)  Redox Depressions (F8)  Liron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No_marks.									
Histosol (A1)	dric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Del Below Dark Surface (A11)  Thio-Manganese Masses (F12) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Stripped Matrix (S4)  Depleted Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches):  Thistic Epipedon (A2)  Dark Surface (S7)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Loamy Gleyed Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Depleted Dark Surface (F6)  Redox Depressions (F8)  Liron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No_marks.	ype: C=C	oncentration, D=Depl	etion, RM=f	Reduced Matrix, M	S=Masked	Sand Gra	ins.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.
Histic Epipedon (A2)	Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) 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) Sandy Redox (S5) Sandy Redox (S5) Strictive Layer (if observed): Type:  Depth (inches):  Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) (MLRA 147, 148) (MLRA 147, 148) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  Type:  Hydric Soil Present?  Poepth (inches):  Hydric Soil Present?  Piedmont Floodplain?  Hydric Soil Present?  Piedmont Floodplain?  MLRA 147, 148)  Hydric Soil Present?  Piedmont Floodplain?  No  Hydric Soil Present?  Piedmont Floodplain?  No  Hydric Soil Present?  Piedmont Floodplain?  No  Piedmont Floodplain?  No  Piedmont Floodplain?  No  Piedmont Floodplain?  Piedmont Floodplain?									
Black Histic (A3)	Black Histic (A3)	_ Histosol	(A1)		Dark Surface	e (S7)			2	2 cm Muck (A10) <b>(MLRA 147)</b>
Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Matrix (F3)  MLRA 136, 147)  Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 136) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)  Stripped Matrix (S6)  Depleted Matrix (F2) Medox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Lron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Depth (inches):  Hydric Soil Present? Yes No	Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (LRR N)  Depleted Matrix (F3)  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)  Strictive Layer (if observed):  Type:  Depth (inches):  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F2)  MLRA 136, 147)  Redox Dark Surface (F6)  — Red Parent Material (TF2)  Very Shallow Dark Surface (TF12)  Very Shallow Dark Surface (TF12)  Depleted Dark Surface (F7)  — Very Shallow Dark Surface (TF12)  Very Shallow Dark Surface (TF12)  Nethodologous Matrix (S4)  — Where Taylor (F13) (MLRA 136, 122)  — Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches):  Hydric Soil Present? Yes No marks:	_ Histic Ep	oipedon (A2)						148) (	Coast Prairie Redox (A16)
Stratified Layers (A5) Depleted Matrix (F3) Redox Dark Surface (F6) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	Stratified Layers (A5)		, ,			, ,	•	47, 148)		
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material (TF2) Very Shallow Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12)	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) Stripped Matrix (S6) Stripped Matrix (S6) Strictive Layer (if observed): Type: Depth (inches):  Redox Dark Surface (F6) Depleted Dark Surface (F7) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  MLRA 136, Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No Matrix (S6)  Mustrictive Layer (if observed):  Type:  Depth (inches):  Matrix (S6)  Hydric Soil Present?  Material (TF2) Very Shallow Dark Surface (F12)  Under (Explain in Remarks)  SIndicators of hydrophytic vegetation at wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present?  Yes No Matrix (S6)  Matrix (S6)  No Matrix (S6)  Matrix (S6)  Metha 136,					•	<del>-</del> 2)		<u> </u>	
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Stripped Matrix (S6)  Estrictive Layer (if observed):  Type: Depth (inches): Depth (i	Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Stripped Matrix (S6) Strictive Layer (if observed):  Type: Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Depth (inches):  Hydric Soil Present? Yes No Marks Surface (TF12)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No Marks:									
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)  Estrictive Layer (if observed):  Type: Depth (inches):  Type: Depth (inches):  Type: Demarks:  Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 148) Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present?  Yes No  Hydric Soil Present?	Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Strictive Layer (if observed):  Type: Depth (inches):  Tmarks:   Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No			(4.44)						
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches):  MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No marks:	_		÷ (A11)					· <del></del>	
MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Estrictive Layer (if observed):  Type:  Depth (inches):  MRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No  Hydric Soil Present? Yes No	MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Strictive Layer (if observed):  Type:  Depth (inches):  MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No marks:		, ,	DD N				DD 11	— (	Other (Explain in Remarks)
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)	Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Stripped Matrix (S6) Strictive Layer (if observed):  Type: Depth (inches):  Matrix (S4) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No marks:	_		.RR N,			es (F12) <b>(I</b>	LRR N,		
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic.  estrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes No  emarks:	Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic.  Strictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes No marks:		· ·			•	MI DA 40	. 400\	31	dia atau af hardeanhatia arabatian an d
Stripped Matrix (S6) unless disturbed or problematic.  estrictive Layer (if observed):	Stripped Matrix (S6) unless disturbed or problematic.  Strictive Layer (if observed):  Type:  Depth (inches): Hydric Soil Present? Yes No  marks:							-		
Type: Hydric Soil Present? Yes No	Strictive Layer (if observed):    Type:				Pleamont Fig	oodplain Sc	olis (F 19)	(WILKA 14		
Type: Hydric Soil Present? Yes No emarks:	Type:  Depth (inches): Hydric Soil Present? Yes No  marks:								Τ ,	driess disturbed of problematic.
Depth (inches): No emarks:	Depth (inches): Hydric Soil Present? Yes No No									
emarks:	marks:		ches):						Hydric Soi	il Present? Yes V
					<u> </u>				11,411.000	
		emarks: he plot qual	lifies for the depleted	matrix indic	ator in the first laye	er. Rock ref	fusal was	encounte	red at 12"	
		5 6.31 900								
		s p.o. quu								
		p.o. quu								
		p.o. quu								
		p.o. quu								
		p.o. qua								
		p.o. you								
		p.o. qua								
		5.00 4000								
		p.o. qua								

Project/Site: Willow Grove EIS	3		City/County: Montgomer	у	Sampling Date: _	05/03/2013
Applicant/Owner: U.S. Navy				State: PA		
Investigator(s): Z. Fink / R. W.	ardwell		Section, Township, Rang			
Landform (hillslope, terrace, et						e (%)· 0
Subregion (LRR or MLRA): 14						
Soil Map Unit Name: Udorthe						1 10 10 00
•				NWI classific		
Are climatic / hydrologic condit						
Are Vegetation, Soil	, or Hydrology	/ significantly	disturbed? Are "No	ormal Circumstances" p	oresent? Yes	No
Are Vegetation, Soil	, or Hydrology	/ naturally pro	blematic? (If need	ded, explain any answe	rs in Remarks.)	
SUMMARY OF FINDING	3S – Attach si	te map showing	sampling point loc	ations, transects	, important fea	tures, etc.
Hydrophytic Vegetation Pres	ent? Yes	✓ No				
Hydric Soil Present?	Yes _		Is the Sampled A within a Wetland		No	
Wetland Hydrology Present?	Yes _		within a wetiand	i: 163		
Remarks: This plot is located at the edd delineated by flags 14-29. N			dry vernal pool that is hyd	drologically connected to	o PSS/PFO areas o	of the wetland
HYDROLOGY						
Wetland Hydrology Indicat	ors:			Secondary Indica	ators (minimum of t	wo required)
Primary Indicators (minimum	of one is required;	check all that apply)		Surface Soil	Cracks (B6)	
Surface Water (A1)		True Aquatic Pla	ants (B14)	Sparsely Ve	getated Concave S	urface (B8)
High Water Table (A2)		Hydrogen Sulfic	le Odor (C1)	Drainage Pa	tterns (B10)	
Saturation (A3)		Oxidized Rhizos	spheres on Living Roots	(C3) Moss Trim Li	ines (B16)	
Water Marks (B1)		Presence of Re	duced Iron (C4)	Dry-Season	Water Table (C2)	
Sediment Deposits (B2)			duction in Tilled Soils (C6			
Drift Deposits (B3)		Thin Muck Surfa		· · · · · · · · · · · · · · · · · · ·	isible on Aerial Ima	
Algal Mat or Crust (B4)		Other (Explain i	n Remarks)		tressed Plants (D1)	)
Iron Deposits (B5)	rial Imagen (D7)			✓ Geomorphic	, ,	
Inundation Visible on Ae Water-Stained Leaves (I				Shallow Aqui	aphic Relief (D4)	
Aquatic Fauna (B13)	59)			FAC-Neutral		
Field Observations:					1001 (20)	
Surface Water Present?	Ves No	✓ Depth (inches)				
Water Table Present?		Depth (inches)				
Saturation Present?		Depth (inches)		and Hydrology Preser	nt? Yes	No
(includes capillary fringe)				, ,,		
Describe Recorded Data (str	eam gauge, monito	oring well, aerial photo	s, previous inspections),	if available:		
Remarks: The plot is located on the ed	lac of a currently dr	v vornal pool. An alge	al mot is propert. Sails w	vara datarminad maist h	uit wara not noorin	a coturation
The plot is located on the ed	ge of a currently of	y vernai pooi. Ari aiga	armat is present. Sons w	rere determined moist b	out were not nearing	g saturation.

### W18-W02 VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point: Absolute Dominant Indicator **Dominance Test worksheet:** 30 Tree Stratum (Plot size: \_\_\_\_ \_\_) % Cover Species? Status **Number of Dominant Species** \_ (A) That Are OBL, FACW, or FAC: **Total Number of Dominant** Species Across All Strata: (B) Percent of Dominant Species

5				That Are OBL, FA	CW. or F	AC:
6				ŕ		
7.				Prevalence Index	k worksh	eet:
8.		-		Total % Cove	r of:	Mu
0	0%	= Total Co	· —	OBL species _	10	_ x1=_
Sapling/Shrub Stratum (Plot size:)		TOTAL CO	vei	FACW species _		_ x 2 = _
1. Salix fragilis	25	Υ	FAC	FAC species _	27	_ x3=
2. Cornus alba	10	<u> Y</u>	FACW	FACU species _	0	_ x 4 =
3.				UPL species _		_ x 5 =
4				Column Totals: _		(A)
5						
6.	•			Prevalence	Index = E	3/A =
··				Hydrophytic Ved	etation l	ndicators

7				Trydrophytic vegetation indicators.
8.				1 - Rapid Test for Hydrophytic Vegetation
9.				∠ 2 - Dominance Test is >50%
•••				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10	35%	= Total Cov	/er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size:5 )  1. Juncus effusus5	30	Y	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)

OBL Carex stricta <sup>1</sup>Indicators of hydric soil and wetland hydrology must 3. Equisetum arvense FAC 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.

42% = Total Cover

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

100%

Multiply by:

80

81 0 0

171

2.2

(A/B)

(B)

**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
 09/	 	110001111	.00	

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

The interior of this vernal pool is sparsely vegetated and a majority of the vegetation within this plot occurs along the perimeter of the pool. Scirpus pendulus is also present in this area of the wetland but outside of the plot. Unknown moss present is also present.

This plot was determined PEM but note PSS margins.

Woody Vine Stratum (Plot size: 30

W18-W02

Sampling Point:

nches)	Matrix Color (moist)	%		x Features		Loc <sup>2</sup>	Touture		Domorko	
0-4	10YR 4/2	94	Color (moist) 7.5YR 4/6	- <u>%</u> 5	Type <sup>1</sup> C	M M	<u>Texture</u> CL		Remarks	
	10111 4/2									
			2.5Y 6/4		<u>C</u>	<u>M</u>				
4-8	10YR 5/2	80	7.5YR 5/8	10	C	M	C			
			2.5YR 3/6	10	C	M				
8-10	10YR 6/2	70	7.5YR 5/6	20	C	M	CL			
			2.5Y 6/1	10	D	M				
,										
				<del></del>						
			De desert Matrice M	- <u> </u>	0		21 1:	Daniel Links		
	ncentration, D=Deple ndicators:	etion, Rivi=	Reduced Matrix, M	S=IVIasked	Sand Gra	iins.	<sup>2</sup> Location: Pl		ng, M=Matrix. oblematic Hy	dric Soils <sup>3</sup>
_ Histosol (			Dark Surface	e (S7)					A10) <b>(MLRA 1</b> 4	
_	ipedon (A2)		Polyvalue Be		e (S8) <b>(N</b>	LRA 147			Redox (A16)	,
Black His			Thin Dark Su					(MLRA 14	, ,	
	n Sulfide (A4)		Loamy Gleye		<sup>-</sup> 2)		F		oodplain Soils (	(F19)
_	Layers (A5)		<u>✓</u> Depleted Ma		•		_	(MLRA 13		
_	ck (A10) <b>(LRR N)</b> Below Dark Surface	. (Δ11)	Redox Dark Depleted Da	,	,				Material (TF2)  / Dark Surface	(TE12)
	rk Surface (A12)	; (A11)	Redox Depre		. ,				in in Remarks)	
	ucky Mineral (S1) <b>(L</b>	RR N,	Iron-Mangan	•		_RR N,	_ `	Zirior (Explu	iii iii r toinianto,	
	147, 148)		MLRA 13		. , ,					
	leyed Matrix (S4)		Umbric Surfa			-			ydrophytic veg	
	edox (S5)		Piedmont Flo	oodplain So	oils (F19)	(MLRA 14			ology must be	
	Matrix (S6)						u T	nless distur	bed or problem	natic.
	ayer (if observed): ay Hardpan									
Depth (inc							Hydric Soil	Drocont?	Yes_	No
marks:			<del></del>				Tiyane 30h	i i i e se i i i :	163	
is plot qual	ifies for the depleted	matrix ind	icator beginning in I	ayer 1. Red	dox increa	ses with o	depth througho	out the soil p	rofile.	

Project/Site: Willow Grove EIS	3	City/C	county: Montgomery		Sampling Date: _	05/03/2013
Applicant/Owner: U.S. Navy						
Investigator(s): Z. Fink / R. W.	ardwell	Section	on, Township, Range: Hors			
Landform (hillslope, terrace, et			ef (concave, convex, none)		Slon	 _ (%). 1-3
Subregion (LRR or MLRA): 14						
Soil Map Unit Name: Udorthe						
Are climatic / hydrologic condit						,
Are Vegetation, Soil	, or Hydrology	significantly distur	bed? Are "Normal Ci	rcumstances" p	resent? Yes	No
Are Vegetation, Soil	, or Hydrology	naturally problema	atic? (If needed, exp	lain any answer	s in Remarks.)	
SUMMARY OF FINDING	GS - Attach site n	nap showing sam	pling point locations	s, transects,	important fea	tures, etc.
Hydrophytic Vegetation Pres	ent? Yes	No	In the Complet Area			
Hydric Soil Present?	Yes		Is the Sampled Area within a Wetland?	Yes	No	
Wetland Hydrology Present?		No	Within a Welland.			
Remarks: This plot is located on a sligh edge of the airstrip.	it slope roughly 1' highe	r in elevation than paire	ed plot W01. The plot is loca	ated in an uplan	d scrub-shrub ope	ning near the
HYDROLOGY						
Wetland Hydrology Indicat				-	tors (minimum of t	wo required)
Primary Indicators (minimum			· ·	_ Surface Soil (	• •	
Surface Water (A1)		True Aquatic Plants (			etated Concave S	urface (B8)
High Water Table (A2) Saturation (A3)		Hydrogen Sulfide Od	es on Living Roots (C3)	_ Drainage Pat		
Water Marks (B1)		Presence of Reduced		_ Moss Trim Li	Nater Table (C2)	
Sediment Deposits (B2)		Recent Iron Reductio	· · ·	_ Crayfish Burr		
Drift Deposits (B3)		Thin Muck Surface (C			sible on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)		Other (Explain in Ren	· ·		ressed Plants (D1	
Iron Deposits (B5)			_	_ Geomorphic		,
Inundation Visible on Ae	rial Imagery (B7)		_	_ Shallow Aqui	tard (D3)	
Water-Stained Leaves (I	39)		_	_ Microtopogra	phic Relief (D4)	
Aquatic Fauna (B13)			_	_ FAC-Neutral	Test (D5)	
Field Observations:						
Surface Water Present?		_ Depth (inches):				
Water Table Present?		_ Depth (inches):				
Saturation Present? (includes capillary fringe)	Yes No	_ Depth (inches):	Wetland Hyd	drology Presen	t? Yes	No
Describe Recorded Data (str	eam gauge, monitoring	well, aerial photos, pre	vious inspections), if availab	ble:		
Remarks:						
The plot is situated in a well	drained position on a sli	ight slope above a wetl	and depression. No indicate	ors.		

	Absolute	Dominant	Indicator	Dominance Test	workshee	et:		
ree Stratum (Plot size:)		Species?		Number of Domin				
				That Are OBL, FA			0	(A)
				Total Number of [	Cominant			
				Species Across A			3	(B)
				Percent of Domin	ant Snecie	76		
·				That Are OBL, FA			0%	(A/B)
				Prevalence Index	v worksho	not:		
				Total % Cove			ıltiply by:	
				OBL species	0	x 1 =		_
Sandinar/Ohmuh Otratuma (Diet sine). 15		= Total Cov	er	FACW species _	5	_	40	_
apling/Shrub Stratum (Plot size:15	) 40	Υ	UPL	FAC species _	0	_ x2 x3=	0	_
Cornus florida	10		FACU	FAC species _	102	_ x3 _ x4=	400	-
Cornus alba			FACW	UPL species _	40	_	200	-
Rosa multiflora	<del></del> <del></del> 5		FACU	Column Totals:	147		618	<b>–</b> (B)
Juniperus virginiana	$\frac{3}{2}$		FACU	Column rotals		_ (A) _		_ (B)
				Prevalence	Index = B	/A =	4.2	_
				Hydrophytic Veg	etation In	dicators	<u> </u>	
				1 - Rapid Tes				
				2 - Dominano	e Test is >	>50%		
				3 - Prevalenc	e Index is	≤3.0 <sup>1</sup>		
0	62%	= Total Cov	er	4 - Morpholog	gical Adap marks or o	tations¹ (l on a sepa	Provide sup	porting
lerb Stratum (Plot size:5 ) Andropogon virginicus	65	Υ	FACU	Problematic I		•		in)
Solidago canadensis		<u> </u>	FACU	_		•		,
	<del></del>		FACU	<sup>1</sup> Indicators of hyd	ric soil and	d wetland	hydrology r	nust
				be present, unless				
·				Definitions of Fo	ur Vegeta	tion Stra	ta:	
·				Tree – Woody pla	ints exclu	dina vines	3 in (7.6	cm) or
				more in diameter				
				height.				
				Sapling/Shrub –	Woody pla	ants, excl	uding vines	, less
•				than 3 in. DBH an	d greater	than 3.28	ft (1 m) tall	
0				Herb – All herbac	eous (non	-woody) r	olants, rega	rdless
1				of size, and wood				
2				Woody vine – All	woody vir	nes areat	ar than 3 28	ft in
Voody Vine Stratum (Plot size: 30 )	85%	= Total Cov	er	height.	woody vii	ico great	or than o.ze	
				Hydrophytic				
·				Vegetation			_	
				Present?	Yes	N	· <u> </u>	
	0%	= Total Cov						

N18-U01

Sampling Point: \_\_\_\_

Depth inches)	Matrix Color (moist)	%	Redox Features Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>	— Texture	Remarks
0-4	10YR 4/4	100	Color (moist) /0 Type Loc	SL	
4-14	7.5YR 5/6	100		CL	
				_	
					_
		etion, RM=	Reduced Matrix, MS=Masked Sand Grains.	<sup>2</sup> Location: Pl	_=Pore Lining, M=Matrix.
iric Soil I	ndicators:			Indica	ators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Dark Surface (S7)		cm Muck (A10) (MLRA 147)
	ipedon (A2)		Polyvalue Below Surface (S8) (MLRA 1	· · · —	Coast Prairie Redox (A16)
Black His			Thin Dark Surface (S9) (MLRA 147, 14	•	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleyed Matrix (F2)	F	Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Matrix (F3)	_	(MLRA 136, 147)
	ck (A10) <b>(LRR N)</b> Below Dark Surface	Δ(Δ11)	<ul><li>Redox Dark Surface (F6)</li><li>Depleted Dark Surface (F7)</li></ul>		Red Parent Material (TF2) 'ery Shallow Dark Surface (TF12)
	rk Surface (A12)	<i>(</i> /(11)	Redox Depressions (F8)		Other (Explain in Remarks)
	ucky Mineral (S1) <b>(L</b>	RR N.	Iron-Manganese Masses (F12) (LRR N		orier (Explain in Remarks)
	147, 148)	,	MLRA 136)	'	
	leyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)	<sup>3</sup> Ind	licators of hydrophytic vegetation and
	edox (S5)		Piedmont Floodplain Soils (F19) (MLRA		vetland hydrology must be present,
Stripped	Matrix (S6)			u	nless disturbed or problematic.
strictive L	.ayer (if observed):				
Туре:					
Depth (inc	hes):			Hydric Soil	Present? Yes No
marks:					
, no indica	ators met.				

WETLAND ID: WW-W19

### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
yes no could not be determined because wetland extends beyond the ROW	Is the wetland:  ightharpoonup directly abutting ightharpoonup adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection: Abutting S04. Areas E of culvert DR-001-006 drain to S04 through intermittent small swales W of drain point. Wetland is riparian OSF to stream.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
	Discrete and OSF.
Associated Stream:  yes no If yes, list ID: SS-S04 (Use separate datasheet for each associated stream)	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow
Approximate distance of wetland to stream (straight aerial feet):	Surface flow characteristic from wetland to associated stream:   discrete  overland sheet flow  confined  other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS	City/County: Montgomery	Sampling Date: 04/04/2013
Applicant/Owner: U.S. Navy		State: PA Sampling Point: W19-W01
•••	Section, Township, Range:	
	Local relief (concave, convex, no	
	Lat: 2697038.6 Long: 322	
	Long	Datum. 1000
Soil Map Unit Name:		
	cal for this time of year? Yes No	
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are "Norma	l Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology	naturally problematic? (If needed, e	explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach sit	e map showing sampling point location	ons, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	V No	
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes	Is the Sampled Area	
Wetland Hydrology Present? Yes	No within a Wetland?	Yes No
Remarks:	<u> </u>	
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required;	check all that apply)	Surface Soil Cracks (B6)
✓ Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
✓ High Water Table (A2)	Hydrogen Sulfide Odor (C1)	✓ Drainage Patterns (B10)
✓ Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)	Moss Trim Lines (B16)
Water Marks (B1)	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Crayfish Burrows (C8)
Drift Deposits (B3)	Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)		✓ Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
✓ Water-Stained Leaves (B9)		<ul><li>Microtopographic Relief (D4)</li><li>FAC-Neutral Test (D5)</li></ul>
Aquatic Fauna (B13)		FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes ✓ No	Depth (inches): 1	
	Depth (inches):2	
		Hydrology Present? Yes No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitor	ring well, aerial photos, previous inspections), if ava	ilable:
Remarks: Saturated from surface to water table		
Catalaca nom sanace to water table		

30	Absolute	Dominant		Dominance Test worksheet:
ree Stratum (Plot size:30) Acer rubrum	<u>% Cover</u> 30	Species? Yes	<u>Status</u> FAC	Number of Dominant Species That Are OBL, FACW, or FAC:4 (A)
Fraxinus pennsylvanica	20	Yes	FACW	
				Total Number of Dominant Species Across All Strata:  4 (B)
				(B)
				Percent of Dominant Species That Are ORL FACW or FAC: 100% (A/R
				That Are OBL, FACW, or FAC: 100% (A/B
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
	50%			OBL species0 x 1 =0
apling/Shrub Stratum (Plot size: 15 )		= Total Cov	er	FACW species60 x 2 =120
Cornus alba	40	Yes	FACW	FAC species 40 x 3 = 120
Acer rubrum		Yes	FAC	FACU species0 x 4 =0
				UPL species 0 x 5 = 0
				400
				Column Totals:(A)(B)
				Prevalence Index = B/A =2.4
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				✓ 2 - Dominance Test is >50%
				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
0				1 <del>-</del>
_	50%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
lerb Stratum (Plot size:5				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				riobienialio riyaropiiylio vegetation (Explain)
				<sup>1</sup> 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) o
				more in diameter at breast height (DBH), regardless of height.
				no.gra.
				Sapling/Shrub – Woody plants, excluding vines, less
D				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				Herb – All herbaceous (non-woody) plants, regardless
1				of size, and woody plants less than 3.28 ft tall.
2	0%		-	Woody vine – All woody vines greater than 3.28 ft in
/oody Vine Stratum (Plot size:)		= Total Cov	er	height.
, , , , , , , , , , , , , , , , , , , ,				
				Hydrophytic
·				Vegetation
				Present? Yes No
		= Total Cov	er	
emarks: (Include photo numbers here or on a separat	o choot )			_

W19-W01

Sampling Point:

inches)	Matrix Color (moist)	%	Color (moist)	x Features	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-2	10YR 3/2	100	(IIIOISI)		- Nhc		SL	Nemans
			40)/5 4/0					
2-6	10YR 3/2	85	10YR 4/6	15		M	SL	
6-16	10YR 4/2	80	10YR 3/2	20	C	M	CL	
				- ——				
	-							
				-				
	oncentration, D=Dep	etion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.		ore Lining, M=Matrix.
	Indicators:							rs for Problematic Hydric Soils <sup>3</sup>
Histosol	` '		Dark Surface					Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be					st Prairie Redox (A16)
	stic (A3)		Thin Dark Su	, ,	•	47, 148)		ILRA 147, 148)
	en Sulfide (A4) d Layers (A5)		Loamy Gleye _✓ Depleted Ma	•	-2)			mont Floodplain Soils (F19) ILRA 136, 147)
	ick (A10) <b>(LRR N)</b>		Redox Dark	. ,	6)			Parent Material (TF2)
	d Below Dark Surface	e (A11)	Depleted Da					Shallow Dark Surface (TF12)
	ark Surface (A12)	,	Redox Depre					er (Explain in Remarks)
	lucky Mineral (S1) <b>(L</b>	.RR N,	Iron-Mangan	•		LRR N,	_	,
MLR	A 147, 148)		MLRA 13	6)				
	Gleyed Matrix (S4)		Umbric Surfa			-		tors of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	8) wetla	and hydrology must be present,
	Matrix (S6)						unles	ss disturbed or problematic.
strictive	Layer (if observed):							
Type:			<del></del>					
Depth (in	ches):						Hydric Soil Pro	esent? Yes No
marks:								

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date:04/04/2013
Applicant/Owner: U.S. Navy			Sampling Point: W19-U01
•	Section, Township, Range:		
•	Local relief (concave, convex, no		Slope (%): 0-2
	Lat: 2697027.3 Long: 322		
Soil Map Unit Name: Udorthents shale and sand	stone 0-8% slopes	NWI classi	fication: UPL
Are climatic / hydrologic conditions on the site typi	cal for this time of year? Yes No	(If no, explain in	Remarks.)
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are "Norma	al Circumstances'	present? Yes V No
Are Vegetation, Soil, or Hydrology			vers in Remarks.)
	e map showing sampling point location		
Hydrophytic Vegetation Present? Yes	No Latha Campled Area		
Hydric Soil Present? Yes _	No Is the Sampled Area within a Wetland?	Yes	No
Wetland Hydrology Present? Yes _	No		
observed in photos is rooted in wetland boundary			
HYDROLOGY		المسالسية المسالسية	( ) ! · · · · · · · · · · · · · · · · · ·
Wetland Hydrology Indicators:	to the standard		cators (minimum of two required)
Primary Indicators (minimum of one is required;	<del>-</del>	Surface So	
Surface Water (A1) High Water Table (A2)	True Aquatic Plants (B14)		egetated Concave Surface (B8)
High Water Table (A2) Saturation (A3)	<ul><li>Hydrogen Sulfide Odor (C1)</li><li>Oxidized Rhizospheres on Living Roots (C3)</li></ul>		Patterns (B10) Lines (B16)
Water Marks (B1)	Presence of Reduced Iron (C4)		n Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)		urrows (C8)
Drift Deposits (B3)	Thin Muck Surface (C7)		Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Remarks)	· · · · · · · · · · · · · · · · · · ·	Stressed Plants (D1)
Iron Deposits (B5)			ic Position (D2)
Inundation Visible on Aerial Imagery (B7)			quitard (D3)
Water-Stained Leaves (B9)			graphic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutr	al Test (D5)
Field Observations:			
	Depth (inches):		
	Depth (inches):	··	
Saturation Present? Yes No _ (includes capillary fringe)	Depth (inches): Wetland i	Hydrology Pres	ent? Yes No
	ing well, aerial photos, previous inspections), if ava	ailable:	
Remarks:			
Nearing saturation at 9 inches.			

EGETATION (Four Strata) – Use scientific	names of	plants.		Sampling Point: W19-U01
Tree Stratum (Plot size: 30 )	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1				Number of Dominant Species That Are OBL, FACW, or FAC:   (A)
2.				Total Number of Dominant
3				Species Across All Strata: 3 (B)
4				Percent of Dominant Species
5 6				That Are OBL, FACW, or FAC: 66.67% (A/B)
6 7				Prevalence Index worksheet:
8				Total % Cover of: Multiply by:
	201	= Total Cov	/er	OBL species x 1 = 0
Sapling/Shrub Stratum (Plot size:)				FACW species0 x 2 =0
1				FAC species 45 x 3 = 135
2				FACU species 25 x 4 = 100
3				UPL species
4				Column Totals:(A)(B)
5				Prevalence Index = B/A =3.4
6				Hydrophytic Vegetation Indicators:
7 8				1 - Rapid Test for Hydrophytic Vegetation
8 9				✓ 2 - Dominance Test is >50%
10				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		= Total Cov	/er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size:5 )  1. Panicum virgatum	30	Yes	FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Setaria pumila	15	Yes	FAC	
3. Solidago canadensis	15	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
4. Andropogon virginicus	10	No	FACU	be present, unless disturbed or problematic.
5.				Definitions of Four Vegetation Strata:
6.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7.				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12	700/			Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 30 )		= Total Cov	/er	height.
1				
2				
3 4				
5.				Hydrophytic
6.				Vegetation Present?  Yes No _ ✓
<u> </u>	0%	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate	<u> </u>			<u>.</u>
	- · · · ,			

. W19-U01

SOIL

Sampling Point: \_

Depth	Matrix			x Features	3 1			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-4	10YR 3/3	100					L	
4-9	10YR 4/2	80	7.5YR 5/8		C	M/PL	CL	Refusal at 9 inches due to rock/fill
	oncentration, D=Depl ndicators:	etion, RM=F	Reduced Matrix, M	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.  cators for Problematic Hydric Soils <sup>3</sup>
_ Histosol _ Histic Ep _ Black His	pipedon (A2)		Dark Surface Polyvalue Be Thin Dark Su	elow Surfac				2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 147, 148)</b>
Stratified	n Sulfide (A4) I Layers (A5)		Loamy Gleye	trix (F3)				Piedmont Floodplain Soils (F19) (MLRA 136, 147)
_ Depleted	ck (A10) <b>(LRR N)</b> Below Dark Surface	e (A11)	Redox Dark Depleted Da	rk Surface	(F7)		\	Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
_ Sandy M	ark Surface (A12) lucky Mineral (S1) <b>(L</b> <b>. 147, 148)</b>	RR N,	Redox Depre Iron-Mangan MLRA 13	ese Masse		(LRR N,	_ (	Other (Explain in Remarks)
_ Sandy G	eleyed Matrix (S4)		Umbric Surfa	ace (F13) <b>(</b>				dicators of hydrophytic vegetation and wetland hydrology must be present,
	Matrix (S6)					•	-	unless disturbed or problematic.
estrictive L	ayer (if observed):							
Type:								
Depth (inc	ches):						Hydric Soi	I Present? Yes No

WETLAND ID: WW-W20

### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
yes  ould not be determined because wetland extends beyond the ROW  If no, explain hydrologic connection:  Wetland is adjacent to ditch S03. Surface flow from wetland to stream is blocked by the ditch berm. Subsurface connection present.	Is the wetland:  directly abutting  adjacent (not directly but hydrologically connected)  Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection  Ecological connection  Separated by berm/barrier  Explain:
Associated Stream:  vyes no If yes, list ID: SS-S03 (Use separate datasheet for each associated stream)	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface on surface flow
Approximate distance of wetland to stream (straight aerial feet): 5 - 10 feet	Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow confined other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS	City/County: Montgomery		_ Sampling Date:04/04/2013		
Applicant/Owner: U.S. Navy			Sampling Point: W20-W01		
	Section, Township, Range: _		<u> </u>		
	Local relief (concave, convex, n		Slope (%): 0-1		
	Lat: 2696609.3 Long: 32				
Soil Map Unit Name: Udorthents shale and s	andstone 0-8% slopes	NWI classifi	ication: PSS		
Are climatic / hydrologic conditions on the site	ypical for this time of year? Yes No	(If no, explain in I	Remarks.)		
Are Vegetation, Soil, or Hydrol	ogy significantly disturbed? Are "Norm	al Circumstances"	present? Yes No		
Are Vegetation, Soil, or Hydrol	ogy naturally problematic? (If needed	explain any answ	ers in Remarks.)		
SUMMARY OF FINDINGS - Attach	site map showing sampling point locati	ons, transects	s, important features, etc.		
Hydrophytic Vegetation Present? Yes	No Is the Sampled Area				
Hydric Soil Present? Yes			No		
Wetland Hydrology Present? Yes	Within a Wetland:	163			
present within wetland, shallow depression.	rchard. Plot roughly 1.5 feet lower in elevation than p	valled plot ecc.	it mound misro topography to		
HYDROLOGY					
Wetland Hydrology Indicators:		Secondary Indic	cators (minimum of two required)		
Primary Indicators (minimum of one is require		Surface Soi			
Surface Water (A1)	True Aquatic Plants (B14)		egetated Concave Surface (B8)		
<u>✓</u> High Water Table (A2)	✓ Hydrogen Sulfide Odor (C1)		atterns (B10)		
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)				
Water Marks (B1)	Presence of Reduced Iron (C4)		Water Table (C2)		
Sediment Deposits (B2) Drift Deposits (B3)	<ul><li>Recent Iron Reduction in Tilled Soils (C6)</li><li>Thin Muck Surface (C7)</li></ul>	Crayfish Bu	Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4)	Other (Explain in Remarks)		Stressed Plants (D1)		
Iron Deposits (B5)	Onlor (Explain in Contains)	Geomorphic Position (D2)			
Inundation Visible on Aerial Imagery (B7		Shallow Aqu			
✓ Water-Stained Leaves (B9)		Microtopographic Relief (D4)			
Aquatic Fauna (B13)		FAC-Neutra	al Test (D5)		
Field Observations:					
	o Depth (inches): 1				
	o Depth (inches):9				
	o Depth (inches): 0-9 surf to WT Wetland	Hydrology Prese	ent? Yes V No No		
(includes capillary fringe)  Describe Recorded Data (stream gauge, more	itoring well, aerial photos, previous inspections), if a	vailable:			
Remarks:					

# VEGETATION (Four Strata) – Use scientific names of plants. Absolute Dominant Indicator Deminance Test worksheet:

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:)		Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC:2 (A)
2.				
				Total Number of Dominant Species Across All Strata: 2 (B)
3				Species Across All Strata:2 (B)
4				Percent of Dominant Species
5	- ——			That Are OBL, FACW, or FAC:100% (A/B)
6				
7				Prevalence Index worksheet:
8				Total % Cover of: Multiply by:
	0%	= Total Cov		OBL species15 x 1 =15
Sapling/Shrub Stratum (Plot size:15		- Total Cov	er	FACW species75 x 2 =150
1. Cornus alba	75	Yes	FACW	FAC species 0 x 3 = 0
2				FACU species
3				UPL species x 5 =
4				Column Totals: 90 (A) 165 (B)
5	_			1.0
6.				Prevalence Index = B/A =1.8
				Hydrophytic Vegetation Indicators:
7				✓ 1 - Rapid Test for Hydrophytic Vegetation
8				✓ 2 - Dominance Test is >50%
9				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10				I — .
	75%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)				· · · · · · · · · · · · · · · · · · ·
1. Scirpus pendulus	15	Yes	OBL	Problematic Hydrophytic Vegetation¹ (Explain)
2.				
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5	- ——			<b>-</b>
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7				height.
8.				
				Sapling/Shrub – Woody plants, excluding vines, less
9	- —			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12				
	15%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2.				
3				
4				Hydrophytic
5				Vegetation
6				Present? Yes V No No
	0%	= Total Cov	er	
Remarks: (Include photo numbers here or on a separate	sheet )			
Unknown hydrophytic moss present.	oricci.)			
Acer rubrum saplings present within wetland, but not plot.		ground.		
Vast majority of wetland is dominated by Cornus alba sap	olings.			

W20-W01

Profile Desc	ription: (Describe t	o the dept	h needed to docun	nent the i	ndicator	or confirm	the absence	of indicate	ors.)	
Depth	Matrix		Redo	x Features	3					
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>		Remarks	
0-2	10YR 4/3	95	10YR 4/6	5	С	M	SL			
2-10	10YR 4/3	75	7.5YR 5/6	25	С	M/PL	L	Refusal at	10 inches due	to rock
	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.			ng, M=Matrix.	3
Hydric Soil I	ndicators:						Indic	ators for Pi	roblematic Hy	dric Soils <sup>*</sup> :
Histosol			Dark Surface						A10) <b>(MLRA 1</b> 4	47)
	pipedon (A2)		Polyvalue Be				148) (		e Redox (A16)	
Black His			Thin Dark Su		-	147, 148)	=	(MLRA 14		(= 4.0)
	n Sulfide (A4)		Loamy Gleye		F2)		F		oodplain Soils (	(F19)
	Layers (A5)		Depleted Mar		(C)		_	(MLRA 13		
	ick (A10) <b>(LRR N)</b> d Below Dark Surface	. (	Redox Dark S Depleted Dar						Material (TF2) v Dark Surface	(TE12)
	ark Surface (A12)	(A11)	Redox Depre						in in Remarks)	
	lucky Mineral (S1) <b>(L</b>	RR N	Iron-Mangan		•	I RR N	_ `	эшег (шхріа	iiii iii ixeiliaiks)	
	147, 148)	,	MLRA 13		30 (1 12) (	Littit it,				
	Gleyed Matrix (S4)		Umbric Surfa	-	MLRA 13	36. 122)	<sup>3</sup> Inc	dicators of h	ydrophytic veg	etation and
	ledox (S5)		Piedmont Flo			-			rology must be	
	Matrix (S6)		_		()	<b>(</b>	-		bed or problem	
	_ayer (if observed):								·	
Type:										
Depth (inc	ches).						Hydric Soi	I Present?	Yes 🗸	No
Remarks:			<del></del>				1 .,			
	nigh to qualify for F3,	but nearly	qualifies, appeared	between 4	1/2 and 4	/3. Sulfuric	odor apparent	t at time of p	oit excavation.	

Project/Site: Willow Grove EIS		City/County: Montgomery		_ Sampling Date: _	04/04/2013		
Applicant/Owner: U.S. Navy							
Investigator(s): Z. Fink, J. Carlo Section, Township, Range:							
Landform (hillslope, terrace, etc.): Flat				Slop	e (%): <sup>0</sup>		
Subregion (LRR or MLRA): 148/LRRS							
Soil Map Unit Name: Udorthents shall							
Are climatic / hydrologic conditions on	the site typical for this time of	f year? Yes No	(If no, explain in I	Remarks.)			
Are Vegetation, Soil, or	r Hydrology significar	ntly disturbed? Are "Norma	al Circumstances"	present? Yes	No		
Are Vegetation, Soil, or			explain any answ				
SUMMARY OF FINDINGS – A					itures, etc.		
Hydrophytic Vegetation Present?	Yes No						
Hydric Soil Present?	Yes No Yes No	<ul><li>Is the Sampled Area</li><li>within a Wetland?</li></ul>	Vas	No			
Wetland Hydrology Present?	Yes No	— Within a Wetland:	163				
Plot is located in an area of upland shelevation than paired plot W01.		g	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
HYDROLOGY							
Wetland Hydrology Indicators:			Secondary Indic	ators (minimum of t	wo required)		
Primary Indicators (minimum of one is			Surface Soi				
Surface Water (A1)	True Aquation			egetated Concave S	urface (B8)		
High Water Table (A2)		ulfide Odor (C1)		atterns (B10)			
Saturation (A3)		nizospheres on Living Roots (C3)	Moss Trim I				
Water Marks (B1) Sediment Deposits (B2)		Reduced Iron (C4) Reduction in Tilled Soils (C6)	Dry-Seasor Crayfish Bu	Water Table (C2)			
Drift Deposits (B3)	Recent from Thin Muck S			/isible on Aerial Ima	idery (C9)		
Algal Mat or Crust (B4)	<del></del>	ain in Remarks)	· · ·	Stressed Plants (D1			
Iron Deposits (B5)		,	Geomorphic Position (D2)				
Inundation Visible on Aerial Imag	gery (B7)		Shallow Aquitard (D3)				
Water-Stained Leaves (B9)			Microtopographic Relief (D4)				
Aquatic Fauna (B13)			FAC-Neutra	al Test (D5)			
Field Observations:							
1	No V Depth (inch						
	No V Depth (inch						
Saturation Present? Yes _ (includes capillary fringe)	No Depth (inch	nes):   Wetland	Hydrology Prese	nt? Yes <u> </u>	No		
Describe Recorded Data (stream gau	 ige, monitoring well, aerial ph	notos, previous inspections), if av	ailable:				
Remarks:							
Nearing saturation at 10 inches.							

	names of			Sampling Point: W20-U01
Tree Stratum (Plot size: 30	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:30 )  1 Juniperus virginiana	<u>% Cover</u> 15	Species? Yes	Status FACU	Number of Dominant Species That Are ORL FACW or FAC:
				That Are OBL, FACW, or FAC:1 (A)
2. Pyrus communis	15	Yes	UPL	Total Number of Dominant
3. Acer rubrum	5	No	<u>FAC</u>	Species Across All Strata: 4 (B)
4				Developt of Deminant Charles
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)
6				(13)
7.				Prevalence Index worksheet:
8.				Total % Cover of: Multiply by:
o	35%	= Total Cov		OBL species0 x 1 =0
Sapling/Shrub Stratum (Plot size:)		- Total Cov	CI	FACW species10 x 2 =20
1. Rosa multiflora	10	Yes	FACU	FAC species5 x 3 =15
2. Cornus alba	10	Yes	FACW	FACU species 25 x 4 = 100
= -				UPL species15 x 5 =75
3				55 040
4				Column Totals:(A)(B)
5				Prevalence Index = B/A =3.8
6				Hydrophytic Vegetation Indicators:
7				
8				1 - Rapid Test for Hydrophytic Vegetation
9				2 - Dominance Test is >50%
10				3 - Prevalence Index is ≤3.0 <sup>1</sup>
	000/	= Total Cov	er	4 - Morphological Adaptations (Provide supporting
Herb Stratum (Plot size:5			<b>.</b>	data in Remarks or on a separate sheet)
1				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2.				
3.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				
11				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12.				of size, and woody planto less than 6.25 it tail.
	0%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 30 )				height.
1				
2.				
3.				
				Hydrophytic
4				1 Vagatation
4.     5.				Vegetation No. No.
4		= Total Cov		Present? Yes No

W20-U01

Profile Desc	ription: (Describe t	o the dept	h needed to docun	nent the i	ndicator	or confirm	the absence	of indicators.)		
Depth	Matrix		Redo	x Features	3					
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	<u>Texture</u>	Rer	marks	
0-4	7.5YR 4/3	100					L			
4-6	10YR 5/3	75	7.5YR 4/6	25		M	CL			
6-10	10YR 4/1	90	7.5YR 3/4	10				Clay refusal at 10	inches	
	1011(4/1		7.5110 3/4					Clay relusar at 10	11101103	
								-		
1 <sub>Tyme:</sub> C=Ce	nacetration D=Deni	otion DM-	Daduard Matrix MC		Cand Cr		2l acation: Di	L-Dara Lining M-N		
Hydric Soil I	ncentration, D=Depl	etion, Rivi=	Reduced Matrix, MS	=iviasked	Sand Gr	ains.		L=Pore Lining, M=N ators for Problema		ric Soils <sup>3</sup> :
-			Dark Surface	(87)					-	
Histosol	ipedon (A2)		Dark Surface Polyvalue Be	• ,	oo (S8) <b>(N</b>	MI DA 1/17		2 cm Muck (A10) <b>(M</b> Coast Prairie Redox		,
Black His			Thin Dark Su		. , .		140)	(MLRA 147, 148)		
	n Sulfide (A4)		Loamy Gleye	, ,	•	147, 140)	F	Piedmont Floodplair		19)
	Layers (A5)		✓ Depleted Mat		-/			(MLRA 136, 147)	•	,
	ck (A10) <b>(LRR N)</b>		Redox Dark S		6)		F	Red Parent Material		
	Below Dark Surface	e (A11)	Depleted Dar	•	,			ery Shallow Dark S		ΓF12)
	rk Surface (A12)		Redox Depre	ssions (F	3)		0	Other (Explain in Re	marks)	
	ucky Mineral (S1) <b>(L</b>	RR N,	Iron-Mangan		es (F12) <b>(</b>	LRR N,				
	147, 148)		MLRA 13	-			2			
	leyed Matrix (S4)		Umbric Surfa			-		dicators of hydrophy		
	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	-	vetland hydrology n		
	Matrix (S6)						u T	ınless disturbed or p	oroblemat	tic.
	ayer (if observed):									
Type:	0.00		<del></del>					. D (2 ) V	~	
	hes): 0.00		<del></del>				Hydric Soil	I Present? Yes	<u> </u>	No
Remarks:	has been cleared an	d disturbed	-enile in nlot noesibl	v disturba	Ч					
realby area	nas been cicarca an	a alotarboa	Jone III plot possibl	y distance	u.					

WETI	AND	ID.	<b>1</b> 3/13/_	W21

Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
	Is the wetland: directly abutting adjacent (not directly but hydrologically connected)
Connects to storm sewer drain.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:	
✓ no	Surface flow type from wetland to associated stream:
If yes, list ID: SS	intermittent surface ephemeral surface
(Use separate datasheet for each associated stream)	perennial surface no surface flow
Approximate distance of wetland to stream (straight aerial feet):  PEM wetland located in roadside drainage ditch	Surface flow characteristic from wetland to associated stream:  discrete  overland sheet flow  confined
	other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS	City/County: Montgomery		Sampling Date:04/02/2013			
Applicant/Owner: U.S. Navy			Sampling Point: W21-W01			
Investigator(s): Z. Fink, J. Carlo	Section, Township, Range:					
Landform (hillslope, terrace, etc.): Drainage way			Slope (%): 1			
Subregion (LRR or MLRA): 148/LRRS						
Soil Map Unit Name: Udorthents shale and sand						
Are climatic / hydrologic conditions on the site typ	cal for this time of year? Yes No	(If no, explain in	Remarks.)			
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are "Norm	al Circumstances"	present? Yes No			
Are Vegetation, Soil, or Hydrology		, explain any answ				
SUMMARY OF FINDINGS - Attach si	te map showing sampling point locat	ons, transects	s, important features, etc.			
Hydrophytic Vegetation Present? Yes _ Hydric Soil Present? Yes _	—— Is the Sampled Area		No			
Wetland Hydrology Present? Yes _	No	163				
perimeter road.	plot U01 - plot located at edge of drainage way/n	ian-made diton. III	r Eivi wettand adjacent to			
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indic	cators (minimum of two required)			
Primary Indicators (minimum of one is required;		Surface So				
✓ Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)				
✓ High Water Table (A2)	Hydrogen Sulfide Odor (C1)		atterns (B10)			
✓ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3					
<ul><li>Water Marks (B1)</li><li>Sediment Deposits (B2)</li></ul>	<ul><li>Presence of Reduced Iron (C4)</li><li>Recent Iron Reduction in Tilled Soils (C6)</li></ul>	Dry-Seasor Crayfish Bu	Water Table (C2)			
Sediment Deposits (B2) Drift Deposits (B3)	Thin Muck Surface (C7)		Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	Other (Explain in Remarks)		Stressed Plants (D1)			
rigal field of Grast (E4) Iron Deposits (B5)		Geomorphic Position (D2)				
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)				
Water-Stained Leaves (B9)		Microtopographic Relief (D4)				
Aquatic Fauna (B13)		FAC-Neutra	al Test (D5)			
Field Observations:						
I	Depth (inches): <1					
	Depth (inches):10		•			
	Depth (inches): 0-10 Wetland	Hydrology Prese	ent? Yes No			
(includes capillary fringe)  Describe Recorded Data (stream gauge, monito	ring well, aerial photos, previous inspections), if a	vailable:				
Remarks:						

	names of		la di a tan	Sampling Point: W21-W01
Tree Stratum (Plot size: 30 )	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1			Status	Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
3	00/	= Total Cov		OBL species60 x 1 =60
Sapling/Shrub Stratum (Plot size:)		- Total Cov	CI	FACW species0 x 2 =0
1				FAC species 20 x 3 = 60
2.				FACU species5 x 4 =20
3.				UPL species 0 x 5 = 0
4				Column Totals:85
5				
5.				Prevalence Index = B/A =1.6
7.				Hydrophytic Vegetation Indicators:
3.				1 - Rapid Test for Hydrophytic Vegetation
				✓ 2 - Dominance Test is >50%
9 10				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
	0%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size:5 )  1. Typha latifolia	40	Yes	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Juncus tenuis	20	Yes	FAC	
3. Eleocharis acicularis	20	Yes	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Andropogon virginicus		No	FACU	be present, unless disturbed or problematic.
··				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5				more in diameter at breast height (DBH), regardless of
7				height.
B				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12				Weedy vine All weedy vines greater than 2.29 ft in
Noody Vine Stratum (Plot size:)	<u>85%</u>	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
1 2				
3.				
4.				
5.				Hydrophytic
J				Vegetation Present?  Yes ✓ No
2		Total Cov		100 100
6				

W21-W01

Profile Desc	ription: (Describe t	o the dept	h needed to docun	nent the i	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix		Redo	x Features	3			
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-2	10YR 4/2	98	7.5YR 3/4	2	C	PL	SL	CONTAINS PDOM
2-9	10YR 4/2	85	7.5YR 5/6	10	C	M/PL	CL	
			10YR 4/6	5	C	M/PL		
9-12	7.5YR 3/3	95	10YR 4/6	5			SC	More clay content than 2nd layer,
								rock/fill refusal at 12 in.
	ncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.		L=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:						Indica	ators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Dark Surface					cm Muck (A10) (MLRA 147)
	ipedon (A2)		Polyvalue Be				148) 0	Coast Prairie Redox (A16)
Black His			Thin Dark Su			147, 148)		(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		F2)		F	Piedmont Floodplain Soils (F19)
	Layers (A5)		<u>✓</u> Depleted Ma					(MLRA 136, 147)
	ck (A10) <b>(LRR N)</b>		Redox Dark S					Red Parent Material (TF2)
	Below Dark Surface	e (A11)	Depleted Dar					/ery Shallow Dark Surface (TF12)
	rk Surface (A12)		Redox Depre		,		c	Other (Explain in Remarks)
	ucky Mineral (S1) (L	RR N,	Iron-Mangan		es (F12) <b>(</b>	LRR N,		
	. 147, 148)		MLRA 13	-			2	
	leyed Matrix (S4)		Umbric Surfa			-		licators of hydrophytic vegetation and
	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	-	vetland hydrology must be present,
	Matrix (S6)						u	nless disturbed or problematic.
_	.ayer (if observed):							
Type:	shoo):		<del></del>				Hudria Sail	Present? Yes No
	:hes):		<del></del>				Hydric Soil	Present? res No
Remarks:								

Project/Site: Willow Grove EIS	City/County: Montgon	nery	_ Sampling Date:04/02/2013
Applicant/Owner: U.S. Navy			Sampling Point: W21-U01
Investigator(s): Z. Fink, J. Carlo			<u> </u>
Landform (hillslope, terrace, etc.):			Slone (%): 10
Subregion (LRR or MLRA): 148/LRRS LSoil Map Unit Name: Udorthents shale and sandsto	one 0 - 8% slopes	NIVI classif	ication: UPL
Are climatic / hydrologic conditions on the site typica			
Are Vegetation, Soil, or Hydrology _			
Are Vegetation, Soil, or Hydrology _	naturally problematic? (If n	eeded, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site	map showing sampling point I	ocations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes	No V Is the Sample within a Wetla		No
Wetland Hydrology Present? Yes	No		
Approx. 2.5 ft higher in elevation than paired W01			
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary India	cators (minimum of two required)
Primary Indicators (minimum of one is required; ch		Surface So	
	True Aquatic Plants (B14)		egetated Concave Surface (B8)
	Hydrogen Sulfide Odor (C1)		atterns (B10)
	Oxidized Rhizospheres on Living Roo		
	<ul><li>Presence of Reduced Iron (C4)</li><li>Recent Iron Reduction in Tilled Soils</li></ul>		Water Table (C2)
1	Thin Muck Surface (C7)		Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Remarks)	<del></del>	Stressed Plants (D1)
Iron Deposits (B5)	_ Cirior (Explain in Normanio)	<del></del>	c Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aq	· ·
Water-Stained Leaves (B9)			raphic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutra	al Test (D5)
Field Observations:			
	Depth (inches):		
	Depth (inches):		
	Depth (inches): W	etland Hydrology Prese	ent? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitorin	g well, aerial photos, previous inspection	s), if available:	
Remarks:			

EGETATION (Four Strata) – Use scientific n	ames of	plants.		Sampling Point: W21-U01
T 01 1 (D11) 30	Absolute			Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:30 ) 1		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
2.				
3				Total Number of Dominant Species Across All Strata: 3 (B)
4				Bossest of Dominant Consise
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33% (A/B)
6				· · · · ·
7				Prevalence Index worksheet:
8				Total % Cover of: Multiply by:
		= Total Cov	/er	OBL species x i =
Sapling/Shrub Stratum (Plot size:15)				1 ACW species
1				FAC species x3 =
2				raco species x4 =
3				UPL species x 5 =
4				Column Totals:80 (A)290 (B)
5				Prevalence Index = B/A =3.6
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
10	0%	= Total Cov	 /er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size:5 )  1. Setaria pumila	30	Yes	FAC	Problematic Hydrophytic Vegetation¹ (Explain)
2. Andropogon virginicus	25	Yes	FACU	
3. Achillea millefolium	20	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
4 Taraxacum officinale	5	No	FACU	be present, unless disturbed or problematic.
5				Definitions of Four Vegetation Strata:
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
8.				height.
9.				Sapling/Shrub – Woody plants, excluding vines, less
10.				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11.				Herb – All herbaceous (non-woody) plants, regardless
12.				of size, and woody plants less than 3.28 ft tall.
	000/	= Total Cov	/er	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2				
3				
4				Hydrophytic
5				Vegetation
6				Present? Yes No
		= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate s	sneet.)			

.. W21-U01

SOIL

Sampling Point:

0 - 4 4 - 7 7 - 12	Color (moist)	0/		x Features	<del>-</del> 1	. 2	<b>-</b> .	
4 - 7	10YR 3/2	%	Color (moist)		Type <sup>1</sup>	_Loc <sup>2</sup>	<u>Texture</u> SL	Remarks
7 - 12	10YR 4/2	70	7.5YR 3/4	15	C	M	SL	
7 - 12			10YR 4/4	15	C	M		
	2.5Y 5/6	97	10YR 4/6	3	C	M	CL	Rock/fill refusal at 12in.
				- ——				
				- ——				
	oncentration, D=Depl	etion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ins.		L=Pore Lining, M=Matrix.
lydric Soil I			5 . 6 .	(07)				ators for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1) pipedon (A2)		Dark Surface		o (89) <b>/N</b>	I D A 147		2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16)
Histic Ep Black His			Polyvalue Be Thin Dark Su				140)	Coast Prairie Redox (A16) (MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye	, ,	•	, 170)	F	Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Ma		_,		_	(MLRA 136, 147)
2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface (F6	3)		F	Red Parent Material (TF2)
	Below Dark Surface	(A11)	Depleted Da					/ery Shallow Dark Surface (TF12)
	rk Surface (A12)		Redox Depre				_ (	Other (Explain in Remarks)
	lucky Mineral (S1) <b>(L</b> <b>\ 147, 148)</b>	KK N,	Iron-Mangan		S (F12) (I	LKK N,		
	ileyed Matrix (S4)		Umbric Surfa	•	/II RA 13	6. 122)	<sup>3</sup> Inc	dicators of hydrophytic vegetation and
	edox (S5)		Piedmont Flo			-		vetland hydrology must be present,
	Matrix (S6)			•	, ,	•	-	inless disturbed or problematic.
Restrictive L	ayer (if observed):							
Туре:								,
Depth (inc	ches):						Hydric Soi	I Present? Yes No
Remarks:			•				•	
oes not mee	et thickness requirem	nents for F	3.					

WETLAND ID: WW- W22

### Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?	Wetland Association to Stream
yes  or no could not be determined because wetland extends beyond the ROW  If no, explain hydrologic connection: Abutting S05. Seeps H04 and H05 ponds HY-001-003 and 004 (not shown on report figure) and drainage swales D21 and D23.	Is the wetland:  ightharpoonup directly abutting ightharpoonup adjacent (not directly but hydrologically connected)  Wetland adjacency determination (if not directly abutting): ightharpoonup Discrete wetland hydrologic connection ightharpoonup Ecological connection ightharpoonup Separated by berm/barrier ightharpoonup Explain:
Associated Stream:  ves no If yes, list ID: SS-S05 (Use separate datasheet for each associated stream)	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow
Approximate distance of wetland to stream (straight aerial feet):	Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow confined  other, explain: All surface flow types are present at different areas of the wetland. The SE area likely has an ephemeral connection to the rest of the wetland and stream S05.

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS	City/County:	Montgomery		_ Sampling Date: _	04/03/2013
Applicant/Owner: U.S. Navy				Sampling Point	
Investigator(s): Z. Fink, J. Carlo	Section, To				
Landform (hillslope, terrace, etc.): Depression				Slop	e (%): 0-2
Subregion (LRR or MLRA): 148/LRRS					
Soil Map Unit Name: Udorthents shale and sands	tone 0-8% slopes	Long	NWI classific	cation: PFO	
Are climatic / hydrologic conditions on the site typic	al for this time of year? Yes	No (	(If no, explain in F	Remarks.)	
Are Vegetation, Soil, or Hydrology					No
Are Vegetation, Soil, or Hydrology					
SUMMARY OF FINDINGS - Attach site	e map showing sampling	point location	ns, transects	, important fea	ntures, etc.
Hydrophytic Vegetation Present? Yes	V No Is the				
Hydric Soil Present? Yes	<b>/</b>	e Sampled Area in a Wetland?	Vos V	No	
Wetland Hydrology Present? Yes	No No	ii a welland:	165		
Approx. 0.25 feet lower than U01 in Southern are depression away from other portions of the wetlan			iii aiea. Piotioca	ateu iii a siigiit Tore	Sieu
HYDROLOGY					
Wetland Hydrology Indicators:			Secondary Indicate	ators (minimum of t	wo required)
Primary Indicators (minimum of one is required; of	heck all that apply)		Surface Soil	, ,	
Surface Water (A1)	True Aquatic Plants (B14)			getated Concave S	Surface (B8)
<u>✓</u> High Water Table (A2)	Hydrogen Sulfide Odor (C1		✓ Drainage Pa		
Saturation (A3)	✓ Oxidized Rhizospheres on I		Moss Trim L		
Water Marks (B1)	Presence of Reduced Iron (			Water Table (C2)	
Sediment Deposits (B2)	Recent Iron Reduction in Ti	lied Solis (Cb)	Crayfish Bu	rrows (C8) /isible on Aerial Ima	ngon/(C0)
Drift Deposits (B3) Algal Mat or Crust (B4)	<ul><li>Thin Muck Surface (C7)</li><li>Other (Explain in Remarks)</li></ul>			Stressed Plants (D1	
Iron Deposits (B5)	Other (Explain in Nemarks)		✓ Geomorphic		,
Inundation Visible on Aerial Imagery (B7)			Shallow Aqu		
✓ Water-Stained Leaves (B9)				aphic Relief (D4)	
Aquatic Fauna (B13)			FAC-Neutra		
Field Observations:					
Surface Water Present? Yes No	Depth (inches):<1				
Water Table Present? Yes No	Depth (inches):12				
Saturation Present? Yes No	Depth (inches): 8-12	Wetland H	lydrology Prese	nt? Yes <u> </u>	No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitori	na well serial photos previous i	nenections) if avai	ilahle:		
Beschibe Necorded Bata (stream gauge, monitor)	ng well, aeriai priotos, previous i	rispections), il avai	ilabic.		
Remarks:					
Tromano.					

EGETATION (Four Strata) – Use scientific		•	l	Sampling Point:	
ree Stratum (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:	
Acer rubrum	20	Yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:  4 (/	A)
 				Total Number of Dominant Species Across All Strata: 4 (I	B)
l.				Percent of Dominant Species That Are ORL FACW or FAC: 100%	A (D)
· i.				That Ale OBL, I ACW, OI I AC.	A/B)
				Prevalence Index worksheet:	
l				Total % Cover of: Multiply by:  ORL species 0 v.1 = 0	
45	20%	= Total Cov	er	OBL species X I =	
Sapling/Shrub Stratum (Plot size:)	05	V	<b>540</b>	TACVI species X2	
Acer rubrum		Yes	FAC	1 AC species	
Cornus alba		Yes	FACW	1 ACO species	
Rosa virginiana	$-\frac{2}{2}$	No No	FAC	UPL species x 5 =	
Rubus allegheniensis		No	FACU	Column Totals:89 (A)244	(B)
·i.				Prevalence Index = B/A =2.7	
				Hydrophytic Vegetation Indicators:	
1.				1 - Rapid Test for Hydrophytic Vegetation	
).				2 - Dominance Test is >50%	
0				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
Herb Stratum (Plot size: 5 )	54%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide suppo data in Remarks or on a separate sheet)	orting
Herb Stratum (Plot size:5 ) Eutrochium purpureum	15	Yes	FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	)
2				<sup>1</sup> Indicators of hydric soil and wetland hydrology mu:	ıst
3				be present, unless disturbed or problematic.	
				Definitions of Four Vegetation Strata:	
·				Tree – Woody plants, excluding vines, 3 in. (7.6 cm	
				more in diameter at breast height (DBH), regardless height.	S OT
3				Sapling/Shrub – Woody plants, excluding vines, le	ess
o.				than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
1.				Herb – All herbaceous (non-woody) plants, regardle	less
2.				of size, and woody plants less than 3.28 ft tall.	
Voody Vine Stratum (Plot size: 30 )	15%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft height.	in
voody vine Stratum (Flot size)					
· <u></u>					
~					
				Hydrophytic	
S.				Vegetation Present? Yes No	

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

Moss present-lower herbaceous layer. Dead unidentifiable grass present. Approximately 40% bare ground/leaf litter. A. rubrum is the dominant tree in this area of the wetland but other PFO portions of the wetland have greater percentage of occurrence.

\_ = Total Cover

0%

W22-W01

Sampling Point:

Depth	<u>Matrix</u>			x Features		. ,	<b>-</b> .	
nches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-3	10YR 4/2	100					SL	
3-6	10YR 4/2	90	7.5YR 3/4	10	C	M/PL	SL	
6-11	2.5Y 6/2	70	10YR 4/6	30	C	M	SCL	
11-16	2.5Y 6/1	65	10YR 5/6	35	С	M	С	
	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=	Pore Lining, M=Matrix.
	ndicators:		Davis Confess	(07)				ors for Problematic Hydric Soils <sup>3</sup> :
Histosol Histic Fr	(AT) pipedon (A2)		Dark Surface Polyvalue Be		ce (S8) <b>(N</b>	II RA 147.		m Muck (A10) <b>(MLRA 147)</b> ast Prairie Redox (A16)
Black Hi			Thin Dark Su					MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		-	. ,		dmont Floodplain Soils (F19)
	Layers (A5)		<u>✓</u> Depleted Ma	, ,				MLRA 136, 147)
	ick (A10) <b>(LRR N)</b> d Below Dark Surface	. (Δ11)	Redox Dark S Depleted Dar		•			d Parent Material (TF2) ry Shallow Dark Surface (TF12)
_	ark Surface (A12)	(A11)	Redox Depre					ner (Explain in Remarks)
	lucky Mineral (S1) <b>(L</b>	.RR N,	Iron-Mangan		•	LRR N,		(2.4
	A 147, 148)		MLRA 13				•	
	Bleyed Matrix (S4)		Umbric Surfa					ators of hydrophytic vegetation and
	ledox (S5) Matrix (S6)		Piedmont Flo	odplain So	oiis (F19)	(MLRA 14	-	tland hydrology must be present, ess disturbed or problematic.
	_ayer (if observed):						1	ess disturbed of problematic.
Type:	,							
Depth (inc	ches):		<u> </u>				Hydric Soil P	Present? Yes No
emarks:								

Project/Site: Willow Grove EIS		City/County: Mo	ontgomery		Sampling Date: _	04/03/2013
Applicant/Owner: U.S. Navy				State: PA		
-		Section, Towns				
Landform (hillslope, terrace, etc.): Depre					Slon	
Subregion (LRR or MLRA): 148/LRRS				,		
Soil Map Unit Name: Udorthents shale a						<u> </u>
•					•	
Are climatic / hydrologic conditions on the						,
Are Vegetation, Soil, or H				Circumstances" pre	esent? Yes	No
Are Vegetation, Soil, or H	ydrology natu	rally problematic?	(If needed, ex	xplain any answers	in Remarks.)	
<b>SUMMARY OF FINDINGS - Att</b>	ach site map sh	owing sampling p	oint locatior	ns, transects, i	mportant fea	itures, etc.
Lindrania dia Vanatatian Brassato	Van V Na					
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes No _ Yes No _	13 1110 01	ampled Area			
Wetland Hydrology Present?	<del></del>	within a	Wetland?	Yes	No	
Remarks:						
Plot is located at the northern most bour plot U02 in Acer and Cornus PSS with s				, ,		, , , , , , , , , , , , , , , , , , , ,
HYDROLOGY						
Wetland Hydrology Indicators:				Secondary Indicato	ors (minimum of t	wo required)
Primary Indicators (minimum of one is re	equired; check all that	apply)		Surface Soil C		
Surface Water (A1)		quatic Plants (B14)		Sparsely Vege		Surface (B8)
✓ High Water Table (A2)		en Sulfide Odor (C1)	•	Drainage Patterns (B10)		
Saturation (A3)		ed Rhizospheres on Livir	ng Roots (C3)	Moss Trim Line		
Water Marks (B1)		ce of Reduced Iron (C4)			ater Table (C2)	
Sediment Deposits (B2)		Iron Reduction in Tilled		Crayfish Burro	ws (C8)	
Drift Deposits (B3)	Thin M	uck Surface (C7)		Saturation Visi	ble on Aerial Ima	agery (C9)
Algal Mat or Crust (B4)	Other (	Explain in Remarks)		Stunted or Stre	essed Plants (D1	)
Iron Deposits (B5)				✓ Geomorphic P	osition (D2)	
Inundation Visible on Aerial Imager	y (B7)			Shallow Aquita		
Water-Stained Leaves (B9)				Microtopograp		
Aquatic Fauna (B13)				FAC-Neutral T	est (D5)	
Field Observations:						
	No Depth		-			
	No Depth		-			
Saturation Present? Yes (includes capillary fringe)	No Depth	(inches): 4-12	_   Wetland H	ydrology Present	? Yes	No
Describe Recorded Data (stream gauge	, monitoring well, aer	ial photos, previous insp	ections), if avail	lable:		
Remarks:						
Saturation beginning at 4 inches, exten-	ds to water table.					

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Free Stratum</u> (Plot size:)		Species?	Status	Number of Dominant Species
Acer rubrum	5	Yes	FAC	That Are OBL, FACW, or FAC:5 (A)
<u>.                                    </u>				Total Number of Deminerat
J				Total Number of Dominant Species Across All Strata:  5 (B)
j.				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
5.				That Are OBE, I AGW, GIT AG.
·				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
		= Total Cov	er	OBL species15 x 1 =15
Sapling/Shrub Stratum (Plot size:15	)			FACW species75 x 2 =150
Acer rubrum	15	Yes	FAC	FAC species 20 x 3 = 60
Cornus alba	15	Yes	FACW	FACU species0 x 4 =0
3				UPL species0 x 5 =0
I				Column Totals:110 (A)225 (B)
5.				
5.				Prevalence Index = B/A =2
				Hydrophytic Vegetation Indicators:
3.				1 - Rapid Test for Hydrophytic Vegetation
)				✓ 2 - Dominance Test is >50%
10				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size:5)		= Total Cov	er	4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Onoclea sensibilis	60	Yes	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Typha latifolia		Yes	OBL	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
1				Definitions of Four Vegetation Strata:
5.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
S				more in diameter at breast height (DBH), regardless of
<b>7</b>				height.
B				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
0				Herb – All herbaceous (non-woody) plants, regardless
l1				of size, and woody plants less than 3.28 ft tall.
12				Woody vine – All woody vines greater than 3.28 ft in
Noody Vine Stratum (Plot size:)		= Total Cov	er	height.
l				
2				
3				
1				I hadronhadio
5				Hydrophytic Vegetation
				Present? Yes No
S		= Total Cov	<b>~</b> r	

W22-W02

Profile Desc	ription: (Describe t	o the dept	h needed to docun	nent the i	ndicator	or confirm	n the absend	e of indicat	ors.)	
Depth	Matrix		Redo	x Features	3					
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	Texture		Remarks	
0-3	10YR 2/1	100					SL	_		
3-12	10YR 2/2	92	10YR 3/3	5	C	M	L			
			7.5YR 5/6	3	C	M		_		
12/16	2.5Y 3/2	80	10YR 4/6	20	C	M	CL	_		
								_		_
								<del>-</del>		
	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ains.			ng, M=Matrix.	
Hydric Soil I	ndicators:						Indi		roblematic Hy	
Histosol			Dark Surface						(A10) <b>(MLRA 1</b> -	47)
	pipedon (A2)		Polyvalue Be				, 148)		e Redox (A16)	
Black His			Thin Dark Su		-	147, 148)		(MLRA 1		(E40)
	n Sulfide (A4)		Loamy Gleye		F2)		_		loodplain Soils	(F19)
	Layers (A5)		Depleted Mat	, ,	· O \			(MLRA 1	•	
	ck (A10) <b>(LRR N)</b> Below Dark Surface	. (A11)	✓ Redox Dark S Depleted Dar		•				Material (TF2)	(TE12)
	rk Surface (A12)	: (A11)	Redox Depre				_		w Dark Surface ain in Remarks)	
	lucky Mineral (S1) <b>(L</b>	RR N	Iron-Mangan			IRRN	_	Other (Expla	alli ili Remarks)	1
	147, 148)	IXIX I <b>X</b> ,	MLRA 13		J3 (1 12) <b>(</b>	,				
	ileyed Matrix (S4)		Umbric Surfa	-	MIRA 13	6. 122)	<sup>3</sup> lı	ndicators of h	nydrophytic veg	etation and
	edox (S5)		Piedmont Flo						rology must be	
	Matrix (S6)		1 learnone 1 le	ouplain o	5115 (T 10 <i>)</i>	(INILITY I	10)		rbed or problem	
	ayer (if observed):									
Type:										
	ches):		<u> </u>				Hydric So	oil Present?	Yes	No
Remarks:							1 -			

Project/Site: Willow Grove EIS		City/C	county: Montgomery	Sampling Date:04/03/2013
Applicant/Owner: U.S. Navy				e: PA Sampling Point: W22-U01
Investigator(s): Z. Fink, J. Carl	0	Section	on, Township, Range:	
- ,,				one Slope (%): 0 - 2
			· ·	
Soil Map Unit Name: Udorthe				IWI classification: UPL
Are climatic / hydrologic conditi				
Are Vegetation, Soil	, or Hydrology	significantly distur	bed? Are "Normal Circur	mstances" present? Yes No
Are Vegetation, Soil	, or Hydrology	naturally problema	atic? (If needed, explain	any answers in Remarks.)
SUMMARY OF FINDING	S - Attach site m	ap showing sam	pling point locations, tr	ransects, important features, etc.
Hydrophytic Vegetation Prese	ent? Yes	No		
Hydric Soil Present?	Yes 🔽	No	Is the Sampled Area within a Wetland?	Yes No
Wetland Hydrology Present?	Yes	No	within a wettand:	162 NO
Remarks: This plot is located approxima forested area near the wetlan		ion than paired plot W	/01. The plot is located in the so	outhern portion of the wetland in an upland
HYDROLOGY				
Wetland Hydrology Indicato				ndary Indicators (minimum of two required)
Primary Indicators (minimum				Surface Soil Cracks (B6)
Surface Water (A1)		True Aquatic Plants (I		Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)		Hydrogen Sulfide Odd		Orainage Patterns (B10)
Saturation (A3)				Moss Trim Lines (B16)
Water Marks (B1)		Presence of Reduced	· ·	Ory-Season Water Table (C2)
Sediment Deposits (B2)		Recent Iron Reduction		Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Algal Mat or Crust (B4)		Thin Muck Surface (C Other (Explain in Ren		Stunted or Stressed Plants (D1)
Iron Deposits (B5)	_	Other (Explain in Neil	· —	Geomorphic Position (D2)
Inundation Visible on Aer	rial Imagery (R7)		<del></del>	Shallow Aquitard (D3)
Water-Stained Leaves (B				flicrotopographic Relief (D4)
Aquatic Fauna (B13)				AC-Neutral Test (D5)
Field Observations:				
Surface Water Present?	Yes No	Depth (inches):		
Water Table Present?	Yes No		• • • • • • • • • • • • • • • • • • •	
Saturation Present?	Yes No			ogy Present? Yes No
(includes capillary fringe)				
Describe Recorded Data (stre	am gauge, monitoring w	<i>l</i> ell, aerial photos, pre	vious inspections), if available:	
Demonto				
Remarks: no oxidized rhizospheres pre	sent soils did not reach	saturation. No surfac	e water or water stained leaves	3.
· '				

'EGETATION (Four Strata) – Use scientific n	ames of	plants.		Sampling Point: W22-U01
20	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:30)  1. Pinus strobus	<u>% Cover</u> 40	Species? Yes	Status FACU	Number of Dominant Species
				That Are OBL, FACW, or FAC:(A)
2				Total Number of Dominant
3				Species Across All Strata: 4 (B)
4				Percent of Dominant Species That Are ORL FACW or FAC: 25% (A/R)
5 6				That Are OBL, FACW, or FAC: 25% (A/B)
6 7				Prevalence Index worksheet:
8				Total % Cover of: Multiply by:
o	4007	= Total Cov	er	OBL species0 x 1 =0
Sapling/Shrub Stratum (Plot size:)		10101 001	OI .	FACW species0 x 2 =0
1. Prunus pensylvanica	15	Yes	FACU	FAC species15 x 3 =45
2. Fraxinus americana	15	Yes	FACU	FACU species x 4 = 280
3. Acer rubrum	15	Yes	FAC	UPL species0 x 5 =0
4				Column Totals: <u>85</u> (A) <u>325</u> (B)
5				Prevalence Index = R/A = 3.8
6				Trevalence index - b/A -
7				Hydrophytic Vegetation Indicators:
8				1 - Rapid Test for Hydrophytic Vegetation
9				2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10	- ——			4 - Morphological Adaptations <sup>1</sup> (Provide supporting
5	45% :	= Total Cov	er	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1				
2				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9 10.	- —			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft tall.
12	00/	= Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		10101 001	OI .	height.
1				
2				
3				
4				Hydrophytic
5	- ——			Vegetation
6				Present? Yes No
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate Bare ground and leaf litter in herb stratum only.	sneet.)			

W22-U01

SOIL

Sampling Point:

Profile Desc	ription: (Describe t	o the dept	h needed to docum	nent the in	ndicator	or confirm	the absence	of indicate	ors.)	
Depth	Matrix			x Features						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>		Remarks	
0 - 3	10YR 4/2						SL			
3 - 7	10YR 4/2	95	10YR 4/4	5	C	M	SL			
7 - 11	2.5Y 6/2	90	10YR 5/6	10	C	M	SCL			
11 - 16	2.5Y 6/1	60	7.5YR 5/6	40	С	M	С			
										_
								-		<del></del>
	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	=Masked	Sand Gra	ains.			ng, M=Matrix.	
Hydric Soil I	ndicators:						Indic	ators for P	roblematic Hyd	dric Soils³:
Histosol			Dark Surface						A10) <b>(MLRA 1</b> 4	17)
	pipedon (A2)		Polyvalue Be		. , .		148) (		e Redox (A16)	
Black His			Thin Dark Su	, ,	•	47, 148)		(MLRA 14		
	n Sulfide (A4)		Loamy Gleye		F2)		F		oodplain Soils (	F19)
	Layers (A5)		<u>✓</u> Depleted Mat	, ,	0)		_	(MLRA 13		
	ck (A10) (LRR N)	(444)	Redox Dark S						Material (TF2)	(TE42)
	l Below Dark Surface ark Surface (A12)	(A11)	Depleted Dar Redox Depre						v Dark Surface iin in Remarks)	(1712)
	lucky Mineral (S1) <b>(L</b>	RR N	Iron-Mangane		•	I RR N	_ `	ziriei (⊏xpia	iiii iii Remarks)	
	147, 148)	ixix i <b>x</b> ,	MLRA 136		,3 (1 12) <b>(</b>	LIXIX IV,				
	eleyed Matrix (S4)		Umbric Surfa		MLRA 13	6. 122)	<sup>3</sup> Inc	licators of h	ydrophytic vege	etation and
	edox (S5)		Piedmont Flo						rology must be	
	Matrix (S6)		_		,	`	-		bed or problem	
Restrictive L	ayer (if observed):									
Type:										
Depth (inc	ches):		<u></u>				Hydric Soil	Present?	Yes	No
Remarks:										
Upland plot -	located in a relatively	/ flat, trans	itional area near the	wetland a	and does	nave hydri	c soils.			

Project/Site: Willow Grove EIS	City/County: Montgomery	Sampling Date:04/03/2013				
Applicant/Owner: U.S. Navy		State: PA Sampling Point: W22-U02				
Investigator(s): Z. Fink, J. Carlo	Section, Township, Range:					
Landform (hillslope, terrace, etc.): Hill slope						
Subregion (LRR or MLRA):         148/LRRS         Lat:         2696989.						
Soil Map Unit Name: Udorthents shale and sandstone 0 - 8% sld						
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 signific	antly disturbed? Are "Normal C	Circumstances" present? Yes V				
Are Vegetation, Soil, or Hydrology natural		plain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map show						
Hydrophytic Vegetation Present? Yes No	In the Committed Association	·				
Hydric Soil Present? Yes No	Is the Sampled Area within a Wetland?	Yes No				
Wetland Hydrology Present? Yes No	Willing Welland:	165 NO				
Plot is located roughly 2 feet higher in elevation than paired plot rubrum.	WUZ OII a siigiit siope above tiio woti	aliu III a maintaineu iawn beneath a mature A.				
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that ap		Surface Soil Cracks (B6)				
		Sparsely Vegetated Concave Surface (B8)				
	Sulfide Odor (C1)	Drainage Patterns (B10)				
		Moss Trim Lines (B16)				
<u> </u>	of Reduced Iron (C4) on Reduction in Tilled Soils (C6)	Dry-Season Water Table (C2) Crayfish Burrows (C8)				
Sediment Deposits (B2) Recent inc Drift Deposits (B3) Thin Muck		Saturation Visible on Aerial Imagery (C9)				
	plain in Remarks)	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)		Geomorphic Position (D2)				
Inundation Visible on Aerial Imagery (B7)	_	Shallow Aquitard (D3)				
Water-Stained Leaves (B9)	<u>-</u>	Microtopographic Relief (D4)				
Aquatic Fauna (B13)	-	FAC-Neutral Test (D5)				
Field Observations:						
Surface Water Present? Yes No Depth (in						
Water Table Present? Yes No Depth (in	,					
Saturation Present? Yes No Depth (in (includes capillary fringe)	ches): Wetland Hy	drology Present? Yes No				
Describe Recorded Data (stream gauge, monitoring well, aerial	I photos, previous inspections), if availa	able:				
Remarks:						

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:30) 1Acer rubrum	<u>% Cover</u> 40	Species? Yes	Status FAC	Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
2				Total Number of Dominant
3				Species Across All Strata: 3 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 33.33% (A/E
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
8				OBL species0 x 1 =0
0 1 (0) 1 0(m) (D) 15 )	40%	= Total Cov	/er	FACW species0 x 2 =0
Sapling/Shrub Stratum (Plot size:15)				1 ACVV species X Z =
1				.   1 AC species
2				.   FACU species x4 =
3				.   UPL species
4				. Column Totals:110 (A)400 (B)
5				Prevalence Index = B/A =3.6
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
10	0% :	= Total Cov		.   4 - Morphological Adaptations¹ (Provide supportin
Herb Stratum (Plot size:5				data in Remarks or on a separate sheet)
1. Poa pratensis	30	Yes	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Poa annua	30	Yes	FACU	1. It is a second to the second and historical must
3. Teraxacum officinale	5	No	FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. Plantago major	5	No	FACU	Definitions of Four Vegetation Strata:
5.				.
6.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of
7				<ul><li>more in diameter at breast height (DBH), regardless o</li><li>height.</li></ul>
8.				
9.				<ul> <li>Sapling/Shrub – Woody plants, excluding vines, less</li> <li>than 3 in. DBH and greater than 3.28 ft (1 m) tall.</li> </ul>
10.				
11.				Herb – All herbaceous (non-woody) plants, regardless
12.				of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:30)	70%	= Total Cov	/er	Woody vine – All woody vines greater than 3.28 ft in height.
1				
2				
3				
4				Hydrophytic
5			-	Vegetation
^				Present? Yes No
6	0% :	= Total Cov	.σr	

Sampling Point: \_\_\_\_\_\_\_

Profile Desc	ription: (Describe to	o the depth r	eeded to docun	nent the ir	ndicator o	or confirm	the ab	sence of ind	cators.)		
Depth	Matrix			x Features		-					
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Text		Remai	rks	
0 - 11	10YR 3/2	100					SI	Rock/	root refusal		
	ncentration, D=Deple	etion, RM=Re	duced Matrix, MS	S=Masked	Sand Gra	ins.	<sup>2</sup> Locati		Lining, M=Mat		. 3
Hydric Soil I			_						or Problemation	-	IS":
Histosol		-	Dark Surface		.e				ick (A10) <b>(MLF</b>		
	ipedon (A2)	-	Polyvalue Be				148)	_	rairie Redox (A	(16)	
Black His		-	Thin Dark Su		-	47, 148)			A 147, 148)	-:I- (E40)	
	n Sulfide (A4)	-	Loamy Gleye		-2)				nt Floodplain S	oils (F19)	
	Layers (A5) ck (A10) <b>(LRR N)</b>	-	Depleted Mar Redox Dark \$		6)				<b>A 136, 147)</b> ent Material (T		
	Below Dark Surface	(Δ11)	Redox Dark \ Depleted Dar		•				ent Material (1 allow Dark Sur		
	rk Surface (A12)	(/(11)	Redox Depre						xplain in Rema		
	ucky Mineral (S1) <b>(L</b> l	RR N.	Iron-Mangan		•	RR N.		Outlot (E	Apidii iii i teirie	arito)	
	. 147, 148)	_	MLRA 13		·• (· ·=/ <b>(</b> -	,					
	leyed Matrix (S4)	_	Umbric Surfa		MLRA 13	6, 122)		<sup>3</sup> Indicators	of hydrophytic	vegetation a	nd
	edox (S5)	_	Piedmont Flo			-	l8)		hydrology mus		
	Matrix (S6)		<del></del>		, ,	•	•		isturbed or pro		
Restrictive L	ayer (if observed):										
Туре:			_								
Depth (inc	hes):						Hydr	ic Soil Prese	nt? Yes	No	
Remarks:			<u>-</u>								

SOIL

WETLAND ID: WW-W23	WETI	AND	ID. WW.	-W23
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Wetland Jurisdictional Field Data Sheet

Is wetland hydrologically isolated?  yes    X   no  could not be determined because wetland extends beyond the ROW	Wetland Association to Stream  Is the wetland:     directly abutting     adjacent (not directly but hydrologically connected)
If no, explain hydrologic connection:  The wetland is fed by culverts D27 and D24. The wetland is drained via drainage D25 which runs roughly south to culvert D26. All drainage from this wetland exits the survey corridor via culvert D26.	Wetland adjacency determination (if not directly abutting):  Discrete wetland hydrologic connection Ecological connection Separated by berm/barrier Explain:
Associated Stream:  yes no If yes, list ID: SS (Use separate datasheet for each associated stream)	Surface flow type from wetland to associated stream:  intermittent surface ephemeral surface  perennial surface no surface flow
Approximate distance of wetland to stream (straight aerial feet):  Comments:	Surface flow characteristic from wetland to associated stream:  discrete overland sheet flow confined other, explain:

### **Definitions**

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

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

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

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

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

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

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

Confined: defined bed and banks.

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

Project/Site: Willow Grove EIS		City/C	ounty: Montgomery		Sampling Date: _	05/12/2013
Applicant/Owner: U.S. Navy		•	•		Sampling Point	
Investigator(s): Z. Fink / R. Ward	dwell	Section	on, Township, Range: H			•
Landform (hillslope, terrace, etc.)						e (%): 1-2
Subregion (LRR or MLRA): 148						
Soil Map Unit Name: Udorthent						1.
Are climatic / hydrologic condition	ns on the site typical for	this time of year? Y	es No	(If no, explain in R	emarks.)	
Are Vegetation, Soil	or Hydrology	significantly distur	bed? Are "Norma	l Circumstances" p	oresent? Yes	/No
Are Vegetation, Soil						
SUMMARY OF FINDINGS	S - Attach site ma	p showing sam	pling point locatio	ons, transects	, important fea	atures, etc.
Hydrophytic Vegetation Presen	t? Yes_	No	In the Complet Area			
Hydric Soil Present?	Yes 🔽	No	Is the Sampled Area within a Wetland?	Yes 🗸	No	
Wetland Hydrology Present?	Yes 🗸	No	Within a Woulding.	103	_ 140	
located roughly 5' lower in eleva	auon man mo panoa p.					
HYDROLOGY						
Wetland Hydrology Indicators					ators (minimum of t	wo required)
Primary Indicators (minimum of		Surface Soil	, ,	- ( <b>- 0</b> )		
Surface Water (A1)		Frue Aquatic Plants (			getated Concave S	Surface (B8)
High Water Table (A2)		Hydrogen Sulfide Od		✓ Drainage Pa		
✓ Saturation (A3) Water Marks (B1)		Oxidized Rhizosphere Presence of Reduced	es on Living Roots (C3)	Moss Trim L	water Table (C2)	
<ul><li>Water Marks (B1)</li><li>Sediment Deposits (B2)</li></ul>			n in Tilled Soils (C6)	Crayfish Bur		
Drift Deposits (B3)		Γhin Muck Surface (C			isible on Aerial Ima	anerv (C9)
Algal Mat or Crust (B4)	· · · · · · · · · · · · · · · · · · ·	Other (Explain in Ren			tressed Plants (D1	
Iron Deposits (B5)	<del>_</del>		··-··	<u>✓</u> Geomorphic		,
Inundation Visible on Aeria	l Imagery (B7)			Shallow Aqu	• •	
Water-Stained Leaves (B9)	)			Microtopogra	aphic Relief (D4)	
Aquatic Fauna (B13)				FAC-Neutral	Test (D5)	
Field Observations:						
	Yes No					
	Yes No					
	Yes No	Depth (inches):	10-12 Wetland H	Hydrology Preser	nt? Yes	No
(includes capillary fringe)  Describe Recorded Data (strea	m gauge, monitoring we	ell, aerial photos, pre	I vious inspections), if ava	ailable:		
		•	•			
Remarks:						
Surface water was not present	in this general area of t	the wetland but was	observed at other locatio	ns during the delir	neation.	

20 .	Absolute	Dominant		Dominance Test worksheet:
ree Stratum (Plot size:30 ))		Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
				Total Number of Dominant Species Across All Strata: 1 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC:100% (A/B
•				Prevalence Index worksheet:
·				Total % Cover of: Multiply by:
	00/			OBL species $70$ $x 1 = 70$
apling/Shrub Stratum (Plot size:)		= Total Cov	er	FACW species15 x 2 =30
				FAC species0 x 3 =0
				FACU species0 x 4 =0
				UPL species0 x 5 =0
				Column Totals: 85 (A) 100 (B)
				Prevalence Index = B/A =1.2
				Hydrophytic Vegetation Indicators:
				✓ 1 - Rapid Test for Hydrophytic Vegetation
				∠ 2 - Dominance Test is >50%
0				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
lerb Stratum (Plot size:5 )	0%	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)
Carex vulpinoidea	70	Y	OBL	Problematic Hydrophytic Vegetation¹ (Explain)
Juncus effusus	15	N	FACW	1,
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
·				Definitions of Four Vogetation Official.
·				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of 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.
0				Herb – All herbaceous (non-woody) plants, regardless
1				of size, and woody plants less than 3.28 ft tall.
2				Westwine Allowed voices another their 2.20 ft in
Voody Vine Stratum (Plot size:30)	85%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
3				
l				Hydrophytic
				Vegetation
/·				Present? Yes No
5 S	0%			

SOIL Sampling Point: W23-W01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)													
Depth	Matrix												
(inches)			Redox Features  Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>			Loc <sup>2</sup>	<u>Texture</u>	Remarks					
0-4	7.5YR 4/3	95	7.5YR 3/4	5	С	М	SL						
4-12	7.5YR 4/3	90	7.5YR 3/4	10		M	SL						
12-14	7.5YR 4/2	90	7.5YR 3/4	10			SCL	_					
								_					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.													
Hydric Soil Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :													
Histosol	(A1)		Dark Surface					cm Muck (A10) (MLRA 147)					
Histic Ep	oipedon (A2)		Polyvalue Bel	ow Surfa	ce (S8) <b>(N</b>	ILRA 147,	<b>148)</b> C	oast Prairie Redox (A16)					
Black Hi	stic (A3)		Thin Dark Su	face (S9)	(MLRA 1	47, 148)		(MLRA 147, 148)					
Hydroge	en Sulfide (A4)		Loamy Gleye	pamy Gleyed Matrix (F2)				iedmont Floodplain Soils (F19)					
	d Layers (A5)		Depleted Mat				(MLRA 136, 147)						
2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)								ed Parent Material (TF2)					
	d Below Dark Surface	e (A11)	·	ery Shallow Dark Surface (TF12)									
	ark Surface (A12)		Redox Depre	•	•		_ 0	ther (Explain in Remarks)					
	lucky Mineral (S1) <b>(L</b>	RR N,	Iron-Mangane		es (F12) <b>(</b> I	LRR N,							
	A 147, 148)		MLRA 136	•			•						
	Sleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)   3Indicators of hydrophytic vegetation at									
	Redox (S5)	Piedmont Flo	odplain S	oils (F19)	(MLRA 14	-	etland hydrology must be present,						
	Matrix (S6)						ur	nless disturbed or problematic.					
Restrictive I	Layer (if observed):												
Type:													
Depth (inches):								Hydric Soil Present? Yes No					
Remarks:													
This plot is lo						al in the se	econd layer. A	depleted matrix observed in the third					
begins too de	eep in the soil profile	to qualify fo	or the depleted matri	x indicato	r.								

Project/Site: Willow Grove EIS	3	City/C	ounty: Montgomery		Sampling Date: _	05/12/2013							
Applicant/Owner: U.S. Navy		Si											
• •	Investigator(s): Z. Fink / R. Wardwell Section, Township, Range: Horsham Township												
Landform (hillslope, terrace, et			ef (concave, convex, none):		Slope	e (%): 15-20							
Subregion (LRR or MLRA): 14	,												
	Subregion (LRR or MLRA): 148 / S Lat: 2699374.2 Long: 321217.8 Datum: NAD 83  Soil Map Unit Name: Udorthents, Shale and Sandstone, 0-8% slopes NWI classification: UPL												
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)													
Are Vegetation, Soil, or Hydrology significantly disturbed?													
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)  SUMMARY OF FINDINGS - Attach site man showing sampling point locations, transacts, important features, etc.													
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.													
Hydrophytic Vegetation Pres		No	Is the Sampled Area										
1 '	Hydric Soil Present? Yes		within a Wetland?	· ·									
Wetland Hydrology Present? Remarks:	Yes	No											
This plot is located on a man-made berm associated with a wetland stormwater retention ditch. The plot is located in a wooded area roughly 5' higher in elevation than the paired wetland plot W01.													
HYDROLOGY													
Wetland Hydrology Indicate			Secondary Indicators (minimum of two required)										
Primary Indicators (minimum				Surface Soil Cracks (B6)									
Surface Water (A1) High Water Table (A2)		_ True Aquatic Plants (		<ul><li>Sparsely Vegetated Concave Surface (B8)</li><li>Drainage Patterns (B10)</li></ul>									
High Water Table (A2) Saturation (A3)		<ul><li>Hydrogen Sulfide Ode</li><li>Oxidized Rhizosphere</li></ul>											
Water Marks (B1)		<ul><li>Oxidized Rnizosphere</li><li>Presence of Reduced</li></ul>		Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2)									
Sediment Deposits (B2)		Recent Iron Reductio	• • • —										
Orift Deposits (B3)		_ Thin Muck Surface (C		Saturation Visible on Aerial Imagery (C9)									
Algal Mat or Crust (B4)		_ Other (Explain in Ren		Stunted or Stressed Plants (D1)									
Iron Deposits (B5)		_ ` ` ` .		Geomorphic F	, ,	,							
Inundation Visible on Ae	rial Imagery (B7)		_	Shallow Aquit	ard (D3)								
Water-Stained Leaves (F	39)		_	Microtopograp	ohic Relief (D4)								
Aquatic Fauna (B13)			_	FAC-Neutral	Γest (D5)								
Field Observations:													
Surface Water Present?		Depth (inches):											
Water Table Present?		Depth (inches):				1							
Saturation Present? (includes capillary fringe)	Yes No	Depth (inches):	Wetland Hydrology Present? Yes No										
Describe Recorded Data (str	eam gauge, monitorino	g well, aerial photos, pre	vious inspections), if availabl	le:									
Remarks:		harried the same Classes	d a samb a saturante de 1.400										
No indicators were met howe	ever soils were moist th	nroughout the profile and	d nearly saturated at 13".										

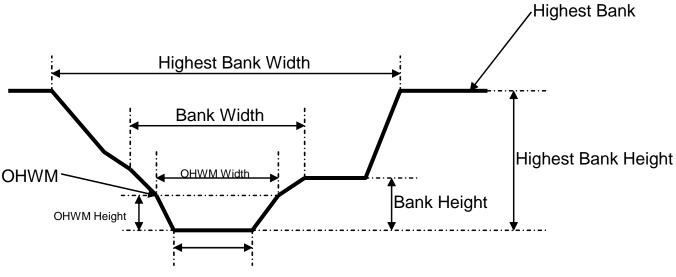
20	Absolute	Dominant		Dominance Test worksheet:	
ree Stratum (Plot size:30 ) Betula lenta	<u>% Cover</u> 50	Species? Y	Status FACU	Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)	
Ulmus rubra	20	Υ	FAC		
Acer negundo	10	N	FACW	Total Number of Dominant Species Across All Strata: 7 (B)	
				Percent of Dominant Species	
				That Are OBL, FACW, or FAC: 42.86% (A/B	
				Prevalence Index worksheet:	
				Total % Cover of: Multiply by:	
	80%	= Total Cov		OBL species0 x 1 =0	
apling/Shrub Stratum (Plot size:)		- Total Cov	rei	FACW species25 x 2 =50	
Acer negundo	15	Υ	FACW	FAC species 35 x 3 = 105	
Betula lenta	15		FACU	FACU species 140 x 4 = 560	
Rosa multiflora	15		FACU	UPL species0 x 5 =0	
				Column Totals: 200 (A) 715 (B)	
				Prevalence Index = B/A = 3.6  Hydrophytic Vegetation Indicators:	
				1 - Rapid Test for Hydrophytic Vegetation	
				2 - Dominance Test is >50%	
				l — .	
l				3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportin	
5	<u>45%</u> :	= Total Cov	er er	data in Remarks or on a separate sheet)	
erb Stratum (Plot size:5 ) Solidago canadensis	50	Υ	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
Carex blanda	15		FAC		
	10		FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must	
Fragaria vesca			-FACU	be present, unless disturbed or problematic.	
				Definitions of Four Vegetation Strata:	
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o	
				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	
l				of size, and woody plants less than 3.28 ft tall.	
2	75%	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in	
oody Vine Stratum (Plot size:)				height.	
				Hadranbort's	
				Hydrophytic Vegetation	
				Present? Yes No	
	:	= Total Cov	er er		
emarks: (Include photo numbers here or on a separate	sheet.)				

Sampling Point: W23-U01

Profile Desc	cription: (Describe t	o the depth n	eeded to docun	nent the in	ndicator	or confirm	the absence	e of indicators.)
Depth	Matrix		Redo	x Features	3			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-13	7.5YR 4/3	100					SL	
								· <del></del>
								- <u> </u>
								· <del></del>
								·
1Type: C=C	oncentration, D=Depl	ation RM=Re	duced Matrix MS	S=Macked	Sand Gra	———	<sup>2</sup> Location: D	L=Pore Lining, M=Matrix.
Hydric Soil		elion, ixivi–ixe	duced Matrix, Mc	-iviaskeu	Sanu Gra	ali 15.		eators for Problematic Hydric Soils <sup>3</sup> :
			Davis Confess	(07)				2 cm Muck (A10) <b>(MLRA 147)</b>
Histosol		_	Dark Surface		oo (CO) <b>(N</b>	II D A 447		
	oipedon (A2)	-	Polyvalue Be				148) (	Coast Prairie Redox (A16)
	stic (A3)	-	Thin Dark Su		-	47, 148)		(MLRA 147, 148)
	en Sulfide (A4)	-	Loamy Gleye		F2)		<u> </u>	Piedmont Floodplain Soils (F19)
	d Layers (A5)	_	Depleted Mat		C)		,	(MLRA 136, 147)
	ick (A10) <b>(LRR N)</b>	- (0.11)	Redox Dark S	•	,			Red Parent Material (TF2)
	d Below Dark Surface	- (A11) _	Depleted Dar					Very Shallow Dark Surface (TF12)
	ark Surface (A12)	- -	Redox Depre Iron-Mangane			I DD N	— '	Other (Explain in Remarks)
	Mucky Mineral (S1) <b>(L</b> <b>\ 147, 148)</b>	KKN, _	iron-iviangand		3S (F 12) (	LKK N,		
	Gleyed Matrix (S4)		Umbric Surfa	-	MI DA 12	6 122\	<sup>3</sup> ln/	dicators of hydrophytic vegetation and
	Redox (S5)	_	Offibric Surfa Piedmont Flo					wetland hydrology must be present,
	Matrix (S6)	_	Fleditionit Flo	oupiairi S	olis (F 19)	(IVILKA 14	-	unless disturbed or problematic.
	Layer (if observed):						Τ	unless disturbed or problematic.
Type:			-				1	
	ches):		-				Hydric Soi	I Present? Yes No
Remarks: Uniform sing	le laver							
Official Sing	ic layer.							

STREAM ID: SS S01

□ ROW       □ Project Facility       STATE : PA         □ Access Road       □ Staging/Storage Area       PROJECT Willow Grove EIS				
County: Montgomery	Stream Name: 🗹 UNNAMED 🗌 NAMED:			
Date: 05/02/13				
Date: 00/02/10	Stream Type: STREAM DITCH/CANAL			
	Observers: R. Wardell, Z. Fink			
CHARACTERISTICS Water Present: V yes  no	CHARACTERISTI	CS		
Water Present:	Substrate Type         Probed Stream Dep           □ Bedrock         □ N/A           □ Gravel         □ 0 - 6"           □ Sand         □ 7 - 12"           □ Silt         □ 13 - 24"           □ Cobbles         □ 25 - 36"           □ Clay         □ 37"+           □ Concrete         □ Other	th Water Clarity  Clear  Discolored Oily Film Other		
STREAM BANK HEIGHT AND SLODE	ASSOCIATED HABITAT	ASSOCIATED SPECIES		
STREAM BANK HEIGHT AND SLOPE  Left Bank* Right Bank*	Riparian Vegetation	ASSOCIATED SPECIES  Aquatic Organisms		
Height (ft): 3 Height (ft): 5  Slope: □ 0-30° (4:1) Slope: □ 0-30° (4:1) □ 31-45° (3:1) □ 31-45° (3:1)	yes no If yes, list: Faxinus pennsylvanica, Acer rubrum.,	yes no If yes, list:		
✓ 46-60° (2:1)       ✓ 46-60° (2:1)         ☐ 61-90° (1:1)       ☐ 61-90° (1:1)	Quercus rubra, Rosa multiflora., Lindera benzoin.  Width of riparian corridor (ft): 100	Riparian/Terrestrial Organisms  yes		
Height (ft) (OHWM from stream bed):1		no		
*Direction when facing downstream  Evidence of Erosion:  yes no	Stream Fringe (5' or less including both banks)	If yes, list: Deer, Canada goose		
✓ Sloughing ✓ Undercutting ☐ Impact from Cattle	☐ yes, width (ft): ☑ no If yes, list :	Stream has potential for fish presence yes		
Top of Bank Characteristics		Ľ no		
Width (ft) Highest Bank to Highest Bank:	Aquatic Vegetation yes	T&E Species yes, list ID:		
Highest Left Bank Height*:	☑ no	☑ no		
Highest Left Bank Slope*:	If yes, list:			
Highest Right Bank Height*: Highest Right Bank Slope*:				
*Direction when facing downstream				
OHWM Criteria – Ordinary High Water Mark	Geometry:   Meandering  Relatively Straight	t		
☐ clear, natural line impressed on bank☐ changes in character of soil☐ shelving	Presence of: ☐ run ☑ pools ☐ riffles			
vegetation matted down, bent or absent				
leaf litter disturbed or washed away	Is the stream/tributary:			
sediment deposition water staining	□ natural     □ manmade – Explain:			
presence of litter and debris	man-altered – Explain:			
destruction of terrestrial vegetation				
presence of wrack line	NOTES:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
sediment sorting scour	At the time of survey, perceptible flow was absent however channel. These were up to 2" deep and had an oily sheen.			
abrupt change in plant community	channels are ephemeral and originate within the survey co	rridor. The main channel extends NW of the		
other (list):	survey corridor. The stream terminates on the survey corridor. W02 and drains it into Park Creek. The riparian corridor is	*		
Discontinuous OHWM: ☐ yes ☑ no	WOZ and drains it into Fair Cleek. The hpanan comdons	primarily rolested.		



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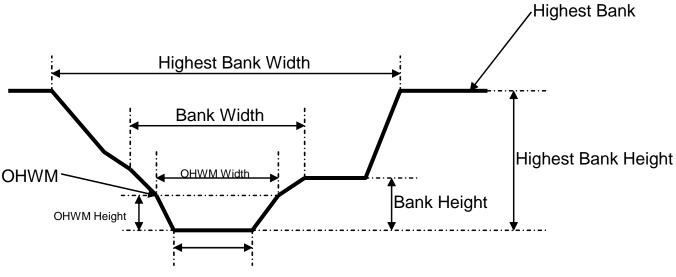
Run: A reach of stream characterized by fast flowing low turbulence water.

**Riffle:** A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.

<sup>\*</sup>Stream bed width is variable

STREAM ID: SS S02

	TATE: PA ROJECT WIllow Grove EIS	
County: Montgomery	Stream Name: UNNAMED 🗸 NAMED: Park	Creek
Date: 05/02/13	Stream Type: STREAM DITCH/CANAL	
	Observers: Z. Fink, R. Wardwell	
CHARACTERISTICS	CHARACTERISTI	CS
Water Present: ☑ yes ☐ no		
Flow Type: Perennial 🗌 Intermittent 🔲 Ephemeral	Substrate Type     Probed Stream Dep       □ Bedrock     □ N/A       ☑ Gravel     □ 0 − 6"	th <u>Water Clarity</u> Clear  Discolored
Stream Flow Direction: NE		☐ Oily Film ☐ Other
Width (ft) (water's edge to water's edge): 30	☐ Cobbles ☐ 25 – 36" ☐ Clay ☐ 37"+	
Width (ft) (bank to bank): 45	Clay 37 +	
(above OHWM; use OHWM Criteria below)	Other	
STREAM BANK HEIGHT AND SLOPE	ASSOCIATED HABITAT	ASSOCIATED SPECIES
Left Bank* Right Bank*	Riparian Vegetation	Aquatic Organisms
Height (ft): 6 Height (ft): 8	☑ yes ☐ no	☑ yes □ no
Slope: 0-30º (4:1) Slope: 0-30º (4:1)	If yes, list:	口 no If yes, list:
☑ 31-45º (3:1) ☐ 31-45º (3:1)	Acer sacharinium, Acer rubrum, Rosa	Fish, macro invertebrates
46-60º (2:1) 46-60º (2:1)	multiflora, Acer negundo,Lindera benzoin,	,
61-90º (1:1)	Quercus r, Fraxinus pennsylvanica, Ulmus	Riparian/Terrestrial Organisms
	Width of riparian corridor (ft): 150-300	✓ yes
Height (ft) (OHWM from stream bed):3		no
*Direction when facing downstream	Stream Fringe (5' or less including both banks)	If yes, list:
Evidence of Erosion: 🗹 yes 🔲 no		Deer, geese
✓ Sloughing ✓ Undercutting ☐ Impact from Cattle	☐ yes, width (ft):	Stream has potential for fish
Sloughing G ondercutting G impact nom cattle	If yes, list:	presence
☐ Other:	, ,	✓ yes
		□ no
Top of Bank Characteristics		
Width (ft) Highest Bank to Highest Bank:	Aquatic Vegetation	T&E Species
	∐ yes	☐ yes, list ID:
Highest Left Bank Height*:	☑ no	☑ no
Highest Left Bank Slope*:	If yes, list:	
Highest Right Bank Height*: Highest Right Bank Slope*:		
*Direction when facing downstream		
OHWM Criteria – Ordinary High Water Mark	Geometry:   Meandering  Relatively Straigh	t T
clear, natural line impressed on bank		
changes in character of soil	Presence of: 🗹 run 🗹 pools 🔽 riffles	
shelving		
vegetation matted down, bent or absent		
leaf litter disturbed or washed away	Is the stream/tributary:	
sediment deposition	natural	
water staining	☐ manmade – Explain: ☐ man-altered – Explain: bridged and dammed W (	of survey corridor (PH-002-004)
presence of litter and debris		5. 53. 15) 55. Hadri (111 552 554)
destruction of terrestrial vegetation presence of wrack line	NOTES:	
sediment sorting	In some areas bank width can reach 55' and 9' height, wet	width 45'. Keith Valley Road construction
scour	has removed most of the riparian corridor along the right be	
☐ abrupt change in plant community	upstream off corridor is a barrier to fish passage. SW outfa	alls empty to stream including (D03, D04,
other (list):	D05). The stream was mapped from the right bank. The str	
Discontinuous OHWM: ☐ yes ☑ no	area, including S01, W02, W03, and W04, as well as drain	ages DU3, DU4, and DU5.



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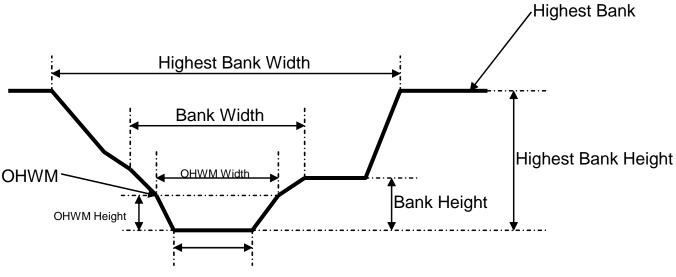
Run: A reach of stream characterized by fast flowing low turbulence water.

**Riffle:** A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.

<sup>\*</sup>Stream bed width is variable

STREAM ID: SS S03

	TATE PA			
Access Road Staging/Storage Area P	ROJECT Willow Grove			
County: Montgomery	Stream Name: 🗹 UNNAMED 🔲 NAMED:			
Date: 4/4/2013	Stream Type: STREAM DITCH/CANAL channelized natural drainage			
	Observers: Z. Fink, J. Carlo	,		
CHARACTERISTICS	CHARACTERISTIC	cs		
Water Present: ✓ yes ☐ no				
Flow Type: Perennial Intermittent Ephemeral	Substrate Type Probed Stream Dept  ☐ Bedrock ☐ N/A ☐ Gravel ☐ 0 - 6"	☐ Clear ☑ Discolored		
Stream Flow Direction: SE	✓ Sand       7 - 12"         ✓ Silt       13 - 24"	☐ Oily Film ☐ Other		
Width (ft) (water's edge to water's edge): 3 feet	☐ Cobbles     ☐ 25 – 36"       ☐ Clay     ☐ 37"+			
Width (ft) (bank to bank): 12 feet	Concrete			
(above OHWM; use OHWM Criteria below)	Other			
STREAM BANK HEIGHT AND SLOPE	ASSOCIATED HABITAT	ASSOCIATED SPECIES		
Left Bank* Right Bank*	Riparian Vegetation	Aquatic Organisms		
Height (ft): 3.5 Height (ft): 3.5	yes	∐ yes		
Slope: ☐ 0-30º (4:1) Slope: ☐ 0-30º (4:1)	☑ no	☑ no		
31-45º (3:1)	If yes, list:	If yes, list:		
46-60° (2:1) 46-60° (2:1)				
61-90º (1:1)		Riparian/Terrestrial Organisms		
	Width of riparian corridor (ft):	yes		
Height (ft) (OHWM from stream bed):1 foot	width of riparian corridor (it).	☑ yes ☑ no		
*Direction when facing downstream	Stream Fringe (5' or less including both banks)	If yes, list:		
Evidence of Erosion: 🗹 yes 🗌 no		,,		
☐ Sloughing ☑ Undercutting ☐ Impact from Cattle	yes, width (ft):	Student has not out in life of ich		
Sloughing D ondercutting D impact from Cattle	If yes, list:	Stream has potential for fish presence		
☐ Other:	11 yes, 11st .	<u>presence</u> □ yes		
		☑ , cc ☑ no		
Top of Bank Characteristics				
Width (ft) Highest Bank to Highest Bank:	Aquatic Vegetation	T&E Species		
· · · · · · · · · · · · · · · · · · ·	yes	yes, list ID:		
Highest Left Bank Height*:	☑ no	☑ no		
Highest Left Bank Slope*:	If yes, list:			
Highest Right Bank Height*:				
Highest Right Bank Slope*:				
*Direction when facing downstream				
OHWM Criteria – Ordinary High Water Mark	Geometry: Meandering 🗹 Relatively Straight			
clear, natural line impressed on bank	Presence of: ☐ run ☐ pools ☐ riffles			
changes in character of soil	Presence of:     run     pools     rimes			
shelving vegetation matted down, bent or absent				
leaf litter disturbed or washed away	Is the stream/tributary:			
sediment deposition	natural			
water staining	manmade – Explain:			
presence of litter and debris	man-altered – Explain: channelized natural drainage			
destruction of terrestrial vegetation	-	<del></del>		
presence of wrack line	NOTES:			
sediment sorting	Appears natural at flags 1 - 3. Flags 4 - S04 appe	ears channelized - man made ditch		
scour	Appears Hatural at hays 1 - 3.   Flays 4 - 304 appl	ears channenzeu - man maue ullch.		
abrupt change in plant community		ll l		
other (list):				
Discontinuous OHWM: 🔲 yes 🔲 no				



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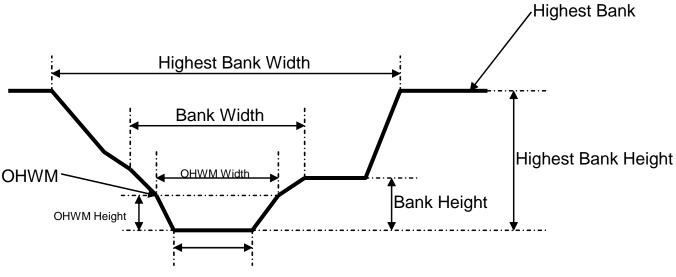
Run: A reach of stream characterized by fast flowing low turbulence water.

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<sup>\*</sup>Stream bed width is variable

STREAM ID: SS S04

	TATE PA	
Access Road Staging/Storage Area P	ROJECT Willow Grove	
County: Montgomery	Stream Name: 🗹 UNNAMED 🔲 NAMED:	
Date: 4/3/2013	Stream Type: ☑ STREAM ☐ DITCH/CANAL	
	Observers: Z. Fink, J. Carlo	
CHARACTERISTICS	CHARACTERISTI	CS
Water Present: ☑ yes ☐ no		
Flow Type: Perennial Intermittent Ephemeral	Substrate Type Probed Stream Dep  ☐ Bedrock ☐ N/A ☐ Gravel ☐ 0 - 6"	☐ Clear ☐ Discolored
Stream Flow Direction: SW	<ul> <li>✓ Sand</li> <li>✓ Silt</li> <li>✓ 13 – 24"</li> </ul>	Oily Film  Other clear with dense algal blooms
Width (ft) (water's edge to water's edge): 3 feet	<ul><li>✓ Cobbles</li><li>☐ 25 – 36"</li><li>☐ 37"+</li></ul>	_
Width (ft) (bank to bank): 11 feet	Concrete	
(above OHWM; use OHWM Criteria below)	Other	
STREAM BANK HEIGHT AND SLOPE	ASSOCIATED HABITAT	ASSOCIATED SPECIES
Left Bank* Right Bank*	Riparian Vegetation	Aquatic Organisms
Height (ft): 3.5 Height (ft): 4.0	☑ yes	∐ yes
Slope: V 0-30º (4:1) Slope: V 0-30º (4:1)	☐ no	☑ no
Slope:   0-30° (4:1)   Slope:   0-30° (4:1)   31-45° (3:1)   31-45° (3:1)	If yes, list:	If yes, list:
46-60° (2:1) 46-60° (2:1)	P. occidentalis, A. rubrum, C. alba, Rubus	Potential exists.
	spp., Quercus spp.	Pinarian/Torrostrial Organisms
	Width of riparian corridor (ft): 25	Riparian/Terrestrial Organisms  ves
Height (ft) (OHWM from stream bed):1 foot	width of riparian corridor (it):	☐ yes ☑ no
*Direction when facing downstream	Stream Fringe (5' or less including both banks)	If yes, list:
Evidence of Erosion:  yes no	<u>Stream Tringe</u> (5° of less including both banks)	ii yes, iist.
	yes, width (ft): 0 - 15	
✓ Sloughing ✓ Undercutting ☐ Impact from Cattle	☑ no	Stream has potential for fish
C Othor:	If yes, list:	presence
Other:		☑ yes □
		∐ no
Top of Bank Characteristics	Aquatic Vegetation	T&E Species
Width (ft) Highest Bank to Highest Bank:	yes	yes, list ID:
Highest Left Bank Height*:		☑ yes, list ib
Highest Left Bank Slope*:	If yes, list:	<u> </u>
Highest Right Bank Height*:	Algae is present in abundance throughout	
Highest Right Bank Slope*:	mapped reach.	
*Direction when facing downstream		
OHWM Criteria – Ordinary High Water Mark	Geometry: 🗹 Meandering 🔲 Relatively Straight	t
clear, natural line impressed on bank		
changes in character of soil	Presence of: 🗹 run 🗹 pools 🔽 riffles	
shelving		
vegetation matted down, bent or absent		
leaf litter disturbed or washed away	Is the stream/tributary:	
sediment deposition	natural	
water staining	□ manmade – Explain:     □ man-altered – Explain: culvert in locations	
presence of litter and debris	Inan-altered – Explain:	
destruction of terrestrial vegetation	NOTES:	
☐ presence of wrack line☐ sediment sorting	Barriers to fish passage are present. Small cascade	es present - downed trees rocks
☐ sediment sorting ☐ scour	trash. Flows to confluence with S05. H03 flows into	I I
abrupt change in plant community	culvert D22. Stream is braided near data point. At I	I 1
other (list):	could not be traced as large culvert/storm sewer cou	· · · · · · · · · · · · · · · · · · ·
Discontinuous OHWM:  yes no		



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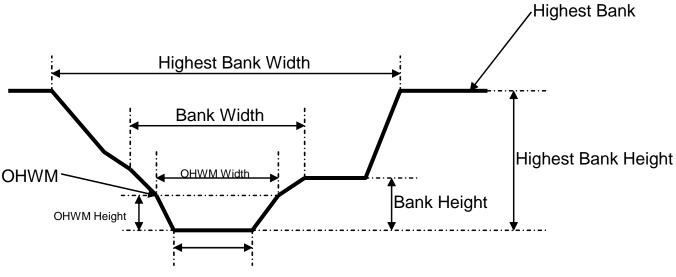
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<sup>\*</sup>Stream bed width is variable

STREAM ID: SS\_S05\_\_\_\_\_

	TATE_PA	
Access Road Staging/Storage Area P	ROJECT Willow Grove	
County: Montgomery	Stream Name: UNNAMED NAMED:	
Date: 4/2/2013	Stream Type: 🗹 STREAM 🔲 DITCH/CANAL	
- Julian - Lander - L		
GUADA OTERIOTICS	Observers: Z. Fink, J. Carlo	100
CHARACTERISTICS  Water Present:  yes  no	CHARACTERISTI	LS .
water Present: [2] yes [] no	Substrate Type Probed Stream Dep	oth Water Clarity
Flow Type: 🗹 Perennial 🗌 Intermittent 🔲 Ephemeral	Bedrock	✓ Clear  ☐ Discolored
Stream Flow Direction: SW, breaking due W	☑ Sand ☐ 7 – 12" ☑ Silt ☐ 13 – 24"	Oily Film
Width (ft) (water's edge to water's edge): 3 feet	☑ Cobbles ☐ 25 – 36"	Other
Width (ft) (bank to bank): 4 feet	│	
(above OHWM; use OHWM Criteria below)	Other	
•		
STREAM BANK HEIGHT AND SLOPE	ASSOCIATED HABITAT	ASSOCIATED SPECIES
Left Bank* Right Bank*	Riparian Vegetation	Aquatic Organisms
Height (ft): 1.5 Height (ft): 1.0	☑ yes	∐ yes
Slope: ☑ 0-30º (4:1) Slope: ☑ 0-30º (4:1)	│	☑ no If yes, list:
31-45º (3:1) 31-45º (3:1)	Acer rubrum (tree layer), Cornus	None observed, but possible is
46-60º (2:1) 46-60º (2:1)	stolonifera (sapling/shrub layer)	associated ponds
61-90º (1:1) 61-90º (1:1)	, , ,	Riparian/Terrestrial Organisms
	Width of riparian corridor (ft): 25	<b>☑</b> yes
Height (ft) (OHWM from stream bed):<1 foot		☐ no
*Direction when facing downstream	Stream Fringe (5' or less including both banks)	If yes, list:
Evidence of Erosion: 🗹 yes 🗌 no	✓ yes, width (ft): 0 - 15	White-tailed deer, song sparrow
☐ Sloughing ☑ Undercutting ☐ Impact from Cattle	□ no	Stream has potential for fish
	If yes, list :	presence
☐ Other:	see WW1-04	☐ yes
		☑ no
Top of Bank Characteristics	Association	TO F Consider
Width (ft) Highest Bank to Highest Bank:	Aquatic Vegetation  yes	T&E Species ☐ yes, list ID:
Highest Left Bank Height*:	☐ yes   ☐ no	☐ yes, list lb
Highest Left Bank Slope*:	If yes, list:	
Highest Right Bank Height*:	Unknown	
Highest Right Bank Slope*:		
*Direction when facing downstream	_	
OHWM Criteria – Ordinary High Water Mark	Geometry: 🗹 Meandering 🔲 Relatively Straigh	t
clear, natural line impressed on bank		
changes in character of soil	Presence of: Tun Pools Priffles	
shelving		
☐ vegetation matted down, bent or absent☐ leaf litter disturbed or washed away	Is the stream/tributary:	
sediment deposition	natural	
water staining	manmade – Explain:	
presence of litter and debris	man-altered – Explain: fed by drainage and old drain	pipes present
destruction of terrestrial vegetation		_
presence of wrack line	NOTES:	
sediment sorting	Not mapped on NHD. Flows W off base vi	a culvert D22. Large portion of
scour	W22 is a riparian wetland to this stream. (	
abrupt change in plant community	off base. Drains W22, seeps H04 and H05	
other (list): Discontinuous OHWM:  yes  no	(HY-001-003 and 004 not shown on report	•
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#### **DEFINITIONS:**

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

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

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

Run: A reach of stream characterized by fast flowing low turbulence water.

**Riffle:** A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.

<sup>\*</sup>Stream bed width is variable

# B



**Representative Photo of W01** 



**Representative Photo of W02** 



**Representative Photo of W03** 



Representative Photo of W04



**Representative Photo of W05** 



**Representative Photo of W06** 



**Representative Photo of W07** 



**Representative Photo of W08** 



**Representative Photo of W09** 



Representative Photo of W10



Representative Photo of W11



**Representative Photo of W12** 



**Representative Photo of W13** 



Representative Photo of W14



**Representative Photo of W15** 



Representative Photo of W16



**Representative Photo of W17** 



**Representative Photo of W18** 



**Representative Photo of W19** 



Representative Photo of W20



**Representative Photo of W21** 



Representative Photo of W22



**Representative Photo of W23**