

**WETLAND DELINEATION
GREENBURY POINT,
NAVAL SUPPORT ACTIVITY ANNAPOLIS**



FINAL REPORT

April 2015

Prepared for:



U.S. Navy
Naval Facilities Engineering Command
Washington, DC
Contract Number: N40080-12-D-0350
Delivery Order: 0009, Task 6

Prepared by:



Environmental Systems Analysis, Inc.
Annapolis, MD 21401



Geo-Marine, Inc.
Hampton, VA 23666

Table of Contents

1.0	INTRODUCTION.....	1
2.0	DELINEATION METHODS.....	3
2.1	Hydrology.....	4
2.2	Vegetation.....	4
2.3	Soils.....	5
3.0	GENERAL SITE CONDITIONS.....	5
4.0	RESULTS.....	6
5.0	CONCLUSION	11
5.1	Wetland Jurisdiction and Permitting Process	11
6.0	REFERENCES.....	12

APPENDICES

APPENDIX A – Site Vicinity Map

APPENDIX B – Summary of Wetlands Determination Data Plots and Wetland Determination Data Forms

APPENDIX C – Photographs

APPENDIX D – Wetland Delineation Map

APPENDIX E—Authorized Jurisdictional Determination

Glossary and Acronym/Abbreviation Definitions

C – Carbon

E2—Estuarine Tidal Wetlands, intertidal-substrate is exposed and flooded by tides

EPA – United States Environmental Protection Agency

ESA – Environmental Systems Analysis, Inc.

FAC – Facultative plant status. Plant has similar likelihood (33-67% of the time) of occurring in wetlands or non-wetlands.

FACU – Facultative upland plant status. Plant sometimes occur (1-33% of the time) in wetlands.

FACW – Facultative wetland plant status. Plant usually occurs (67-99% of the time) in wetlands.

Fe – Iron

GIS – Geographic Information System

JD – Jurisdictional Determination

MDE – Maryland Department of the Environment

Mn – Manganese

NAVFAC – Naval Facilities Engineering Command

OHWM – Ordinary High Water Mark

OBL – Obligate wetland plant status

PEM – Palustrine Emergent--herbaceous nontidal wetlands

PFO – Palustrine Forested nontidal wetlands

POW – Palustrine Open Water

PSS – Palustrine Scrub-Shrub wetlands

RPW – Relatively Permanent Waters

S – Sulfur

SWM – Stormwater Management

TM—Tidal Marsh is subject to tidal influence, substrate is exposed and flooded by tides

TNW – Traditionally Navigable Waters

UPL – Obligate upland. Plant rarely occurs (less than 1% of the time) in wetlands.

US—Unconsolidated Shore wetlands, may be palustrine or estuarine

USACE– United States Army Corps of Engineers

USDA NRCS – United States Department of Agriculture Natural Resources Conservation Service

USDA SCS – United States Department of Agriculture Soil Conservation Service

USFWS – United States Fish and Wildlife Service

1.0 INTRODUCTION

Environmental Systems Analysis, Inc. (ESA) performed a wetland/waters delineation at five distinct locations on Greenbury Point, within the Naval Support Activity Annapolis (NSAA). The work was performed through *Contract #N40080-12-D-0350, Delivery Order 0009, Task 6* and involved identifying and delineating wetlands within five priority area polygons, which total approximately 60 acres. The Berm, located near the open water area west of Tower Road, has been deliberately excluded from this delineation because it is a separate project undergoing emergency repairs.

Field work was performed during the non-growing season of December 2012 and January 2013. The numbered wetland flagging was field located in February 2013 and a draft report and surveyed map were prepared in June of 2013. The report and map were sent to the NAVFAC technical representative (NTR) and NSAA point of contact (POC) for approval.

Task 6b required that ESA obtain a jurisdictional determination (JD) of the wetlands delineated through task 6a. After an August 2013 internal review by the NTR and POC, ESA submitted a formal JD request for the Greenbury Point Delineation. The JD was performed in November of 2013 and was attended by U.S. Army Corps of Engineers (USACE), Maryland Department of the Environment (MDE), ESA, NTR and POC. MDE approved the field JD in February of 2014. USACE approved the JD in April of 2015.

The approved JD is attached with this final report as Appendix E, and approves the wetland report, graphics, data sheets, photographs and mapping as prepared. Appendix E includes an April 13, 2015 letter stating that the USACE has reviewed both in the field and in writing, the wetland delineation report and map, and concur with the documents. The JD approval, CENAB-OP-RMS (Naval Support Activity Annapolis/Greenbury Point/JD) 2013-02370, is valid for five years from the date of the letter.

This report documents wetland/waters delineation criteria, the methods used to delineate wetlands and waters, and existing conditions found on site. It does not address the specific issues that would result from impacts to wetlands/waters. Please refer to Figure 1 below for the specific locations of each delineated area.

Wetland Delineation, Greenbury Point
Final Report, April 2015

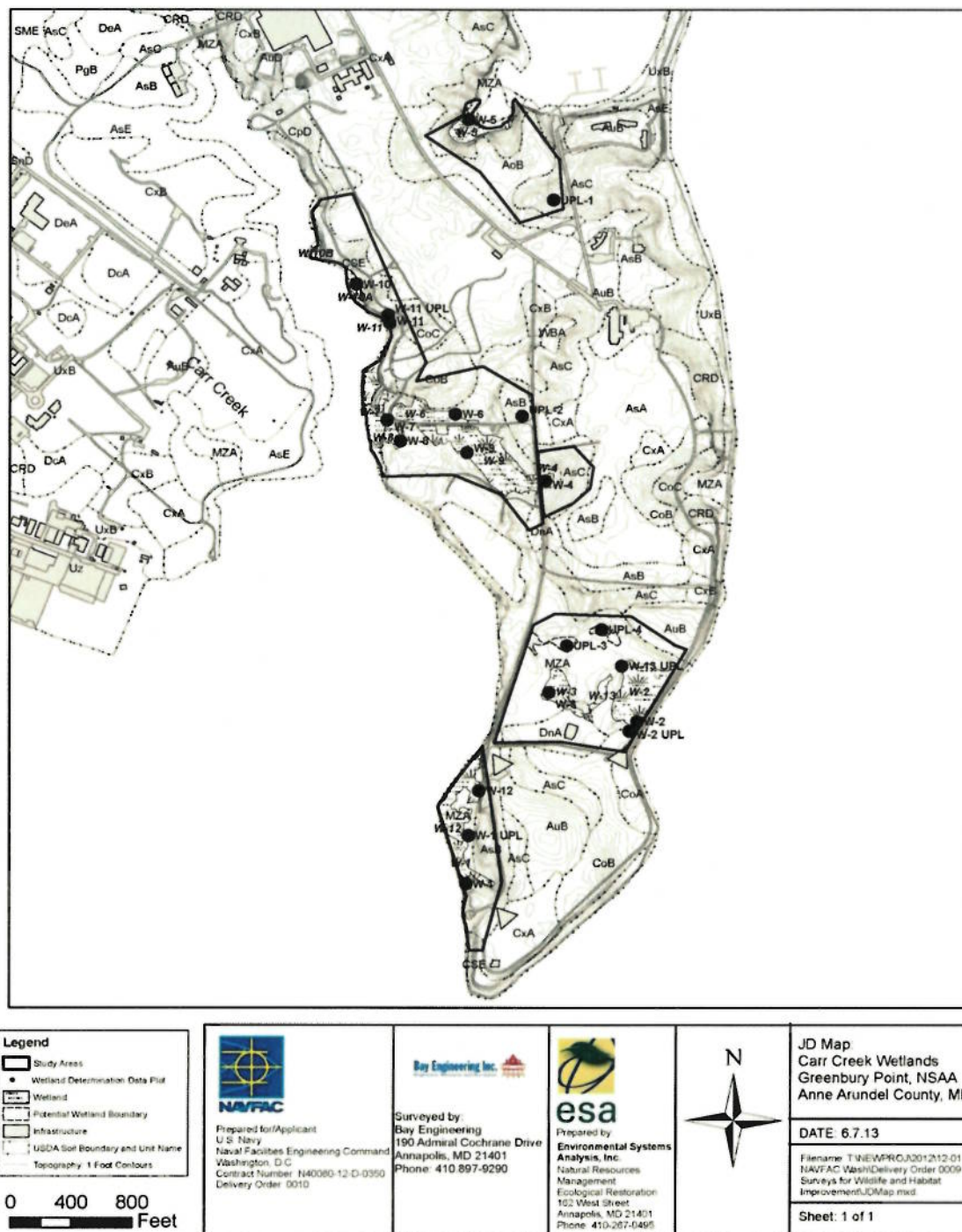


Figure 1. Greenbury Point Wetlands Map.

2.0 DELINEATION METHODS

Within the identified study area, the wetland delineation consisted of identifying the vegetation, soils (in undisturbed areas), and hydrology of possible wetland and waters areas; and marking the wetland/waters boundaries with labeled pink and black striped flagging or pink pin flags every 15 to 50 feet along the wetlands border. ESA selected wetland determination data plots throughout the study area to document specific conditions within wetlands and uplands, and to provide justification for delineation. Plots were selected using the 1987 United States Army Corps of Engineers Wetlands Delineation Manual. Paired wetland and upland plots were selected in order to determine the location of the wetland boundary. The delineation occurred on December 26 and 27, 2012, and February 27 and March 1, 2013 during the leaf-off season and during a period of normal precipitation.

Wetlands and waters are included within the definition of 'waters of the United States' in the federal Clean Water Act. 'Waters' generally refers to non-vegetated water bodies, such as ponds, rivers, and streams. The identification of waters is based upon methodologies in the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook*, 2007, and various regulatory guidance letters. Swales and erosional features (e.g., gullies, small washes characterized by low volume, infrequent, and short duration flow) are generally not waters because they are not "relatively permanent, standing or flowing bodies of water." In addition, ditches (including roadside ditches) excavated wholly in, and draining only uplands, and do not carry a relatively permanent flow of water, are generally not waters of the United States. Even when these swales or ditches are not jurisdictional waters, they need to be noted as conveyance paths on wetland delineation maps when acting as a surface hydrologic connection between two regulated wetlands.

The primary field indicator for a water body to be considered "waters of the United States" is an ordinary high water mark (OHWM) defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (U.S. Army Corps of Engineers, 2005).

Wetlands are defined by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." The identification of wetlands was based upon the routine method as described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (referred to hereafter as the Manual) and the

Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, Version 2.0, 2010. According to the Manual, an area is identified as a wetland if it meets all three wetlands parameters: hydric soils, hydrophytic vegetation, and wetlands hydrology. If one of the parameters has been disturbed, the delineation must be made on the basis of the other two parameters, and the investigator's best professional judgment. The three wetlands parameters, hydrology, vegetation, and soils, are described below.

2.1 Hydrology

Indicators of wetland hydrology provide evidence that the site has a continuing wetland hydrologic regime, and if hydric soils and hydrophytic vegetation are present that they are not relics of a past hydrologic regime. Wetland hydrology indicators confirm that an episode of inundation or soil saturation occurred recently, but may provide little additional information about the timing, duration, or frequency of such events. Hydrology indicators are often the most transitory of wetland indicators.

Primary indicators of wetlands hydrology include, but are not limited to, presence of surface water, saturation, water marks (typically on tree trunks), sediment deposits, drift deposits, algal mats, inundation visible on aerial imagery taken during the growing season, gray or black water stained leaves, aquatic fauna (such as fish), hydrogen-sulfide odor, oxidized rhizospheres on living roots in soil, and presence of reduced iron in soil. One primary indicator is needed to determine that wetland hydrology is present. Wetland hydrology is present if two or more secondary indicators are met: surface soil cracks, sparsely vegetated concave surface, drainage patterns, moss trim lines (typically on tree trunks), crayfish burrows, saturation visible on an aerial photo taken during the growing season, geomorphic position, and passing the FAC-Neutral Test.

2.2 Vegetation

The prevalent vegetation found in wetlands consists of those plants adapted to saturated soil conditions. *The National Wetland Plant List* (Lichvar, 2012) provides an indicator status for many of the plant species found in Maryland. These categories define the likelihood of a particular species occurring in a wetland. The ratings are explained as follows:

- **OBL** (Obligate Wetland): Plants that occur almost always (more than 99% of the time) in wetlands.
- **FACW** (Facultative Wetland): Plants that occur usually (67-99% of the time) in wetlands.
- **FAC** (Facultative): Plants with a similar likelihood (33-67% of the time) of occurring in wetlands or non-wetlands.

- **FACU** (Facultative Upland): Plants that occur sometimes (1-33% of the time) in wetlands.
- **UPL** (Obligate Upland): Plants that occur rarely (less than 1% of the time) in wetlands.

The two major hydrophytic vegetation indicators are the dominance test and the prevalence index. For the dominance test, if more than 50% of the dominant vegetation is rated OBL, FACW, or FAC, the sample area contains hydrophytic vegetation. The prevalence index is a weighted average based on abundance and wetland indicator status of all plant species in the sampling plot. If the index is less than or equal to 3.0, the sample area contains hydrophytic vegetation. However, for the prevalence index indicator to apply, indicators of hydric soil and wetland hydrology must also be present, unless disturbed.

2.3 Soils

Hydric soils are defined as *"soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part"* (USDA SCS, 1994). This definition indicates that the development of anaerobic conditions and not the presence of water per se, is the critical factor in hydric soil development. Hydric soil field indicators are used to determine whether a soil meets this definition. Most hydric soil indicators are the result of the chemical reduction of manganese (Mn), iron (Fe), or sulfur (S), or the accumulation of organic carbon (C), under anaerobic conditions (Vepraskas and Sprecher, 1997). The field indicators are grouped into categories for All Soils, Sandy Soils, and Loamy and Clayey Soils, and are described in *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils* (USDA NRCS, 2010).

Many of the field indicators of hydric soils are found within 6 inches of the soil surface. Common field indicators of hydric soils found at the wetland/upland boundary are Depleted Matrix, Sandy Redox, Dark Surface, Piedmont Floodplain Soils and Loamy Gleyed Matrix. Soil color is often an important characteristic used to determine whether a soil meets a field indicator of hydric soils. Hydric soils are often gleyed (neutral grey to bluish-green), grayish (low chroma), or they are grey with bright (often red/orange) concentrations. *Munsell® Soil Color Charts, Year 2009 Revised Washable Edition* was used to determine soil color.

3.0 GENERAL SITE CONDITIONS

The study area is four previously designated locations at Greenbury Point within the Naval Support Activity Annapolis, in Annapolis, Maryland, Anne Arundel County. Greenbury Point is an approximately 231-acre peninsula located across the Severn River (north and east) from the U.S. Naval Academy and downtown Annapolis. The site is located within the western coastal plain of Maryland within the Atlantic Coastal Plain physiographic province. Greenbury Point is bordered by the following tidal waters: Carr Creek to the west, Severn River to the south,

Chesapeake Bay to the east, and Mill Creek to the northeast. A vicinity map of the site is provided in Appendix A. The topography of the study area is flat with low relief, with the exception of moderate to steep slopes along portions of the shorelines. The highest point is slightly over 22 feet above mean sea level.

Greenbury Point consists primarily of undeveloped land which was formerly the site of a radio transmitter facility. The majority of the towers were removed in 1999; three towers remain on the site. The undeveloped land consists of pedestrian trails, forest, fields, and wetlands. Developed areas include Mill Creek Marina, Construction Battalion Unit 403, Bachelor Enlisted Quarters, Married Enlisted Quarters, the Nature Center, and the composting facility.

The average precipitation in Anne Arundel County for July through February is 27.1 inches. The July 2012 through February 2013 precipitation for Annapolis was 27.24 inches (*Weather Underground* Annapolis, MD). This precipitation data indicates that the delineation work was performed during a period of normal precipitation. In addition, the delineation was performed during the non-growing season, when water levels are generally higher. This suggests that hydrology indicators used for the delineation work were observed under typical to wet conditions.

The following sources of information were consulted in conjunction with the on-site survey maps: color aerial photos, DNR wetland maps, and NRCS Soil Survey for Anne Arundel County. ESA used the soil survey to focus on hydric soils, poorly drained soils, and soils with seasonally high water tables.

4.0 RESULTS

ESA identified thirteen wetlands within the study area and classified them based on the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979). The wetland determination data plots and a summary table of the plots are in Appendix B. Photographs of the wetlands are in Appendix C.

Bay Engineering performed field-location survey of the wetland/waters boundary flagging. The surveyed points were used to draw the wetland boundaries. ESA quality-control checked these boundaries and laid them onto a base map to create the delineation map. The wetland delineation map includes the limits of the study area, wetland boundaries and the wetland data plot locations, which is in Appendix D.

The NRCS Web Soil Survey (Soil Survey Staff, 2011) identifies the soil of eleven of the thirteen delineated wetlands as *Mispillion and Transquaking Soils* (MZA), with 0 to 1 percent slopes. These soils at these wetlands can be tidally flooded and usually occur on floodplains, mud flats,

tidal flats and tidal marshes. These soils are very poorly drained, frequently flooded, are saline, and have a depth to water table of about 0 to 10 inches. These soils generally consist of organic material over silty estuarine sediments, mucky peat, and/or silt loam. According to the NRCS, the remaining two wetlands (identified as W-10 and W-11) occur on *Collington Wist & Westphalia* (CSE) soils with 15 to 25 percent slopes. In actuality, these two wetlands are tidal marshes in the bench of steep slopes, which is consistent with MZA soils.

Wetlands W-1 and W-12

Wetland W-1 is a tidal marsh located at the southern limit of Greenbury Point. ESA classified it as E2US3—estuarine intertidal, unconsolidated shore of mud. It is located south of Helix Road and west of West Road and is landward of a breeched seawall adjacent to the Severn River. It contains unvegetated areas and hydrophytic vegetation, primarily *Phragmites australis australis* (common reed, FACW). Wetland hydrology indicators include surface water, saturation, drift deposits, and water-stained leaves. The soil is sandy and meets the hydric soil indicator *dark surface*, a sandy soils hydric soils indicator. The color of the first 4 inches of soil is 10YR 2/1, which is a layer 4 inches thick, starting within the upper 6 inches of the soil surface, with a matrix value of 3 or less and a chroma of 1 or less. At least 70 percent of the visible soil particles must be covered, coated, or similarly masked with organic material. The matrix color of the layer immediately below the dark layer must have the same colors as those described above, or any color that has a chroma of 2 or less, which is 7.5YR 4/1 for this data plot. Directly to the north of Wetland W-1 is Wetland W-12, which is a palustrine emergent/forested wetland, broad-leaved deciduous, temporarily flooded (PEM/FO1A). It is also landward of a breeched seawall along the Severn River, but wetland W-12 is not affected by the tide cycle. It is dominated by hydrophytic vegetation, primarily *Phragmites australis* and *Baccharis halimifolia* (groundsel, FAC). Hydrology indicators include water marks, drift deposits, drainage patterns, and geomorphic position. Soil is sandy and hydric due to *dark surface*. The soil profile is the same as that for Wetland W-1.

Upland data plot W-1 UPL is in the adjacent upland, which is dominated by hydrophytic vegetation, primarily *Morella cerifera* (wax myrtle, FACW), *Spartina patens* (salt meadow hay, FACW), and *Panicum virgatum* (switchgrass, FAC), as well as *Pinus virginiana* (Virginia pine, UPL). Soil is sandy and meets the hydric soil indicator, *sandy redox*. The color of the first 8 inches is 10YR 4/2, with 40 percent redox features with a color of 2.5YR 3/1, which is a layer starting within 6 inches of the soil surface that is at least 4 inches thick and has a matrix with 60 percent or more chroma of 2 or less with 2 percent or more redox concentrations. Although the upland has hydrophytic vegetation and hydric soil, wetland hydrology is not present. Therefore the area was determined to be upland.

Wetlands W-2, W-3 and W-13

ESA classified Wetland W-2 as PEM/FO1A. Hydrophytic vegetation dominate – *Diospyros virginiana* (persimmon, FAC), *Scirpus cyperinus* (wool-grass, FACW), and *Spartina patens* (salt meadow hay). Hydrology indicators include high water table, saturation, oxidized rhizospheres along living roots, and geomorphic position. The soil meets hydric soil indicator *depleted matrix*. The color of the first 3 inches of soil is 10YR 4/2, with 10 percent redox features with a color of 7.5YR 4/6. This is a layer that has a depleted matrix with 60 percent of more chroma of 2 or less that has a minimum thickness of 2 inches if the 2 inches is entirely within the upper 6 inches of the soil. The matrix value of 4 and chroma of 2, with 2 percent or more redox features meets the criteria for a depleted matrix. However, the soil may be disturbed, possibly due to the placement of fill in this area. ESA classified Wetland W-3 as: PEM5A, palustrine emergent, with *Phragmites australis*, and temporarily flooded. Hydrophytic vegetation dominates – *Phragmites australis* and *Baccharis halimifolia*. Hydrology indicators include oxidized rhizospheres along living roots, drainage patterns, and geomorphic position. The soil is hydric due to *depleted matrix*. The first three inches of soil is 10YR 4/2, with 5 percent redox features with a color of 10YR 6/8. Wetland W-13 is similar to W-3, but is classified as PEM1B, palustrine emergent, persistent, saturated. It contains less *Phragmites australis* and is slightly less wet than Wetland W-3.

ESA documented data plots W-13 UPL and W-2 UPL in the adjacent uplands. Dominate vegetation includes *Diospyros virginiana* (persimmon), *Smilax rotundifolia* (greenbriar, FAC), *Setaria italica* (foxtail millet, FACU), *Juncus effusus* (soft rush, FACW), *Scirpus cyperinus* (wool-grass), and *Phragmites australis*. Although hydrophytic plants dominate the sites, hydrology indicators and hydric soils are not present. At plot W-13 UPL the soils are 10YR 3/3 and 10YR 5/6. At plot W-2 UPL, the soils are primarily 10YR 4/4 and 10YR 5/6, with a top layer that is less than 2 inches thick of color 10YR 3/2 with redox concentrations. This layer is too thin to meet a hydric soil indicator.

Flagged Upland Areas Adjacent to Wetlands W-2, W-3 and W-13

ESA documented and flagged two upland areas identified as UPL-3 and UPL-4. Both uplands are in depressional areas with wetland vegetation, and visually give the impression of wetlands. However, hydric soil was not present in either area. Soil in UPL-3 is 10YR 4/4 and soil in UPL-4 is 10YR 4/3, based on multiple samples in each area. Both areas do not have primary indicators of wetland hydrology, but each have two secondary indicators--drainage patterns and geomorphic position, which meets the criteria for wetland hydrology. Both areas are dominated by hydrophytic vegetation—UPL-3 is dominated by *Phragmites australis* and UPL-4 is dominated by *Scirpus cyperinus*.

Wetlands W-4, W-6, and W-9

Located to east of a culvert under West Road, ESA identified Wetland W-4 and classified it as PEM5A. Hydrophytic vegetation dominates – *Diospyros virginiana*, *Phragmites australis*, and

Rubus occidentalis (black raspberry, UPL). Hydrology indicators are saturation, drift deposits, drainage patterns, and geomorphic position. The soil is hydric and meets the hydric soil indicator *depleted matrix*. The first 8 inches of soil is 10YR 4/2 with 5 percent of redox features of color 7.5YR 6/8. On the west side of the same culvert is Wetland W-9, classified as PEM/OW5A (palustrine emergent/open water, with *Phragmites australis*, temporarily flooded). Hydrophytic vegetation dominate—primarily *Phragmites australis*, with *Diospyros virginiana*, *Salix nigra* (black willow, FACW), *Acer rubrum* (red maple, FAC), *Rubus allegheniensis* (Allegheny blackberry, UPL), and *Persicaria perfoliata* (mile-a-minute, FAC). Hydrology indicators include surface water, saturation, water marks, drainage patterns, and geomorphic position. The soil meets the indicator *depleted matrix*. At a depth of 3 to 10 inches the soil color is 10YR 4/1 with 5 percent of redox features of color 5YR 5/8. The wetland is very densely vegetated, but has an inner section of open water. The wetland is bound to the north by a gravel road that acts as a berm, separating the wetland from Wetland W-6, located to the north of Wetland W-9. ESA classified Wetland W-6 as PEM/OW5A. *Phragmites australis* dominates, with smaller amounts of *Persicaria perfoliata* and *Acer rubrum* present. Hydrology indicators include surface water, saturation, water marks, oxidized rhizospheres, drainage patterns, and geomorphic position. Soil meets the indicator *redox dark surface*. The first 9 inches of soil is 10YR 3/2 with 5 percent of redox features of color 5YR 5/8.

Nearby, ESA documented upland data plot UPL-2. It has only one secondary hydrology indicator, geomorphic position, which is not sufficient to indicate wetland hydrology. *Phragmites australis* and *Rubus allegheniensis* dominate and the plot does not meet the dominance test criteria for hydrophytic vegetation indicators. The soil is not hydric with colors of 10YR 3/3, 2.5YR 4/3, and 10YR 5/6.

Wetlands W-7 and W-8

Wetland W-7 is tidal marsh along the shoreline of Carr Creek. ESA classified it as E2EM5, estuarine intertidal emergent, with *Phragmites australis*. Hydrophytic vegetation, primarily *Phragmites australis*, dominate and hydrology indicators include high water table, saturation, water marks, drift deposits, and geomorphic position. The soil is sandy and hydric. It meets the criteria of *dark surface* indicator. The first 4 inches of soil is 10YR 2/1 and the layer immediately below is 7.5YR 4/1. ESA classified Wetland W-8 as PEM/FO1A. It drains into Carr Creek, via a berm opening. It is not tidally flooded. Hydrophytic vegetation, primarily *Phragmites australis*, dominates with smaller amounts of *Diospyros virginiana* and *Quercus palustris* (pin oak, FACW). Hydrology indicators are high water table, saturation, water marks, drift deposits, water-stained leaves, drainage patterns, and geomorphic position. Soils are hydric and meet the *depleted matrix* indicator. The first 3 inches of soil is 10YR 4/2 with 5 percent of redox features of color 10YR 5/6.

Wetlands W-10 and W-11

Wetlands W-10 and W-11 are tidal marshes along Carr Creek. Wetland W-10 is in two sections, W-10A and W-10B, and ESA classified them as E2EM5. Hydrology indicators include surface water, saturation, water marks, drift deposits, water-stained leaves, drainage patterns, and geomorphic position. Hydrophytic vegetation dominates, consisting only of *Phragmites australis*. Soils meet the criteria of *redox dark surface* indicator. The first 10 inches of soil is 2.5Y 3/2 with 5 percent redox features of color 5YR 5/8. Wetland W-11 is classified as E2US3 and is devoid of *Phragmites australis*. Instead, its dominant vegetation consists of *Spartina alterniflora* (tall cordgrass, OBL) and *Typha angustifolia* (narrow-leaved cattail, OBL), which meets the criteria for hydrophytic vegetation indicators. Driftwood-like debris covers the ground and appears to inhibit vegetative growth. Hydrology indicators include surface water, saturation, water marks, drift deposits, water-stained leaves, drainage patterns, and geomorphic position. Soils are hydric due to *redox dark surface*. The first 10 inches of soil is 2.5YR 3/2 with 5 percent redox features of color 5YR 5/8.

Nearby, ESA documented upland data plot W-11 UPL. No wetland hydrology indicators were documented, and the soil was not hydric with colors of 10YR 3/3 and 10YR 5/4 with no redox features. The dominant plants in the plot are primarily upland species-- *Prunus avium* (sweet cherry, UPL) and *Rubus phoenicolasius* (wineberry, UPL).

Wetland W-5

Wetland W-5 is a tidal marsh in a cove of Mill Creek, near a marina. ESA classified it as E2EM5. Hydrology indicators include surface water, saturation, water marks, drift deposits, water-stained leaves, hydrogen sulfide odor, oxidized rhizospheres, drainage patterns, and geomorphic position. Hydrophytic vegetation, primarily *Phragmites australis*, with lesser amounts of *Lonicera japonica* (Japanese honeysuckle, FAC), *Rosa multiflora* (multiflora rose, FACU), and *Rubus phoenicolasius* dominate. Soils are hydric and meet the criteria of *depleted below dark surface* indicator. The soil has a layer with a depleted matrix that has 60 percent or more of a chroma of 2 or less (10YR 3/2), starting within 12 inches of the soil surface, having a minimum thickness of 6 inches. The loamy layer above this layer has a matrix value of 3 or less and chroma of 2 or less (10YR 2/1).

Nearby, ESA documented upland data plot UPL-1. The plot does not have wetland hydrology indicators or hydric soil—soil colors are 10YR 3/3 and 10YR 4/4. The dominant plants are primarily upland and FACU species-- *Morus rubra* (red mulberry, FACU), *Rubus phoenicolasius*, *Muhlenbergia* sp. (mulhly grass), *Celastrus orbiculatus* (bittersweet, FACU), *Lonicera japonica*, and *Vitis labrusca* (grape vine, FAC). The data plot is within a previously delineated wetland, but the area currently exhibits no wetland indicators.

5.0 CONCLUSION

There are approximately 8.9 acres of wetlands present in the designated study areas on Greenbury Point. Wetland types include tidal and non-tidal with emergent or forested vegetation, or open water. Wetlands provide groundwater recharge, flood storage, pollution control, erosion and sediment control, and wildlife habitat and aesthetic values. All jurisdictional wetlands and waters are subject to federal protection according to the Clean Water Act. Therefore, ESA recommends that wetland impacts be avoided to the maximum extent possible.

5.1 Wetland Jurisdiction and Permitting Process

Wetland and waters jurisdiction can be determined only by the USACE. The USACE regulates lakes, rivers, streams (including intermittent and perennial), mudflats, sandflats, wetlands, sloughs, potholes (i.e. Delmarva bays), wet meadows, playa lakes and natural ponds. The USACE also regulates impoundment (ponds), but not certain types of stormwater management facilities. The USACE does not regulate conveyance paths that only flow in response to direct precipitation or isolated wetlands.

A formal Jurisdictional Determination (JD) of the subject property can be obtained from the USACE prior to commencing land planning. All jurisdictional wetlands and waters are subject to federal protection according to the Clean Water Act, and may not be disturbed without authorization by the USACE. The delineation findings described herein are based on best professional judgment based on guidance provided by the agencies. However, until the wetlands/waters boundaries are confirmed by the agencies through a JD and/or the permitting process, the delineation performed by ESA should only be used for preliminary planning purposes.

6.0 REFERENCES

- Cowardin, Lewis. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*, U.S. Fish and Wildlife Service, pp. 4-24.
- Lichvar, R.W. 2012. *The National Wetland Plant List*. ERDC/CRREL TR-12-11. Hanover, NH: U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory. Available on-line at [http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=\\$N/1012381](http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=$N/1012381). Accessed April 2013.
- Munsell® *Soil Color Charts, Year 2009 Revised Washable Edition*, MUNSELL® COLOR, GretagMacbeth, New Windsor, NY.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. 2011. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed January 2013.
- U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-20. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers and the Environmental Protection Agency. 2007. *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook*, pp. 15-39.
- U.S. Army Corps of Engineers. 2005. "Regulatory Guidance Letter, Subject: Ordinary High Water Mark Identification." No. 05-05.
- United States Department of Agriculture, Natural Resources Conservation Service. 2010. *Field Indicators of Hydric Soils in the United States*, Version 7.0. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.
- United States Department of Agriculture, Soil Conservation Service. 1994. "Changes in Hydric Soils of the United States," Federal Register 59(133): 35680-35681, July 13, 1994.
- Vepraskas, M.J. and S.W. Sprecher. 1997. *Aquic Conditions and Hydric Soils: The Problem Soils*. SSSA Spec. Pub. No. 50, SSSA and ASA, Madison, WI.

Weather Underground. 2013. "History for Annapolis Naval Academy, MD." Available online at:
http://www.wunderground.com/history/airport/KNAK/2013/1/30/DailyHistory.html?req_cityNA&req_state=NA&req_statename=NA. Accessed April 2013.

APPENDIX A
Site Vicinity Map



MAPPING PROVIDED BY: ADC THE MAP PEOPLE, 2009 EDITION, ANNE ARUNDEL COUNTY, MARYLAND MAP 5295
MAP 5295 2-5; G-J

Submitted to:



Naval Facilities Engineering Command
Washington DC

Prepared by:



**Environmental
Systems
Analysis, Inc.**
Natural Resources Management
Ecological Restoration
162 West Street
Annapolis, MD 21401
Phone: 410-267-0495
Facsimile: 410-267-0496

VICINITY MAP

**GREENBURY POINT
NAVAL SUPPORT ACTIVITY ANNAPOLIS**

CONTRACT # N40080-12-D-0350, DO 09, TASK 6



NORTH

SCALE: 1"=2,000'

DATE: JUNE 2013

ESA PROJECT NAME: Task 6 Greenbury Wetland
Delineation/Deliverables

SHEET: 1 of 1

APPENDIX B

Summary of Wetlands Determination Data Plots and Wetland Determination Data Forms

Table 1. Summary of Wetlands Determination Data Plots

Wetland Determination Data Point/Wetland Name	Classification	Comments
W-1	TM--E2US3	<i>Phragmites</i> dominant, littoral fringe, behind breeched seawall
W-1 UPL	U	Within an upland peninsula between wetlands W-1 and W-12
W-2	PEM/FO1A	Persimmon, woolgrass, & salt meadow hay dominant, soil may be disturbed
W-2 UPL	U	Between wetland W-2 and Helix Rd.
W-3	PEM5A	<i>Phragmites</i> dominant depression
W-4	PEM5A	<i>Phragmites</i> dominant depression at culvert
W-5	TM--E2EM5	<i>Phragmites</i> dominant littoral fringe of cove shoreline
W-6	PEM/OW5A	<i>Phragmites</i> dominant, next to gravel road acting as dam
W-7	TM--E2EM5	<i>Phragmites</i> dominant shoreline of Carr Creek
W-8	PEM/FO1A	<i>Phragmites</i> dominant depression next to gravel road
W-9	PEM/OW5A	<i>Phragmites</i> dominant depression with fairly large inner POW area
W-10	TM--E2EM5	<i>Phragmites</i> dominant tidal points
W-11	TM--E2US3	Cove of Carr Creek, lots of deposited debris on ground
W-11 UPL	U	Adjacent to wetland W-11
W-12	PEM/FO1A	<i>Phragmites</i> dominant, behind breeched seawall
W-13	PEM1B	Contains some <i>Phragmites</i> , located between W-2 and W-3
W-13 UPL	U	<i>Phragmites</i> dominant terrace, no hydric soil or hydrology
UPL-1	U	Previously delineated wetland area, no current signs of wetland
UPL-2	U	West of West Road
UPL-3	U	<i>Phragmites</i> dominant swale, no hydric soil
UPL-4	U	Woolgrass dominant depression, no hydric soil

Terminology

U - Areas noted as upland (U) do not meet the three-parameter approach, lacking at least one hydrology, soils, and/or vegetation indicators. Data stations in uplands are performed as pairs to defend adjacent or nearby wetland determinations and their boundary lines, and/or performed in close-call or contentious areas to determine if the site is possibly wetlands. Uplands are not regulated by the Corps through the federal Clean Water Act.

TM - A tidal marsh is subject to the twice-a-day low and high tide, and at some time in the course of the day will be inundated or saturated with mean high tide, the line often used to determine the bounds and/or influence of the tidal boundary. Tidal marshes occur on the Bay, its major estuaries and tidal streams. Soil material may range from sand to clay, peaty or mucky, with salinity ranging from salty to brackish and fresh tidal. Vegetation is usually dominated by marsh grass, sedge, rush and other salt-tolerant herbs and low shrubs. Tidal marshes are regulated wetlands.

E - The Estuarine system consist of deepwater tidal habitats and adjacent tidal wetlands that 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. Along some low-energy coastlines there is appreciable dilution of sea water.

1 - Subtidal- The substrate is continuously submerged.

2 - Intertidal- The substrate is exposed and flooded by tides; includes the associated splash zone.

P - The Palustrine system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ‰. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2 meters at low water; and (4) salinity due to ocean-derived salts less than 0.5 ‰.

EM - Emergent (EM) are herbaceous wetlands. Emergent wetlands may be estuarine or palustrine. Emergent wetlands may be (1) persistent, (2) non-persistent, or (5) *Phragmites australis*. Modifiers for nontidal wetlands include (A) temporarily flooded, (B) saturated, or (A/B) temporarily flooded/saturated to expand on the degree of wetness. Emergent wetlands are regulated.

US - Unconsolidated Shore wetlands may be palustrine or estuarine. US wetlands may be (1) cobble-gravel, (2) sand, (3) mud, and others.

PFO - Palustrine forested (PFO) are forested nontidal wetlands containing tree cover typically consisting of an overstory, associate canopy, understory, saplings and shrubs, with the operative qualifier being woody plants predisposed to occurring in and/or associated with wetlands. Forested wetlands are regulated. PFO wetlands may be (1) broad-leaved deciduous, (2) needle-leaved deciduous, (3) broad-leaved evergreen, and others.

POW - Palustrine open water (POW) are ponds, lakes and/or impoundments and are regulated as Waters of the U.S., unless considered stormwater management facilities, man-made, built in uplands and regularly maintained. Ponds may contain a littoral fringe/veneer of wetlands along the shoreline and rather than documenting a subset of regulated nontidal wetlands (i.e. PEM, PSS or PFO). The Photo-

Interpretation Conventions for National Wetland Inventory, US FWS, July 1985 allows that if 70% or greater of aerial cover is considered open water, then the entire unit can be mapped/classified as open water.

Source - U.S. Army Corps of Engineers and the Environmental Protection Agency, 2007 and Cowardin, 1979

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 2/27/13
 Applicant/Owner: U.S. Navy State: MD Sampling Point: UPL-1
 Investigator(s): Dave K., Leslie W., Anna L. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38.989°N Long: 76.452°W Datum: USGS
 Soil Map Unit Name: AsC Annapolis fine sandy loam NWI classification: none

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

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

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: Point is within old wetland line, but no signs of wetland now			

HYDROLOGY

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

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

 Sampling Point: UPL-1

Tree Stratum (Plot size: <u>r = 30'</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	Morus rubra	40	Y	FACU		
2.						
3.						
4.						
5.						
6.						
7.						
8.						
		40	= Total Cover			
		50% of total cover: 20	20% of total cover: 8			
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)						
1.	Morus rubra	30	Y	FACU		
2.	Rubus phoenicolasius	20	Y	UPL		
3.						
4.						
5.						
6.						
7.						
8.						
		50	= Total Cover			
		50% of total cover: 25	20% of total cover: 10			
Herb Stratum (Plot size: <u>r = 30'</u>)						
1.	Muhlenbergia sp.	50	Y	FAC		
2.	moss	10	N	—		
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
		60	= Total Cover			
		50% of total cover: 30	20% of total cover: 12			
Woody Vine Stratum (Plot size: <u>r = 30'</u>)						
1.	Celastrus orbiculatus	5	Y	FACU		
2.	Lonicera japonica	2	Y	FAC		
3.	Vitis labrusca	2	Y	FAC		
4.						
5.						
		9	= Total Cover			
		50% of total cover: 4.5	20% of total cover: 1.8			

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

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

 Total Number of Dominant Species Across All Strata: 7 (B)

 Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No X

SOIL

Sampling Point: UPL-1

[illegible]

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

²Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 153B) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 2/27/13
 Applicant/Owner: U.S. Navy State: MD Sampling Point: UPL-2
 Investigator(s): Dave K., Leslie W., Anna L. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR or MLRA): MLRA 149-A Lat: 38.986°N Long: 76.453°W Datum: USGS
 Soil Map Unit Name: AsB Annapolis fine sandy loam NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks:		

HYDROLOGY

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

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

 Sampling Point: UPL-2

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. none				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2.				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3.				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4.				
5.				
6.				
7.				
8.				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)				
1. <i>Rubus allegheniensis</i>	10	Y	UPL	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
_____ = Total Cover				
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				
Herb Stratum (Plot size: <u>r = 30'</u>)				
1. <i>Phragmites australis</i>	100	Y	FAC	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
_____ = Total Cover				
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
Woody Vine Stratum (Plot size: _____)				
1. none				
2.				
3.				
4.				
5.				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Remarks: (If observed, list morphological adaptations below).				

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

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation.
☐ 2 - Dominance Test is >50%.
☐ 3 - Prevalence Index is ≤3.0¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

Definitions of Four Vegetation Strata:
 Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
 Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
 Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
 Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

SOIL

Sampling Point: UPL-2

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-4	10YR 3/3	100					silt loam	
4-8	2.5Y 4/3	60	10YR 5/4	40	RM	M	silty clay loam	
11-13	10YR 5/6	100					sand	

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

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20)
 (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 3/1/13
 Applicant/Owner: U.S. Navy State: MD Sampling Point: UPL-3
 Investigator(s): Mark B. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): _____ Slope (%): 1-2
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 58 52.59 N Long: 76 27 11.94 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Flags 1 through 34, # 16 at road drain. Does not tie into W-3. "Looks like" a wetland (disturbed) Phragmites dominant, but with no hydric soil. Show Corps this site during JD –an upland-	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D6) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

 Sampling Point: UPL-3

Tree Stratum (Plot size: <u>r = 30'</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	Acer rubrum	5	Y	FAC		
2.						
3.						
4.						
5.						
6.						
7.						
8.						
		5	= Total Cover			
		50% of total cover:	20% of total cover:			
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)						
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
			= Total Cover			
		50% of total cover:	20% of total cover:			
Herb Stratum (Plot size: <u>r = 30'</u>)						
1.	Phragmites australis	60	Y	FACW		
2.	Panicum virgatum	6	N	FAC		
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
		66	= Total Cover			
		50% of total cover: 33	20% of total cover: 13.2			
Woody Vine Stratum (Plot size: <u>30'</u>)						
1.	Rosa multiflora	15	Y	FACU		
2.	Persicaria perfoliata	5	Y	FAC		
3.						
4.						
5.						
		20	= Total Cover			
		50% of total cover: 10	20% of total cover: 4			

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0¹

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: UPL-3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	10YR 4/4						Sandy Silt	

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)
<input type="checkbox"/> Histic Epipedon (A2)
<input type="checkbox"/> Black Histic (A3)
<input type="checkbox"/> Hydrogen Sulfide (A4)
<input type="checkbox"/> Stratified Layers (A5)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)
<input type="checkbox"/> Muck Presence (A8) (LRR U)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)
<input type="checkbox"/> Depleted Below Dark Surface (A11)
<input type="checkbox"/> Thick Dark Surface (A12)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)
<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)
<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)
<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)
<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Marl (F10) (LRR U)
<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)
<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)
<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)
<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)
<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)
<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)
<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 153B)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks) |
|--|--|---|

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Upland soil throughout
 Checked four lowest areas-all 10YR 4/4.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/26/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: UPL-4
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 58 55.03 N Long: 76 27 08.29 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Woolgrass is aspect dominant, depression pocket. Overt, "looks like" a wetland, but could not get legal hydric soil. Show site during Jurisdictional Determination Reference Photos- has electrical conduit concrete casement. Flags D-1 through D-18 and C-1 through C-9	

HYDROLOGY

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

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

 Sampling Point: UPL-4

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>Diospyros virginiana</u>	<u>12</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
4. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>12</u> = Total Cover 50% of total cover: _____ 20% of total cover: _____				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
Herb Stratum (Plot size: <u>r = 30'</u>)																				
1. <u>Scirpus cyperinus</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>																	
2. <u>Andropogon virginicus</u>	<u>4</u>	<u>N</u>	<u>FACW</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>34</u> = Total Cover 50% of total cover: <u>17</u> 20% of total cover: <u>6.8</u>																				
Woody Vine Stratum (Plot size: <u>30</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____																				

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

 Looks like PEM/FO trumpet creeper and mile-a-minute nearby.

SOIL

Sampling Point: UPL-4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 4/1						silt loam	
2-9	10YR 4/3						silt loam	

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

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Took Multiple Soil Samples

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 2/27/13
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-1 UPL
 Investigator(s): Dave K., Leslie W. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38.977°N Long: 76.455°W Datum: USGS
 Soil Map Unit Name: MZA Mispillion and Transquaking NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks:		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes _____ No <u>X</u>
Surface Water Present?	Yes _____ No <u>X</u> Depth (inches): _____	
Water Table Present?	Yes <u>X</u> No _____ Depth (inches): <u>18"</u>	
Saturation Present? (includes capillary fringe)	Yes _____ No <u>X</u> Depth (inches): _____	

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

Remarks:

Sample point is within an upland peninsula near wetlands; point is ~18" higher than standing water in adjacent wetland

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

 Sampling Point: W-1 UPL

Tree Stratum (Plot size: <u>r = 30'</u>)				Dominance Test worksheet:	
1. <u>Pinus virginiana</u>	40	Y	UPL	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u>	(A)
2. <u>Liquidambar styraciflua</u>	8	N	FAC	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)	
4. _____				Prevalence Index worksheet:	
5. _____				Total % Cover of: _____ Multiply by: _____	
6. _____				OBL species <u>0</u> x 1 = <u>0</u>	
7. _____				FACW species <u>20</u> x 2 = <u>40</u>	
8. _____				FAC species <u>87</u> x 3 = <u>261</u>	
<div style="display: flex; justify-content: space-between;"> 48 = Total Cover 50% of total cover: <u>24</u> 20% of total cover: <u>9.6</u> </div>				FACU species <u>11</u> x 4 = <u>44</u>	
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)				UPL species <u>40</u> x 5 = <u>200</u>	
1. <u>Morella cerifera</u>	50	Y	FAC	Column Totals: <u>158</u> (A) <u>545</u> (B)	
2. <u>Diospyros virginiana</u>	10	N	FAC	Prevalence Index = B/A = <u>3.4</u>	
3. <u>Prunus pensylvanica</u>	10	N	FACU	Hydrophytic Vegetation Indicators:	
4. <u>Acer rubrum</u>	4	N	FAC	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
6. _____				Definitions of Four Vegetation Strata:	
7. _____				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
8. _____				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
<div style="display: flex; justify-content: space-between;"> 74 = Total Cover 50% of total cover: <u>37</u> 20% of total cover: <u>14.8</u> </div>				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
Herb Stratum (Plot size: <u>r = 30'</u>)				Woody vine – All woody vines greater than 3.28 ft in height.	
1. <u>Spartina patens</u>	20	Y	FACW	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
2. <u>Panicum virgatum</u>	10	Y	FAC	Remarks: (If observed, list morphological adaptations below).	
3. <u>Quercus rubra seedlings</u>	1	N	FACU		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
<div style="display: flex; justify-content: space-between;"> 31 = Total Cover 50% of total cover: <u>15.5</u> 20% of total cover: <u>6.2</u> </div>					
Woody Vine Stratum (Plot size: <u>r = 30'</u>)					
1. <u>Toxicodendron radicans</u>	5	Y	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
<div style="display: flex; justify-content: space-between;"> 5 = Total Cover 50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u> </div>					

Sampling Point: W-1 UPL

Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/26/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-1
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hill/slope, terrace, etc.): Tidal Shore Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 58 38.22 N Long: 76 27 18.57 Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: Tidal Marsh. Breached seawall direct surface connection to the mouth of the Severn River and Chesapeake. Tidally flooded twice daily. Flags A-1 thru A-25 and B-1 thru B-12. Flags A-10 and A-11 Seawall opening, B-10 outfall. Reference Photos		

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C5) <input type="checkbox"/> Algal Mat or Crust (B4) <input checked="" type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): _____ Saturation Present? Yes <u>X</u> No _____ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Salt water tidal.		

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

 Sampling Point: W-1

Tree Stratum (Plot size: <u>r = 30'</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	Diospyros virginiana			5	Y	FAC
2.	Taxodium distichum			1	N	OBL
3.	Quercus palustris			2	Y	FACW
4.						
5.						
6.						
7.						
8.						
				8	= Total Cover	
50% of total cover: <u>4</u>				20% of total cover: <u>1.6</u>		
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)						
1.	Baccharis halimifolia			8	Y	FAC
2.	Hibiscus sp.			6	Y	OBL
3.						
4.						
5.						
6.						
7.						
8.						
				14	= Total Cover	
50% of total cover: <u>7</u>				20% of total cover: <u>2.8</u>		
Herb Stratum (Plot size: <u>r = 30'</u>)						
1.	Phragmites australis			90	Y	FACW
2.	Spartina patens			5	N	FACW
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
				95	= Total Cover	
50% of total cover: <u>47.5</u>				20% of total cover: <u>19</u>		
Woody Vine Stratum (Plot size: <u>30</u>)						
1.	Rosa multiflora			3	Y	FACU
2.	Smilax rotundifolia			5	Y	FAC
3.						
4.						
5.						
				8	= Total Cover	
50% of total cover: <u>4</u>				20% of total cover: <u>1.6</u>		

Remarks: (If observed, list morphological adaptations below).
 Phragmites littoral fringe;
 Twice Daily High-Low Tide Cycle
 Daily Flushing

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
 Total Number of Dominant Species Across All Strata: 7 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 85 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>7</u>	x 1 = <u>7</u>
FACW species <u>97</u>	x 2 = <u>194</u>
FAC species <u>18</u>	x 3 = <u>54</u>
FACU species <u>3</u>	x 4 = <u>12</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125</u> (A)	<u>267</u> (B)

 Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test Is >50%
☒ 3 - Prevalence Index is ≤3.0¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:
 Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
 Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
 Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
 Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

SOIL

Sampling Point: W-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1						Sandy Silt	
4-8	7.5YR 4/1						Sandy Silt	

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> (MLRA 153B) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input checked="" type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

S7-Dark Surface
A Layer 4 Inches Thick Within Upper 6 Inches

and 70% Coated Grains

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 2/27/13
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-2 UPL
 Investigator(s): Dave K., Leslie W. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): none
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38.979°N Long: 76.451°W Datum: USGS
 Soil Map Unit Name: CoB Collington-Wist complex NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Between wetland W-2 and Helix Road	

HYDROLOGY

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

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

 Sampling Point: W-2 UPL

Tree Stratum (Plot size: <u>r = 30'</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	Diospyros virginiana	20	Y	FAC		
2.						
3.						
4.						
5.						
6.						
7.						
8.						
		20	= Total Cover			
		50% of total cover: 10	20% of total cover: 4			
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)						
1.	Smilax rotundifolia	40	Y	FAC		
2.	Diospyros virginiana	30	Y	FAC		
3.						
4.						
5.						
6.						
7.						
8.						
		70	= Total Cover			
		50% of total cover: 35	20% of total cover: 14			
Herb Stratum (Plot size: <u>r = 30'</u>)						
1.	Setaria italica	10	Y	FACU		
2.	Juncus effusus	10	Y	FACW		
3.	Panicum virgatum	10	Y	FAC		
4.	Scirpus cyperinus	8	Y	FACW		
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
		38	= Total Cover			
		50% of total cover: 19	20% of total cover: 7.6			
Woody Vine Stratum (Plot size: _____)						
1.						
2.						
3.						
4.						
5.						
		_____ = Total Cover				
		50% of total cover: _____	20% of total cover: _____			

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

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
 Total Number of Dominant Species Across All Strata: 7 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>18</u>	x 2 = <u>36</u>
FAC species <u>100</u>	x 3 = <u>300</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>128</u> (A)	<u>376</u> (B)

 Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

SOIL

Sampling Point: W-2 UPL

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-1.75	10YR 3/2	95	10YR 5/6	5		M	silt clay loam	
1.75-6	10YR 4/4	80	10YR 4/3	20		M	silty clay loam	
6-10	10YR 5/6	60	10YR 4/2	40		M		

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> (MLRA 153B) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/26/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-2
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillislope, terrace, etc.): Tidal Shore Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 58 48.63 N Long: 76 27 03.71 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: PEM/FO, seawall over-wash depression persimmon behaves as a "wetland" species Flags 1-51, Relied heavily on landscape position micro topography; disturbed soils, suspect fill, periodic soil lifts? Lots of salt meadow hay, remains of bidens sp., persimmon acting like a "wetland" species.	

HYDROLOGY

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

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

 Sampling Point: W-2

Tree Stratum (Plot size: <u>r = 30'</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Diospyros virginiana</u>	15	Y	FAC		
2.						
3.						
4.						
5.						
6.						
7.						
8.						
		15	= Total Cover			
		50% of total cover: _____		20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)						
1.	<u>Liquidambar styraciflua</u>	3	N	FAC		
2.						
3.						
4.						
5.						
6.						
7.						
8.						
		3	= Total Cover			
		50% of total cover: _____		20% of total cover: _____		
Herb Stratum (Plot size: <u>r = 30'</u>)						
1.	<u>Spartina patens</u>	10	Y	FACW		
2.	<u>Scirpus cyperinus</u>	25	Y	OBL		
3.	<u>Panicum virgatum</u>	3	N	FAC		
4.	<u>Apocynum cannabinum</u>	1	N	FACU		
5.	<u>Phragmites australis</u>	3	N	FACW		
6.	<u>Juncus effusus</u>	4	N	OBL		
7.						
8.						
9.						
10.						
11.						
12.						
		46	= Total Cover			
		50% of total cover: <u>23</u>		20% of total cover: <u>9.2</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)						
1.	<u>None</u>	-				
2.						
3.						
4.						
5.						
		0	= Total Cover			
		50% of total cover: _____		20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below).
 Aspect dominants- wool grass and salt meadow hay; Persimmon is FAC but acts like its FACW

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
 Total Number of Dominant Species Across All Strata: 3 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>29</u>	x 1 = <u>29</u>
FACW species <u>13</u>	x 2 = <u>26</u>
FAC species <u>21</u>	x 3 = <u>63</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>1</u>	x 5 = <u>5</u>
Column Totals: <u>64</u> (A)	<u>123</u> (B)

 Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☒ 3 - Prevalence Index is ≤3.0¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

SOIL

Sampling Point: W-2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 4/2	90	7.5 YR 4/6	10	C	M	silt loam	
3-6	10YR 4/3							

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input type="checkbox"/> Histic (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> (MLRA 153B) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Suspect disturbed soils, historic fill in lifts?

Adjacent Uplands:

10YR 4/3, 0 to 3 inches

10YR 5/2, 4 to 8 inches

10YR, 5/4, 9 to 16 inches

Reference Photos with Ruler

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/26/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-3
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 58 49.60 N Long: 76 27 10.43 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: PEM

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: PEM. Palustrine Emergent Phragmites depression. Flags A-1 Through A-15 and B-1 Through B-16	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No _____
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____		
Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____		
Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>Surface</u> (Includes capillary fringe)		

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

Remarks:

Reference Photos

The center of the wetland had standing water.

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

 Sampling Point: W-3

Tree Stratum (Plot size: <u>r = 30'</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
_____ = Total Cover						
50% of total cover: _____				20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)						
1.	<u>Baccharis halimifolia</u>	<u>7</u>	<u>Y</u>	<u>FAC</u>		
2.						
3.						
4.						
5.						
6.						
7.						
8.						
_____ = Total Cover						
50% of total cover: _____				20% of total cover: _____		
Herb Stratum (Plot size: <u>r = 30'</u>)						
1.	<u>Phragmites australis</u>	<u>85</u>	<u>Y</u>	<u>FACW</u>		
2.	<u>Polygonum sp.</u>	<u>3</u>	<u>N</u>	<u>--</u>		
3.	<u>Aster sp.</u>	<u>3</u>	<u>N</u>	<u>--</u>		
4.	<u>Andropogon glomeratus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>		
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
_____ = Total Cover						
50% of total cover: <u>48</u>				20% of total cover: <u>19.2</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)						
1.						
2.						
3.						
4.						
5.						
_____ = Total Cover						
50% of total cover: _____				20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below).
Groundsel is along fringe

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>90</u>	x 2 = <u>180</u>
FAC species <u>7</u>	x 3 = <u>21</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>97</u> (A)	<u>201</u> (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☒ 3 - Prevalence Index is ≤3.0'
☐ Problematic Hydrophytic Vegetation¹ (Explain)

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No _____

SOIL

Sampling Point: W-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-3	10YR 4/2	95	10YR 6/8	5	C	M	Clayey Silt
3-10	10YR 5/4						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) <input type="checkbox"/> Muck Presence (A8) (LRR U) <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Marl (F10) (LRR U) <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR O) <input type="checkbox"/> 2 cm Muck (A10) (LRR S) <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 153B) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
--	---	--

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

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

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/26/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-4
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillislope, terrace, etc.): bowl Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 59 05.37 N Long: 76 27 11.59 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: E2EMIP

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: PEM--palustrine emergent depression pocket with outfall under roadway. Flags A-1 through A-5 and B-1 through B-3 Wetland is effectively an extension of wetland W-9.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u>X</u> No _____ Depth (inches): Surface _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: 'Culvert Back-up' Reference Photos.		

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

 Sampling Point: W-4

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>92</u></td> <td>x 2 = <u>184</u></td> </tr> <tr> <td>FAC species <u>3</u></td> <td>x 3 = <u>9</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>105</u> (A)</td> <td><u>243</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.3</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>92</u>	x 2 = <u>184</u>	FAC species <u>3</u>	x 3 = <u>9</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>105</u> (A)	<u>243</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>92</u>	x 2 = <u>184</u>																	
FAC species <u>3</u>	x 3 = <u>9</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>10</u>	x 5 = <u>50</u>																	
Column Totals: <u>105</u> (A)	<u>243</u> (B)																	
50% of total cover: _____ 20% of total cover: _____																		
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)																		
1. <u>Diospyros virginiana</u>	<u>3</u>	<u>N</u>	<u>FAC</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
_____ = Total Cover																		
50% of total cover: _____ 20% of total cover: _____																		
Herb Stratum (Plot size: <u>r = 30'</u>)																		
1. <u>Phragmites australis</u>	<u>85</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)														
2. <u>Dichanthelium clandestinum</u>	<u>7</u>	<u>N</u>	<u>FACW</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
_____ = Total Cover																		
50% of total cover: <u>46</u> 20% of total cover: <u>18.4</u>																		
Woody Vine Stratum (Plot size: <u>30</u>)																		
1. <u>Rubus occidentalis</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
_____ = Total Cover																		
50% of total cover: _____ 20% of total cover: _____																		
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																		
Remarks: (If observed, list morphological adaptations below).																		

SOIL

Sampling Point: W-4

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

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

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)
<input type="checkbox"/> Histic Epipedon (A2)
<input type="checkbox"/> Black Histic (A3)
<input type="checkbox"/> Hydrogen Sulfide (A4)
<input type="checkbox"/> Stratified Layers (A5)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)
<input type="checkbox"/> Muck Presence (A8) (LRR U)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)
<input type="checkbox"/> Depleted Below Dark Surface (A11)
<input type="checkbox"/> Thick Dark Surface (A12)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)
<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)
<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)
<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)
<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Marl (F10) (LRR U)
<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)
<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)
<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)
<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)
<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)
<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | <input type="checkbox"/> 1 cm Muck (A8) (LRR O)
<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)
<input type="checkbox"/> Anomalous Bright Loamy Soils (F20)
(MLRA 153B)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks) |
|--|---|--|

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/26/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-5
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Tidal flat Local relief (concave, convex, none): Shoreline Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 59 28.41 N Long: 76 27 16.89 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: Estuarine

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Tidal marsh, flooded twice daily, a cove of Mill Creek near marina. Tidal Emergent Wetland Flags A-1 through A-17 and B-1 through B-21 See photos of shoreline Phragmites dominant.	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required; check all that apply)		
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No _____
Surface Water Present? Yes <u>X</u> No _____	Depth (inches): <u>Variable</u>	
Water Table Present? Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present? Yes <u>X</u> No _____	Depth (inches): _____	

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

Remarks:

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

 Sampling Point: W-5

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>75</u></td> <td>x 2 = <u>150</u></td> </tr> <tr> <td>FAC species <u>7</u></td> <td>x 3 = <u>21</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>3</u></td> <td>x 5 = <u>15</u></td> </tr> <tr> <td>Column Totals: <u>90</u></td> <td>(A) <u>206</u> (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>2.3</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>75</u>	x 2 = <u>150</u>	FAC species <u>7</u>	x 3 = <u>21</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>3</u>	x 5 = <u>15</u>	Column Totals: <u>90</u>	(A) <u>206</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>75</u>	x 2 = <u>150</u>																	
FAC species <u>7</u>	x 3 = <u>21</u>																	
FACU species <u>5</u>	x 4 = <u>20</u>																	
UPL species <u>3</u>	x 5 = <u>15</u>																	
Column Totals: <u>90</u>	(A) <u>206</u> (B)																	
50% of total cover: _____ 20% of total cover: _____																		
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)																		
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
_____ = Total Cover																		
50% of total cover: _____ 20% of total cover: _____																		
Herb Stratum (Plot size: <u>r = 30'</u>)																		
1. <u>Phragmites australis</u>	<u>75</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
12. _____	_____	_____	_____															
_____ = Total Cover																		
50% of total cover: _____ 20% of total cover: _____																		
Woody Vine Stratum (Plot size: <u>30</u>)																		
1. <u>Rubus phoenicolasius</u>	<u>3</u>	<u>Y</u>	<u>UPL</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.														
2. <u>Rosa multiflora</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>															
3. <u>Lonicera japonica</u>	<u>7</u>	<u>Y</u>	<u>FAC</u>															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
12. _____	_____	_____	_____															
_____ = Total Cover																		
50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>																		
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																		
Remarks: (If observed, list morphological adaptations below). <u>Phragmites littoral fringe of cove's shoreline.</u>																		

SOIL

Sampling Point: W-5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/1						loam	inundated
7-13	10YR 3/2							

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

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20)
 (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No _____

Remarks:

All of the flagging more or less placed at mean high tide.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/27/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-6
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 59 08.08N Long: 76 27 20.39 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: Estuarine

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

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: PEM/QW Phragmites marsh with a small section of open water Gravel road bound 2 sections of wetland acting as berm/dam. Has an outfall stand riser that drains to Carr Creek. A,B, C Series of Flagging. Phragmites has been treated with rodeo herbicide, allowing for more open water.		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No _____
Surface Water Present?	Yes <u>X</u> No _____ Depth (inches): <u>3 to 5"</u>	
Water Table Present?	Yes _____ No <u>X</u> Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <u>X</u> No _____ Depth (inches): _____	

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

Remarks:

Not Salt Tidal

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

 Sampling Point: W-6

Tree Stratum (Plot size: <u>r = 30'</u>)			
	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>3</u>	<u>Y</u>	<u>OBL</u>
2. <u>Acer rubrum</u>	<u>6</u>	<u>Y</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

9 _____ = Total Cover
 50% of total cover: 4.5 20% of total cover: 1.8

Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)			
	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Cornus amomum</u>	<u>4</u>	<u>N</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

4 _____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: <u>r = 30'</u>)			
	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Phragmites australis</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>
2. <u>Verbesina alternifolia</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
3. <u>Solidago sp.</u>	<u>3</u>	<u>N</u>	_____
4. <u>Aster sp.</u>	<u>3</u>	<u>N</u>	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____

71 _____ = Total Cover
 50% of total cover: 35.5 20% of total cover: 14.2

Woody Vine Stratum (Plot size: <u>30'</u>)			
	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Persicaria perfoliata</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

10 _____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
 Total Number of Dominant Species Across All Strata: 4 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>3</u>	x 1 = <u>3</u>
FACW species <u>64</u>	x 2 = <u>128</u>
FAC species <u>21</u>	x 3 = <u>63</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>88</u> (A)	<u>194</u> (B)

Prevalence Index = B/A = 2.2

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☒ 3 - Prevalence Index is ≤3.0¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present?

Yes X No _____

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

A near monoculture of *Phragmites*.

SOIL

Sampling Point: W-6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 3/2	95	5YR 5/8	5	C	M	silt loam	

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

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No _____

Remarks:

Adjacent Uplands
 0-2" 10 YR 3/3
 3-12" 10 YR 4/4
 Black Locust
 Mile-a-Minute

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/27/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-7
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hill/slope, terrace, etc.): Tidal Shoreline Local relief (concave, convex, none): Littoral Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 59 09. 73N Long: 76 27 26. 55 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: Estuarine

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Tidal Marsh. Along shoreline of Carr Creek opposite of firearms range. Littoral fringe on tidal flat. C and G series of flagging. Overview photos taken. Phragmites near monoculture to mean high tide.	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No _____
Surface Water Present? Yes <u>X</u> No _____ Depth (inches): _____		
Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____		
Saturation Present? Yes <u>X</u> No _____ Depth (inches): _____ (includes capillary fringe)		

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

Remarks:
 Twice daily inundation--high/ low tide.

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

 Sampling Point: W-7

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)														
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>85</u></td> <td>x 2 = <u>170</u></td> </tr> <tr> <td>FAC species <u>13</u></td> <td>x 3 = <u>39</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>3</u></td> <td>x 5 = <u>15</u></td> </tr> <tr> <td>Column Totals: <u>101</u> (A)</td> <td><u>224</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.2</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>85</u>	x 2 = <u>170</u>	FAC species <u>13</u>	x 3 = <u>39</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>3</u>	x 5 = <u>15</u>	Column Totals: <u>101</u> (A)	<u>224</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>85</u>	x 2 = <u>170</u>																	
FAC species <u>13</u>	x 3 = <u>39</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>3</u>	x 5 = <u>15</u>																	
Column Totals: <u>101</u> (A)	<u>224</u> (B)																	
50% of total cover: _____ 20% of total cover: _____																		
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)																		
1. <u>Baccharis halimifolia</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>															
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
_____ = Total Cover																		
50% of total cover: _____ 20% of total cover: _____																		
Herb Stratum (Plot size: <u>r = 30'</u>)																		
1. <u>Phragmites australis</u>	<u>85</u>	<u>Y</u>	<u>FACW</u>															
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
9. _____																		
10. _____																		
11. _____																		
12. _____																		
_____ = Total Cover																		
50% of total cover: _____ 20% of total cover: _____																		
Woody Vine Stratum (Plot size: <u>30'</u>)																		
1. <u>Lonicera japonica</u>	<u>8</u>	<u>Y</u>	<u>FAC</u>															
2. <u>Rubus allegheniensis</u>	<u>3</u>	<u>Y</u>	<u>UPL</u>															
3. _____																		
4. _____																		
5. _____																		
_____ = Total Cover																		
50% of total cover: <u>5.5</u> 20% of total cover: <u>2.2</u>																		
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																		
Remarks: (If observed, list morphological adaptations below). 																		

Sampling Point: W-7

Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/27/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-8
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 59 06.77 N Long: 76 27 23.37 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: Estuarine

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

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: PEM/ FO Nontidal wetland flows out to tidal Carr Creek via berm opening, not tidally flooded. Phragmites dominant, was previous invasive treatment area similar to and near wetland W-6; E and F series of flagging		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B8)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No _____
Surface Water Present?	Yes _____ No <u>X</u> Depth (inches): _____	
Water Table Present?	Yes _____ No <u>X</u> Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <u>X</u> No _____ Depth (inches): <u>in center</u>	

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

Remarks:
 Depressional draw feeding out to Carr Creek,

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

 Sampling Point: W-8

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. <u>Diospyros virginiana</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)														
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)														
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)														
4. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>70</u></td> <td>x 2 = <u>140</u></td> </tr> <tr> <td>FAC species <u>8</u></td> <td>x 3 = <u>24</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>78</u></td> <td>(A) <u>164</u> (B)</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>70</u>	x 2 = <u>140</u>	FAC species <u>8</u>	x 3 = <u>24</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>78</u>	(A) <u>164</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>70</u>	x 2 = <u>140</u>																	
FAC species <u>8</u>	x 3 = <u>24</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>78</u>	(A) <u>164</u> (B)																	
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____	Prevalence Index = B/A = <u>2.1</u>														
<u>5</u> = Total Cover 50% of total cover: _____ 20% of total cover: _____				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)														
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)																		
1. <u>Quercus palustris</u>	<u>6</u>	<u>Y</u>	<u>FACW</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.														
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____														
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
<u>6</u> = Total Cover 50% of total cover: _____ 20% of total cover: _____				Woodly Vine Stratum (Plot size: <u>30</u>)														
Herb Stratum (Plot size: <u>r = 30'</u>)																		
1. <u>Phragmites australis</u>	<u>64</u>	<u>Y</u>	<u>FACW</u>															
2. <u>Verbesina alternifolia</u>	<u>3</u>	<u>N</u>	<u>FAC</u>															
3. <u>Aster sp.</u>	_____	_____	_____	1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
4. <u>Polygonum sp.</u>	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____	1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____	Woodly Vine Stratum (Plot size: <u>30</u>)														
12. _____	_____	_____	_____															
<u>67</u> = Total Cover 50% of total cover: <u>33.5</u> 20% of total cover: <u>13.4</u>																		
Woodly Vine Stratum (Plot size: <u>30</u>)																		
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____														
<u>0</u> = Total Cover 50% of total cover: _____ 20% of total cover: _____																		
Remarks: (If observed, list morphological adaptations below). <u>Alongside of gravel road.</u>																		

SOIL

Sampling Point: W-8

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10 YR 4/2	95	10YR 5/6	5	C	M	Silt Loam	
3-12	10 YR 4/4							

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

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/27/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-9
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 59 04. 80 N Long: 76 27 14. 85 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: Estuarine

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: PEM/OW, Phragmites dominant, has an inner section of open water. Northside flags J-1 through J-30, J28 and 29 on road. Big Jump between J-26 and J-27 Southside flags H-1 through H-30. Big Jump between H-20 and H-30 Thick- Difficult to Negotiate	

HYDROLOGY

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

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

 Sampling Point: W-9

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. <i>Diospyros virginiana</i>	5	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)														
2. <i>Salix nigra</i>	3	Y	OBL															
3. <i>Acer rubrum</i>	5	Y	FAC															
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
<u>13</u> = Total Cover 50% of total cover: <u>6.5</u> 20% of total cover: <u>2.6</u>				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species <u>8</u></td> <td>x 1 = <u>8</u></td> </tr> <tr> <td>FACW species <u>95</u></td> <td>x 2 = <u>190</u></td> </tr> <tr> <td>FAC species <u>16</u></td> <td>x 3 = <u>48</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>8</u></td> <td>x 5 = <u>40</u></td> </tr> <tr> <td>Column Totals: <u>127</u></td> <td>(A) <u>286</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.3</u>	Total % Cover of:	Multiply by:	OBL species <u>8</u>	x 1 = <u>8</u>	FACW species <u>95</u>	x 2 = <u>190</u>	FAC species <u>16</u>	x 3 = <u>48</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>8</u>	x 5 = <u>40</u>	Column Totals: <u>127</u>	(A) <u>286</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>8</u>	x 1 = <u>8</u>																	
FACW species <u>95</u>	x 2 = <u>190</u>																	
FAC species <u>16</u>	x 3 = <u>48</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>8</u>	x 5 = <u>40</u>																	
Column Totals: <u>127</u>	(A) <u>286</u> (B)																	
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)																		
1. <i>Cornus amomum</i>	2	N	FACW															
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
<u>2</u> = Total Cover 50% of total cover: _____ 20% of total cover: _____																		
Herb Stratum (Plot size: <u>r = 30'</u>)																		
1. <i>Phragmites australis</i>	85	Y	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)														
2. <i>Typha latifolia</i>	5	N	OBL															
3. <i>Cyperus stigosus</i>	8	N	FACW															
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
9. _____																		
10. _____																		
11. _____																		
12. _____																		
<u>98</u> = Total Cover 50% of total cover: <u>49</u> 20% of total cover: <u>19.6</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.														
Woody Vine Stratum (Plot size: <u>30</u>)																		
1. <i>Rubus allegheniensis</i>	8	Y	UPL															
2. <i>Persicaria perfoliata</i>	6	Y	FAC															
3. _____																		
4. _____																		
5. _____																		
<u>14</u> = Total Cover 50% of total cover: <u>7</u> 20% of total cover: <u>2.8</u>																		
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																		
Remarks: (If observed, list morphological adaptations below). Asiatic bittersweet along upland margins.																		

SOIL

Sampling Point: W-9

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2						silt loam	
3-10	10YR 4/1	95	5YR 5/8	5	C	M	silt loam	

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

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

- | | | |
|---|---|---|
| <input type="checkbox"/> Histosol (A1)
<input type="checkbox"/> Histic Epipedon (A2)
<input type="checkbox"/> Black Histic (A3)
<input type="checkbox"/> Hydrogen Sulfide (A4)
<input type="checkbox"/> Stratified Layers (A5)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)
<input type="checkbox"/> Muck Presence (A8) (LRR U)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)
<input type="checkbox"/> Thick Dark Surface (A12)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)
<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)
<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)
<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)
<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Marl (F10) (LRR U)
<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)
<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)
<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)
<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)
<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)
<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)
<input type="checkbox"/> Anomalous Bright Loamy Soils (F20)
(MLRA 153B)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks) |
|---|---|---|

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

Restrictive Layer (if observed):

Type: _____

Depth (Inches): _____

Hydric Soil Present? Yes ☒ No _____

Remarks:

This large nontidal wetlands contains a fairly large inner (POW) palustrine open water body.

Good waterfowl habitat, less the extensive invasives.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/27/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-10
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): tidal point Local relief (concave, convex, none): tidal flat Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38.59 04. 80 N Long: 76.27 14. 85 W Datum: USGS
 Soil Map Unit Name: CSE Collington-Wist & Westphalia NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: salt tidal marsh, a spit/point of Phragmites flagged two points: K-1 thru K-15 tied into steep banks L-1 thru L-10 tied into steep banks	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No _____
Surface Water Present? Yes <u>X</u> No _____	Depth (inches): _____	
Water Table Present? Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present? Yes <u>X</u> No _____	Depth (inches): _____	
(includes capillary fringe)		

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

Remarks:
 South side of upper Carr Creek; Phragmites ends at mean high tide line, and backs into steep slope banks

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

 Sampling Point: **W-10**

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>none</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)																
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)																
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
_____ = Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)																				
1. <u>none</u>				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>90</u></td> <td>x 2 = <u>180</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>90</u></td> <td>(A) <u>180</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.0</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>90</u>	x 2 = <u>180</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>90</u>	(A) <u>180</u> (B)	Prevalence Index = B/A = <u>2.0</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>90</u>	x 2 = <u>180</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>90</u>	(A) <u>180</u> (B)																			
Prevalence Index = B/A = <u>2.0</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain): _____																
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>r = 30'</u>)																				
1. <u>Phragmites australis</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
<u>90</u> = Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Woody Vine Stratum (Plot size: <u>30</u>)																				
1. <u>none</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
_____ = Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (If observed, list morphological adaptations below). Phragmites monoculture																				

SOIL

Sampling Point: W-10

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	2.5Y 3/2	95	5YR 5/8	5	C	M	sandy clay	

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

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

Indicators for Problematic Hydric Soils³:

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

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

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No _____

Remarks:

Only flagged inside line due to high tide; saturated twice daily at high tide

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 2/27/13
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-11 UPL
 Investigator(s): Dave K., Leslie W., Anna L. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 10
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38.987°N Long: 76.456°W Datum: USGS
 Soil Map Unit Name: CSE Collington, Wist, and Westphalia NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks:	

HYDROLOGY

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

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

 Sampling Point: W-11 UPL

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Prunus avium</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>40</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>20</u> 20% of total cover: <u>8</u>				
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)				
1. <u>Prunus avium</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Rubus phoenicolasius</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) _____ ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
3. <u>Rosa multiflora</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>65</u> = Total Cover				
50% of total cover: <u>32.5</u> 20% of total cover: <u>13</u>				
Herb Stratum (Plot size: <u>r = 30'</u>)				
1. <u>Festuca arundinacea</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2. <u>Elymus virginicus</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
3. <u>Allium schoenoprasum</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
4. <u>Fragaria virginiana</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
5. <u>Aster sp.</u>	<u>2</u>	<u>N</u>	<u>—</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>18</u> = Total Cover				
50% of total cover: <u>9</u> 20% of total cover: <u>3.6</u>				
Woody Vine Stratum (Plot size: <u>r = 30'</u>)				
1. <u>Celastrus orbiculatus</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
2. <u>Hedera helix</u>	<u>2</u>	<u>N</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>4</u> = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Remarks: (If observed, list morphological adaptations below). 				

Sampling Point: W-11 UPL

Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 12/27/12
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-11
 Investigator(s): Mark B., Jim C. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Tidal Cove Local relief (concave, convex, none): Tidal Flat Slope (%): 1
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 59 15.25 N Long: 76 27 25.00 W Datum: USGS
 Soil Map Unit Name: CSE Collington-Wist & Westphalia NWI classification: NONE

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Tidal marsh on Carr Creek Flags M-1 through M-6 Devoid of Phragmites, more of a shady setting, lots of rack debris	

HYDROLOGY

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

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

 Sampling Point: W-11

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. none				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)														
2.																		
3.																		
4.																		
5.																		
6.																		
7.																		
8.																		
<u> </u> = Total Cover 50% of total cover: <u> </u> 20% of total cover: <u> </u>				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species <u>28</u></td> <td>x 1 = <u>28</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>3</u></td> <td>x 3 = <u>9</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>31</u></td> <td>(A) <u>37</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>1.2</u>	Total % Cover of:	Multiply by:	OBL species <u>28</u>	x 1 = <u>28</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>3</u>	x 3 = <u>9</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>31</u>	(A) <u>37</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>28</u>	x 1 = <u>28</u>																	
FACW species <u>0</u>	x 2 = <u>0</u>																	
FAC species <u>3</u>	x 3 = <u>9</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>31</u>	(A) <u>37</u> (B)																	
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)																		
1. none																		
2.																		
3.																		
4.																		
5.																		
6.																		
7.																		
8.																		
<u> </u> = Total Cover 50% of total cover: <u> </u> 20% of total cover: <u> </u>																		
Herb Stratum (Plot size: <u>r = 30'</u>)																		
1. <i>Spartina alterniflora</i>	15	Y	OBL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)														
2. <i>Typha angustifolia</i>	10	Y	OBL															
3. <i>Hibiscus</i> sp.	3	N	OBL															
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		
11.																		
12.																		
<u>28</u> = Total Cover 50% of total cover: <u>14</u> 20% of total cover: <u>5.6</u>																		
Woody Vine Stratum (Plot size: <u>30</u>)																		
1. <i>Campsis radicans</i>	3	N	FAC	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.														
2.																		
3.																		
4.																		
5.																		
<u>3</u> = Total Cover 50% of total cover: <u> </u> 20% of total cover: <u> </u>																		
Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																		
Remarks: (If observed, list morphological adaptations below). debris prevents vegetative growth																		

SOIL

Sampling Point: W-11

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	2.5YR 3/2	95	5YR 5/8	5	C	M	silty loam	

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

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No _____

Remarks:

Reference photos
 English ivy growing on adjacent upland trees on steep slopes.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 3/1/13
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-12
 Investigator(s): Mark B. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): along seawall Local relief (concave, convex, none): Shore Slope (%): 0 to 1
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38 58 41.65 N Long: 76 27 19.70 W Datum: USGS
 Soil Map Unit Name: MZA Mispillion & Transquaking NWI classification: PEM

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: PEM/ FO Small break in seawall. All seawall frontage on Severn River. Phragmites dominated. Flags X1 through X66 immediately north of W-1 has a beach area with open sand & love grass & VA pine.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Not affected by tide cycle-no moving water.		

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

 Sampling Point: W-12

Tree Stratum (Plot size: <u>r = 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. <i>Allianthus altissima</i>	2	N	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>86</u> (A/B)														
2. <i>Acer rubrum</i>	8	Y	FAC															
3. <i>Salix nigra</i>	7	Y	OBL															
4. <i>Diospyros virginiana</i>	6	Y	FAC															
5. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>7</u></td> <td>x 1 = <u>7</u></td> </tr> <tr> <td>FACW species <u>30</u></td> <td>x 2 = <u>60</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>7</u></td> <td>x 4 = <u>28</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>104</u> (A)</td> <td><u>275</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.6</u>	Total % Cover of:	Multiply by:	OBL species <u>7</u>	x 1 = <u>7</u>	FACW species <u>30</u>	x 2 = <u>60</u>	FAC species <u>60</u>	x 3 = <u>180</u>	FACU species <u>7</u>	x 4 = <u>28</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>104</u> (A)	<u>275</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>7</u>	x 1 = <u>7</u>																	
FACW species <u>30</u>	x 2 = <u>60</u>																	
FAC species <u>60</u>	x 3 = <u>180</u>																	
FACU species <u>7</u>	x 4 = <u>28</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>104</u> (A)	<u>275</u> (B)																	
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
23 = Total Cover 50% of total cover: <u>11.5</u> 20% of total cover: <u>4.6</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)														
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)																		
1. <i>Baccharis halimifolia</i>	35	Y	FAC															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.														
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____														
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
35 = Total Cover 50% of total cover: _____ 20% of total cover: _____				Woody Vine Stratum (Plot size: <u>30</u>)														
Herb Stratum (Plot size: <u>r = 30'</u>)																		
1. <i>Phragmites australis</i>	30	Y	FACW															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____	16 = Total Cover 50% of total cover: <u>8</u> 20% of total cover: <u>3.2</u>														
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____	30 = Total Cover 50% of total cover: _____ 20% of total cover: _____														
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____	5 = Total Cover 50% of total cover: _____ 20% of total cover: _____														
12. _____	_____	_____	_____															
1. <i>Rosa multiflora</i>	5	Y	FACU															
2. <i>Smilax rotundifolia</i>	8	Y	FAC															
3. <i>Toxicodendron radicans</i>	3	N	FAC	16 = Total Cover 50% of total cover: <u>8</u> 20% of total cover: <u>3.2</u>														
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															

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

SOIL

Sampling Point: W-12

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1						sandy silt	in depression
4-8	7.5YR 4/1						sandy silt	in depression

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> (MLRA 153B) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S6) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input checked="" type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Upland sand island
includes a bench slope area out to seawall.

Area nearest tower has massive rip-rap stone.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Greenbury Point City/County: Anne Arundel Sampling Date: 2/27/13
 Applicant/Owner: U.S. Navy State: MD Sampling Point: W-13 UPL
 Investigator(s): Dave K., Leslie W. Section, Township, Range: _____
 Landform (hill/slope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR or MLRA): MLRA 149 A Lat: 38.981°N Long: 76.451°W Datum: USGS
 Soil Map Unit Name: MZA Mispillion and Transquaking NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Near wetland W-2, between flags E21 and 33.	

HYDROLOGY

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

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

 Sampling Point: W-13 UPL

Tree Stratum (Plot size: <u>r = 30'</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	Malus.sp.			5	Y	UPL
2.	Diospyros virginiana			5	Y	FAC
3.						
4.						
5.						
6.						
7.						
8.						
				10	= Total Cover	
				50% of total cover: 5	20% of total cover: 2	
Sapling/Shrub Stratum (Plot size: <u>r = 30'</u>)						
1.	Diospyros virginiana			7	Y	FAC
2.						
3.						
4.						
5.						
6.						
7.						
8.						
				7	= Total Cover	
				50% of total cover: 3.5	20% of total cover: 1.4	
Herb Stratum (Plot size: <u>r = 30'</u>)						
1.	Phragmites australis			20	Y	FACW
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
				20	= Total Cover	
				50% of total cover: 10	20% of total cover: 4	
Woody Vine Stratum (Plot size: <u>r = 30'</u>)						
1.	Persicaria perfoliata			7	Y	FAC
2.						
3.						
4.						
5.						
				7	= Total Cover	
				50% of total cover: 3.5	20% of total cover: 1.4	

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

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

 Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	19	x 3 =	57
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	44	(A)	122 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >60%
☐ 3 - Prevalence Index is ≤3.0¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: W-13 UPL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/3	70	10YR 4/2	30	RM	M	silt loam	
4-12	10YR 5/4	60	10YR 5/6	40	C	M	silty clay loam	

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> (MLRA 153B) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

APPENDIX C

Photographs

**Wetland Delineation
Greenbury Point, NSAA**



Photo 1: Wetland W-1



Photo 2: Upland Data Plot W-1 UPL

**Wetland Delineation
Greenbury Point, NSAA**



Photo 3: Wetland W-2



Photo 4: Upland Data Plot W-2 UPL

**Wetland Delineation
Greenbury Point, NSAA**



Photo 5: Upland Data Plot W-13 UPL



Photo 6: Wetland W-13

**Wetland Delineation
Greenbury Point, NSAA**



Photo 7: Wetland W-3



Photo 8: Upland Data Plot UPL-3

**Wetland Delineation
Greenbury Point, NSAA**



Photo 9: Upland Data Plot UPL-4



Photo 10: Wetland W-4

**Wetland Delineation
Greenbury Point, NSAA**



Photo 11: Wetland W-5



Photo 12: Upland Data Plot UPL-1

**Wetland Delineation
Greenbury Point, NSAA**



Photo 13: Wetland W-6



Photo 14: Upland Data Plot UPL-2

**Wetland Delineation
Greenbury Point, NSAA**



Photo 15: Wetland W-7



Photo 16: Wetland W-8

**Wetland Delineation
Greenbury Point, NSAA**



Photo 17: Wetland W-9



Photo 18: Wetland W-10

**Wetland Delineation
Greenbury Point, NSAA**

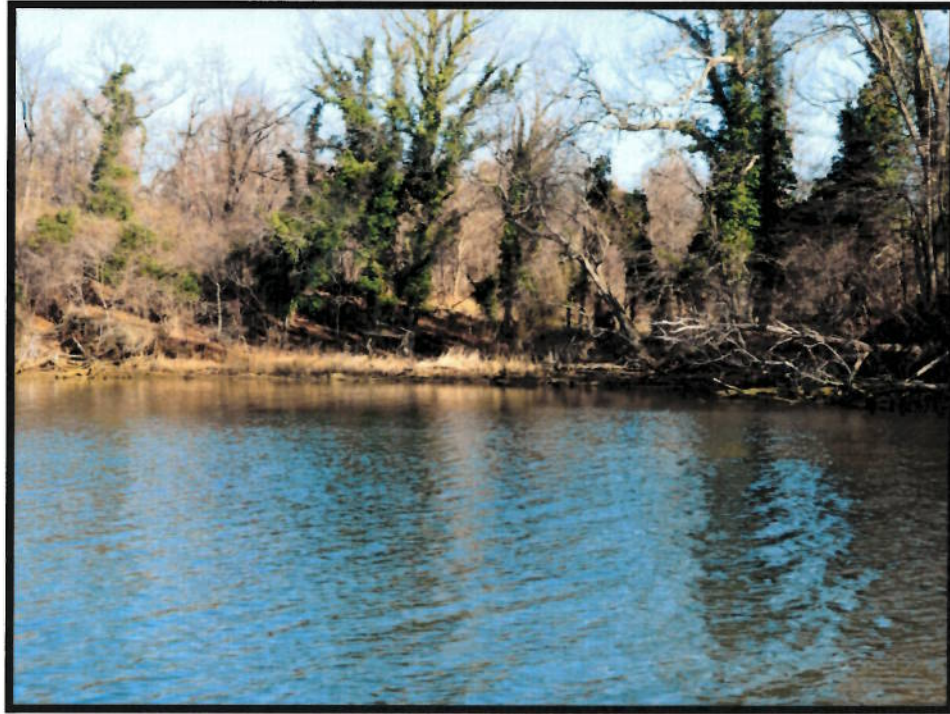


Photo 19: Wetland W-11

APPENDIX D
Wetland Delineation Map



Legend

- Study Areas
- W-1 Wetland Determination Data Plot
- Wetland
- Potential Wetland Boundary
- Infrastructure
- MZA USDA Soil Boundary and Unit Name
- Topography: 1 Foot Contours

Map Unit	Soils Legend
AoB	Annapolis loamy sand
AsA	Annapolis fine sandy loam, 0-2% slopes
AuB	Annapolis fine sandy loam, 2-5% slopes
AcC	Annapolis fine sandy loam, 5-10% slopes
AsE	Annapolis fine sandy loam, 15-25% slopes
AuB	Annapolis-urban land complex, 0-5% slopes
AuB	Annapolis-urban land complex, 5-10% slopes
CuA	Collington-Wist complex, 0-2% slopes
CoB	Collington-Wist complex, 2-5% slopes
CoC	Collington-Wist complex, 5-10% slopes
CpD	Collington-Wist-urban land complex
CRD	Collington and Annapolis soils
CSE	Collington, Wist, and Westphalia soils
CuA	Cumbersome-Mattapee complex, 0-2% slopes
CuB	Cumbersome-Mattapee complex, 2-5% slopes
DcA	Deal-Shadyoak complex
DcA	Deal-Shadyoak-urban complex
DcA	Dartmouth fine sandy loam
MZA	Misappellan and Transquaking soils
UoB	Udorthents, loamy sulfidic substratum
Ut	Urban land
WBA	Wetwater and issue soils

Greenbury Point Wetland Delineation		
Wetland Name	Classification	Area (sq ft)
W-1	E2US3	31,833
W-2	PEM/FO1A	10,526
W-3	PEMSA	39,389
W-4	PEMSA	4,893
W-5	E2EMS	40,842
W-6	PEM/OWSA	51,551
W-7	E2EMS	67,678
W-8	PEM/FO1A	14,194
W-9	PEM/OWSA	14,712
W-10A	E2EMS	15,497
W-10B	E2EMS	6,086
W-11	E2US3	2,521
W-12	PEM/FO1A	75,414
W-13	PEM1B	34,295



Prepared for/Applicant:
U.S. Navy
Naval Facilities Engineering Command
Washington, D.C.
Contract Number: N40080-12-D-0350
Delivery Order: 0009

Surveyed by:
Bay Engineering Inc.
190 Admiral Cochrane Drive
Annapolis, MD 21401
Phone: 410.697-9290



Prepared by:
Environmental Systems
Analysis, Inc.
Natural Resources
Management
Ecological Restoration
162 West Street
Annapolis, MD 21401
Phone: 410-267-0495



Draft Wetland Delineation Map
Greenbury Point, Naval Support Activity Annapolis
Anne Arundel County, MD

SCALE: 1" = 300'

DATE: 6.7.13

T:\NEWPROJ\2012\12-01 NAVFAC Wash\Delivery Order 0009 -
Surveys for Wildlife and Habitat Improvement\WetlandMap.mxd

Sheet: 1 of 1

0 300 600 1,200 1,800 2,400 Feet

APPENDIX E

Authorized Jurisdictional Determination



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

APR 13 2015

Operations Division

NAVFAC Washington
C/o Tom Lewis
1314 Harwood Street SE
Washington, DC 20374

Dear Mr. Lewis:

This is in response to a letter dated October 09, 2013, sent on your behalf from Mr. Mark Burchick, of Environmental Systems Analysis Inc., requesting a jurisdictional determination (JD) and verification of the delineation of waters of the United States, including jurisdictional wetlands, on an approximately 231-acre property known as Greenbury Point, Naval Support Activity Annapolis, located on Greenbury Point Road at Naval Station Annapolis in Annapolis, Anne Arundel County, Maryland. Your project has been assigned the file name, CENAB-OP-RMS (Naval Support Activity Annapolis/Greenbury Point/JD) 2013-02370.

We have reviewed and concur with the plans dated June 07, 2013, prepared by Environmental Systems Analysis Inc. for the approximately 231-acre site. A field inspection was conducted on November 26, 2013 by Ms. Vera Koskelo and Ms. Laura Shively of this office. The inspection indicated that the delineation of waters of the United States within the "Area of Review" on the drawings dated June 07, 2013 is accurate. Those areas indicated as waters of the United States, including jurisdictional wetlands, are regulated by this office pursuant to Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act. Enclosed is a document that outlines the basis of our determination of jurisdiction over these areas.

This letter contains an approved jurisdictional determination for your subject site. This approved jurisdictional determination is valid for five years from the date of this letter unless new information warrants revision of the determination before the expiration date, or a District Engineer has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the North Atlantic Division Office at the following address:

James W. Haggerty
Regulatory Appeals Review Officer
North Atlantic Division, US Army Corps of Engineers
Fort Hamilton Military Community
General Lee Avenue, Bldg 301
Brooklyn, NY 11252-6700

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit a RFA form, it must be received at the above address by **JUN 11 2015**. It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

Please be advised that various development activities, within waters of the United States, including jurisdictional wetlands may be regulated by the Corps. Wetlands and other waters under the jurisdiction of the Maryland Department of the Environment (MDE) may also be located on the parcel. You may contact the MDE at (410) 537-3768 for information regarding jurisdiction and permitting requirements.

You are reminded that any grading or filling of waters of the United States, including jurisdictional wetlands, is subject to Department of the Army authorization. State and local authorizations may also be required to conduct activities in these locations. In addition, the Interstate Land Sales Full Disclosure Act may require that prospective buyers be made aware, by the seller, of the Federal authority over any waters of the United States, including wetlands, being purchased.

In future correspondence and permit applications regarding this parcel, please include the file number located in the first paragraph of this letter.

A copy of this letter is being furnished to the Maryland Department of the Environment for informational purposes. If you have any questions concerning this matter, please call Ms. Laura Shively of this office at (410) 962-6011.

Sincerely,



Kathy B. Anderson
Chief, Maryland Section Southern

Enclosures

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.
JD Form 1 of 4

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Baltimore/Naval Support Activity Annapolis/Greenbury Point/ JD/2013-02320

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Maryland County/parish/borough: Anne Arundel City: Annapolis

Center coordinates of site (lat/long in degree decimal format):

Longitude: 76.4528° W

Latitude: 38.9852° N

Name of nearest waterbody: Severn River

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: The Severn River is a TNW.

Name of watershed or Hydrologic Unit Code (HUC): Severn River Watershed 10-digit HUC 0206000402

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: December 31, 2014

☒ Field Determination. Date(s) November 26, 2013

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are not "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☒ Waters subject to the ebb and flow of the tide.

☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S:

a. Indicate presence of waters of U.S. in review area (check all that apply):

- ☐ TNWs, including territorial seas
- ☒ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters¹ (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 - ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: 2.42 acres.

Wetland W-1: 31,833 square feet

Wetland W-12: 73,414 square feet

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual and Regional Supplement to the Corps of Engineers

Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010.

Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):²

¹ For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: _____

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: The Severn River is directly adjacent to the review area.

Summarize rationale supporting determination: The Severn River is subject to the ebb and flow of the tide and is a traditionally navigable waterway.

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": Wetland W-1 directly abuts the Severn River and is subject to tidal influence. Wetland W-12 is adjacent to the Severn River but is not subject to tidal influence. There is an existing bulkhead that has failed and a physical connection with the Severn River was observed for both wetlands during the field investigation.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody³ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: **Pick List**
Drainage area: **Pick List**
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

- ☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.

² Supporting documentation is presented in Section III.F.

³ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁴.
Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet
Average depth: feet
Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

<input type="checkbox"/> Silts	<input type="checkbox"/> Sands	<input type="checkbox"/> Concrete
<input type="checkbox"/> Cobbles	<input type="checkbox"/> Gravel	<input type="checkbox"/> Muck
<input type="checkbox"/> Bedrock	<input type="checkbox"/> Vegetation. Type/% cover:	
<input type="checkbox"/> Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

<input type="checkbox"/> Bed and banks	
<input type="checkbox"/> OHWM ⁵ (check all indicators that apply):	
<input type="checkbox"/> clear, natural line impressed on the bank	<input type="checkbox"/> the presence of litter and debris
<input type="checkbox"/> changes in the character of soil	<input type="checkbox"/> destruction of terrestrial vegetation
<input type="checkbox"/> shelving	<input type="checkbox"/> the presence of wrack line
<input type="checkbox"/> vegetation matted down, bent, or absent	<input type="checkbox"/> sediment sorting
<input type="checkbox"/> leaf litter disturbed or washed away	<input type="checkbox"/> scour
<input type="checkbox"/> sediment deposition	<input type="checkbox"/> multiple observed or predicted flow events
<input type="checkbox"/> water staining	<input type="checkbox"/> abrupt change in plant community
<input type="checkbox"/> other (list):	
<input type="checkbox"/> Discontinuous OHWM. ⁶ Explain:	

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

<input type="checkbox"/> High Tide Line indicated by:	<input type="checkbox"/> Mean High Water Mark indicated by:
<input type="checkbox"/> oil or scum line along shore objects	<input type="checkbox"/> survey to available datum;
<input type="checkbox"/> fine shell or debris deposits (foreshore)	<input type="checkbox"/> physical markings;
<input type="checkbox"/> physical markings/characteristics	<input type="checkbox"/> vegetation lines/changes in vegetation types.
<input type="checkbox"/> tidal gauges	
<input type="checkbox"/> other (list):	

⁴ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁵ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁶ Ibid.

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type: Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
 - ☐ Discrete wetland hydrologic connection. Explain:
 - ☐ Ecological connection. Explain:
 - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

1. ☐ TNWs: linear feet width (ft). Or,
☒ Wetlands adjacent to TNWs: acres. 2.42 acres
Wetland W-1: 31,833 square feet
Wetland W-12: 73,414 square feet
2. RPWs that flow directly or indirectly into TNWs.
☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet-width (ft).

- ☐ Other non-wetland waters: acres.
Identify type(s) of waters:

3. **Non-RPWs⁷ that flow directly or indirectly into TNWs.**

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.⁸**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☒ Demonstrate that impoundment was created from "waters of the U.S.," or
☒ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☒ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. **ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):⁹**

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain:
☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

⁷See Footnote # 3.

⁸To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

⁹Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA/HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft):
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland Delineation, Greenbury Point, Final Report, September 2013
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☒ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☒ Data sheets prepared by the Corps:
☒ Corps navigable waters' study:
☒ U.S. Geological Survey Hydrologic Atlas:
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Annapolis, Maryland
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Custom Soil Survey Map.
☒ National wetlands inventory map(s). Cite name:
☒ State/Local wetland inventory map(s): Maryland DNR Wetland Inventory Custom Map
☒ FEMA/FIRM maps: Panel number
☒ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): MD DNR, Infrared, 1994; NAVFAC, 2008; Google Earth aerials
or ☒ Other (Name & Date): Photographs provided with delineation report and photos taken by the Corps on November 26, 2013
☒ Previous determination(s). File no. and date of response letter: .
☒ Applicable/supporting case law:
☒ Applicable/supporting scientific literature:
☒ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.
JD Form 2 of 4

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Baltimore/Naval Support Activity Annapolis/Greenbury Point/ JD/2013-02320

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Maryland County/parish/borough: Anne Arundel City: Annapolis

Center coordinates of site (lat/long in degree decimal format):

Longitude: 76.4528° W

Latitude: 38.9852° N

Name of nearest waterbody: Carr Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: The Carr Creek is a TNW.

Name of watershed or Hydrologic Unit Code (HUC): Severn River Watershed 10-digit HUC 0206000402

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc.) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: December 31, 2014

☒ Field Determination. Date(s) November 26, 2013

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are not "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☒ Waters subject to the ebb and flow of the tide.

☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):

- ☐ TNWs, including territorial seas
- ☒ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters¹ (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 - ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: 4.07 acres.

Wetland W-4: 4,893 square feet

Wetland W-6: 51,551 square feet

Wetland W-7: 67,678 square feet

Wetland W-8: 14,198 square feet

Wetland W-9: 14,712 square feet

Wetland W-10: 21,583 square feet

Wetland W-11: 2,521 square feet

¹ For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

c. **Limits (boundaries) of jurisdiction** based on: 1987 Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010.
Elevation of established OHWM (if known):

2. **Non-regulated waters/wetlands (check if applicable):²**

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

Identify TNW: The Carr Creek is directly adjacent to the review area.

Summarize rationale supporting determination: The Carr Creek is subject to the ebb and flow of the tide and is a traditionally navigable waterway.

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is "adjacent": Wetlands W-7, W-10, and W-11 directly abut Carr Creek subject to tidal influence. Wetlands W-4, W-6, W-8, and W-9 are nontidal wetlands that are adjacent but not abutting to Carr Creek. Wetlands W-4, W-9, and W-8 are all connected via drainage patterns and culvert pipes under an existing road that runs through the wetland and drain into Carr Creek. Prior to roadway construction, it is likely that all 3 wetlands were a part of the same wetland system.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody³ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

(i) **General Area Conditions:**

Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: inches
Average annual snowfall: inches

(ii) **Physical Characteristics:**

² Supporting documentation is presented in Section III.F.

³ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(a) Relationship with TNW:

- ☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁴:
Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet
Average depth: feet
Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

<input type="checkbox"/> Silts	<input type="checkbox"/> Sands	<input type="checkbox"/> Concrete
<input type="checkbox"/> Cobbles	<input type="checkbox"/> Gravel	<input type="checkbox"/> Muck
<input type="checkbox"/> Bedrock	<input type="checkbox"/> Vegetation. Type/% cover:	
<input type="checkbox"/> Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

<input type="checkbox"/> Bed and banks	
<input type="checkbox"/> OHWM ⁵ (check all indicators that apply):	
<input type="checkbox"/> clear, natural line impressed on the bank	<input type="checkbox"/> the presence of litter and debris
<input type="checkbox"/> changes in the character of soil	<input type="checkbox"/> destruction of terrestrial vegetation
<input type="checkbox"/> shelving	<input type="checkbox"/> the presence of wrack line
<input type="checkbox"/> vegetation matted down, bent, or absent	<input type="checkbox"/> sediment sorting
<input type="checkbox"/> leaf litter disturbed or washed away	<input type="checkbox"/> scour
<input type="checkbox"/> sediment deposition	<input type="checkbox"/> multiple observed or predicted flow events
<input type="checkbox"/> water staining	<input type="checkbox"/> abrupt change in plant community
<input type="checkbox"/> other (list):	
<input type="checkbox"/> Discontinuous OHWM. ⁶ Explain:	

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:

⁴ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁵ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁶ Ibid.

- | | |
|--|--|
| <input type="checkbox"/> oil or scum line along shore objects. | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> other (list): | |

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
 - ☐ Discrete wetland hydrologic connection. Explain:
 - ☐ Ecological connection. Explain:
 - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

1. ☐ TNWs: linear feet width (ft), Or,
☒ Wetlands adjacent to TNWs: acres. 4.07 acres
Wetland W-4: 4,893 square feet
Wetland W-6: 51,551 square feet
Wetland W-7: 67,678 square feet
Wetland W-8: 14,198 square feet
Wetland W-9: 14,712 square feet
Wetland W-10: 21,583 square feet
Wetland W-11: 2,521 square feet

2. **RPWs that flow directly or indirectly into TNWs.**

- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
- Identify type(s) of waters:

3. **Non-RPWs⁷ that flow directly or indirectly into TNWs.**

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
- Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
- ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
- ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.⁸**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☒ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☒ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☒ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):⁹

⁷See Footnote # 3.

⁸To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

⁹Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: _____
- ☐ Other factors. Explain: _____

Identify water body and summarize rationale supporting determination: _____

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
Identify type(s) of waters: _____
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - ☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: _____
- ☐ Other: (explain, if not covered above): _____

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: _____
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: _____
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland Delineation, Greenbury Point, Final Report, September 2013
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - ☒ Office concurs with data sheets/delineation report.
 - ☐ Office does not concur with data sheets/delineation report.
- ☒ Data sheets prepared by the Corps:
- ☒ Corps navigable waters' study:
- ☒ U.S. Geological Survey Hydrologic Atlas:
 - ☐ USGS NHD data.
 - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Annapolis, Maryland
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Custom Soil Survey Map.
- ☒ National wetlands inventory map(s). Cite name: _____
- ☒ State/Local wetland inventory map(s): Maryland DNR Wetland Inventory Custom Map
- ☒ FEMA/FIRM maps: Panel number _____
- ☒ 100-year Floodplain Elevation is: _____ (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): MD DNR, Infrared, 1994; NAVFAC, 2008; Google Earth aerials
or ☒ Other (Name & Date): Photographs provided with delineation report and photos taken by the Corps on November 26, 2013
- ☒ Previous determination(s). File no. and date of response letter: _____

- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.
JD Form 3 of 4

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Baltimore/Naval Support Activity Annapolis/Greenbury Point/ JD/2013-02320

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Maryland County/parish/borough: Anne Arundel City: Annapolis

Center coordinates of site (lat/long in degree decimal format):

Longitude: 76.4528° W

Latitude: 38.9852° N

Name of nearest waterbody: Mill Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Mill Creek is a TNW.

Name of watershed or Hydrologic Unit Code (HUC): Upper Chesapeake Bay Watershed 8-digit HUC 02060001

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: December 31, 2014

☒ Field Determination. Date(s) November 26, 2013

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are not "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☒ Waters subject to the ebb and flow of the tide.

☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):

- ☐ TNWs, including territorial seas
- ☒ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters¹ (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 - ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: 0.94 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010.
Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):²

¹ For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

² Supporting documentation is presented in Section III.F.

- ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: The Mill Creek is directly adjacent to the review area.

Summarize rationale supporting determination: The Mill Creek is subject to the ebb and flow of the tide and is a traditionally navigable waterway.

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": Wetlands W-5 directly abuts Mill Creek and is subject to tidal influence.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapans* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody³ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

- ☐ Tributary flows directly into TNW.
☐ Tributary flows through Pick List tributaries before entering TNW.

Project waters are Pick List river miles from TNW.
Project waters are Pick List river miles from RPW.
Project waters are Pick List aerial (straight) miles from TNW.
Project waters are Pick List aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

³ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW⁴:

Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet

Average depth: feet

Average side slopes: **Pick List**

Primary tributary substrate composition (check all that apply):

☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

☐ Bed and banks
☐ OHWM⁵ (check all indicators that apply):
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☐ changes in the character of soil ☐ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☐ vegetation matted down, bent, or absent ☐ sediment sorting
☐ leaf litter disturbed or washed away ☐ scour
☐ sediment deposition ☐ multiple observed or predicted flow events
☐ water staining ☐ abrupt change in plant community
☐ other (list):
☐ Discontinuous OHWM.⁶ Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects ☐ survey to available datum;
☐ fine shell or debris deposits (foreshore) ☐ physical markings;
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

⁴ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁵ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁶ Ibid.

Identify specific pollutants, if known:

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting.
 - ☐ Discrete wetland hydrologic connection. Explain:
 - ☐ Ecological connection. Explain:
 - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

1. ☐ TNWs: linear feet width (ft), Or,
☒ Wetlands adjacent to TNWs: acres. 0.94 acres
2. **RPWs that flow directly or indirectly into TNWs.**
☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
 - ☐ Other non-wetland waters: acres.
- Identify type(s) of waters:

3. **Non-RPWs⁷ that flow directly or indirectly into TNWs.**

⁷See Footnote # 3.

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁸

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☒ Demonstrate that impoundment was created from "waters of the U.S.," or
☒ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☒ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):⁹

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain:
☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

⁸ To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

⁹ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapano's.

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
- ☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland Delineation, Greenbury Point, Final Report, September 2013
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant:
- ☒ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.
- ☒ Data sheets prepared by the Corps:
- ☒ Corps navigable waters' study:
- ☒ U.S. Geological Survey Hydrologic Atlas:
- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Annapolis, Maryland
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Custom Soil Survey Map.
- ☒ National wetlands inventory map(s). Cite name:
- ☒ State/Local wetland inventory map(s): Maryland DNR Wetland Inventory Custom Map
- ☒ FEMA/FIRM maps: Panel number
- ☒ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): MD DNR, Infrared, 1994; NAVFAC, 2008; Google Earth aerials
- or ☒ Other (Name & Date): Photographs provided with delineation report and photos taken by the Corps on November 26, 2013
- ☒ Previous determination(s). File no. and date of response letter: .
- ☒ Applicable/supporting case law: .
- ☒ Applicable/supporting scientific literature: .
- ☒ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.
JD Form 4 of 4

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Baltimore/Naval Support Activity Annapolis/Greenbury Point/ JD/2013-02320

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Maryland County/parish/borough: Anne Arundel City: Annapolis

Center coordinates of site (lat/long in degree decimal format):

Longitude: 76.4528° W

Latitude: 38.9852° N

Name of nearest waterbody: Chesapeake Bay

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: The Chesapeake Bay is a TNW.

Name of watershed or Hydrologic Unit Code (HUC): Upper Chesapeake Bay 02060001

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: December 31, 2014.

☒ Field Determination. Date(s) November 26, 2013

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are not "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☒ Waters subject to the ebb and flow of the tide.

☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):

- ☐ TNWs, including territorial seas
- ☒ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters¹ (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 - ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: 2.21 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual and Regional Supplement to the Corps of Engineers

Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010.

Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):²

¹ For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

² Supporting documentation is presented in Section III.F.

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: The Chesapeake Bay is directly adjacent to the review area.

Summarize rationale supporting determination: The Chesapeake Bay is subject to the ebb and flow of the tide and is a traditionally navigable waterway.

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": Wetlands W-2 is adjacent to roadway and bulkhead that separates the wetlands from the Chesapeake Bay; however given the proximity to the TNW and the presence of hydrology at this location within the 100 year flood plain, W-2 is considered to be adjacent to the Chesapeake Bay since but for the existence of the road and the bulkhead, the wetlands would likely be directly abutting the Chesapeake Bay and the influence of groundwater is likely. UPL-3 and UPL-4 had problematic soils when investigated by the consultant. Soil pits were dug in these two areas during the Corps site inspection and the soils in both areas were determined to be hydric. UPL-3 and UPL-4 were within a depression within the review area and entirely surrounded by uplands. Wetlands W-3 and W-13 were situated in a depressional area on the property and surrounded by uplands on all sides and by raised roadways on to the west, south, and east, separating the wetlands from waters of the United States. All 4 wetland areas are entirely surrounded by manmade roads within the 100 year floodplain. W-13 is approximately 46 feet from W-2 and is separated from W-3 by a manmade conduit. UPL-3 and UPL-4 area located approximately 170 feet north of W-3 within a flat depressional area. Since all 4 wetlands are within a depressional area within the 100 year flood plain in close proximity to a tidally influenced waterway, the wetlands are considered to be adjacent but not abutting the Chesapeake Bay, a TNW, and/or the Severn River, a TNW.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody³ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: inches
Average annual snowfall: inches

³ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(ii) **Physical Characteristics:**

(a) **Relationship with TNW:**

- ☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁴:

Tributary stream order, if known:

(b) **General Tributary Characteristics (check all that apply):**

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet
Average depth: feet
Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

- | | | |
|--|--|-----------------------------------|
| <input type="checkbox"/> Silts | <input type="checkbox"/> Sands | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Cobbles | <input type="checkbox"/> Gravel | <input type="checkbox"/> Muck |
| <input type="checkbox"/> Bedrock | <input type="checkbox"/> Vegetation. Type/% cover: | |
| <input type="checkbox"/> Other. Explain: | | |

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) **Flow:**

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

- | | |
|---|---|
| <input type="checkbox"/> Bed and banks | |
| <input type="checkbox"/> OHWM ⁵ (check all indicators that apply): | |
| <input type="checkbox"/> clear, natural line impressed on the bank | <input type="checkbox"/> the presence of litter and debris |
| <input type="checkbox"/> changes in the character of soil | <input type="checkbox"/> destruction of terrestrial vegetation |
| <input type="checkbox"/> shelving | <input type="checkbox"/> the presence of wrack line |
| <input type="checkbox"/> vegetation matted down, bent, or absent | <input type="checkbox"/> sediment sorting |
| <input type="checkbox"/> leaf litter disturbed or washed away | <input type="checkbox"/> scour |
| <input type="checkbox"/> sediment deposition | <input type="checkbox"/> multiple observed or predicted flow events |
| <input type="checkbox"/> water staining | <input type="checkbox"/> abrupt change in plant community |
| <input type="checkbox"/> other (list): | |
| <input type="checkbox"/> Discontinuous OHWM. ⁶ Explain: | |

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

⁴ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁵ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁶ Ibid.

- | | |
|--|--|
| <input type="checkbox"/> High Tide Line indicated by: | <input type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> other (list): | |

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
 - ☐ Discrete wetland hydrologic connection. Explain:
 - ☐ Ecological connection. Explain:
 - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics, etc.). Explain:

Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

1. ☐ TNWs: linear feet width (ft), Or,
☒ Wetlands adjacent to TNWs: acres. 2.21 acres
Wetland W-2: 10, 526 square feet
Wetland W-3: 39,389 square feet
Wetland W-13: 14, 195 square feet
Wetland UPL-3: 20,154 square feet
Wetland UPL-4: 12,231 square feet

2. **RPWs that flow directly or indirectly into TNWs.**

- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters:

3. Non-RPWs⁷ that flow directly or indirectly into TNWs.

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters:

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
- ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
- ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁸

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☒ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☒ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☒ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):⁹

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

⁷See Footnote # 3.

⁸To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

⁹Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain:
- ☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
- Identify type(s) of waters:
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - ☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
- ☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource:
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource:
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland Delineation, Greenbury Point, Final Report, September 2013
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - ☒ Office concurs with data sheets/delineation report. (For W-3 and W-13 only)
 - ☒ Office does not concur with data sheets/delineation report. (For UPL-3 and UPL-4 only)
- ☐ Data sheets prepared by the Corps:
- ☐ Corps navigable waters' study:
- ☐ U.S. Geological Survey Hydrologic Atlas:
 - ☐ USGS NHD data.
 - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Annapolis, Maryland
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Custom Soil Survey Map.
- ☒ National wetlands inventory map(s). Cite name:
- ☒ State/Local wetland inventory map(s): Maryland DNR Wetland Inventory Custom Map
- ☐ FEMA/FIRM maps: Panel number
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): MD DNR, Infrared, 1994; NAVFAC, 2008; Google Earth aerials.
- or ☒ Other (Name & Date): Photographs provided with delineation report and photos taken by the Corps on November 26, 2013
- ☐ Previous determination(s). File no. and date of response letter:
- ☐ Applicable/supporting case law:

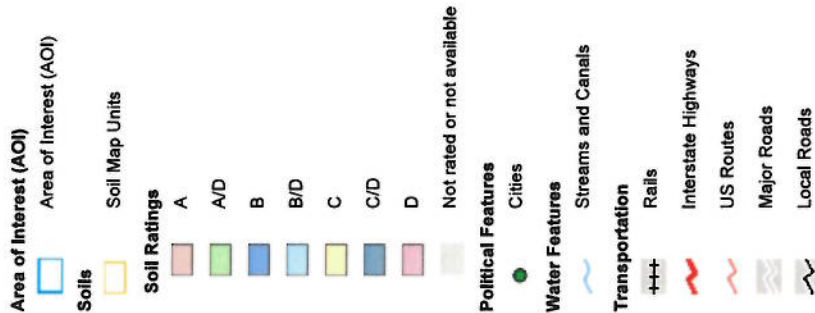
- ☐ Applicable/supporting scientific literature:
- ☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

Custom Soil Resource Report Map—Hydrologic Soil Group



MAP LEGEND



MAP INFORMATION

Map Scale: 1:12,300 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Anne Arundel County, Maryland
 Survey Area Data: Version 10, Jan 27, 2011

Date(s) aerial images were photographed: 6/23/2005; 6/21/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Custom Soil Resource Report

Table—Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit— Anne Arundel County, Maryland (MD003)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AoB	Annapolis loamy sand, 2 to 5 percent slopes	B	9.7	1.2%
AsA	Annapolis fine sandy loam, 0 to 2 percent slopes	B	18.2	2.2%
AsB	Annapolis fine sandy loam, 2 to 5 percent slopes	B	21.3	2.6%
AsC	Annapolis fine sandy loam, 5 to 10 percent slopes	B	35.7	4.4%
AsE	Annapolis fine sandy loam, 15 to 25 percent slopes	B	34.3	4.2%
AuB	Annapolis-Urban land complex, 0 to 5 percent slopes	B	22.0	2.7%
AuD	Annapolis-Urban land complex, 5 to 15 percent slopes	B	2.2	0.3%
CoA	Collington-Wist complex, 0 to 2 percent slopes	B	2.4	0.3%
CoB	Collington-Wist complex, 2 to 5 percent slopes	B	17.4	2.1%
CoC	Collington-Wist complex, 5 to 10 percent slopes	B	2.6	0.3%
CpD	Collington-Wist-Urban land complex, 5 to 15 percent slopes	B	4.7	0.6%
CRD	Collington and Annapolis soils, 10 to 15 percent slopes	B	12.0	1.5%
CSE	Collington, Wist, and Westphalia soils, 15 to 25 percent slopes	B	11.9	1.5%
CxA	Cumberstone-Mattapex complex, 0 to 2 percent slopes	C	85.7	10.6%
CxB	Cumberstone-Mattapex complex, 2 to 5 percent slopes	C	23.8	2.9%
DcA	Deale-Shadyoak complex, 0 to 2 percent slopes	C	5.4	0.7%
DeA	Deale-Shadyoak-Urban land complex, 0 to 2 percent slopes	C	18.9	2.3%
DnA	Dorlonton fine sandy loam, 0 to 2 percent slopes	C	4.6	0.6%
MZA	Mispillion and Transquaking soils, 0 to 1 percent slopes, tidally flooded	D	51.4	6.3%
PgB	Patapsco-Fort Mott-Urban land complex, 0 to 5 percent slopes	A	2.3	0.3%
SME	Sassafras and Croom soils, 15 to 25 percent slopes	B	0.1	0.0%
UxB	Udorthents, loamy, sulfidic substratum, 0 to 5 percent slopes	C	22.8	2.8%
Uz	Urban land	D	8.9	1.1%

Custom Soil Resource Report

Hydrologic Soil Group— Summary by Map Unit— Anne Arundel County, Maryland (MD003)				
Map unit symbol	Map unit name	Rating	Acres In AOI	Percent of AOI
W	Water		392.5	48.4%
WBA	Widewater and Issue soils, 0 to 2 percent slopes, frequently flooded	D	0.7	0.1%
Totals for Area of Interest			811.4	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. <http://soils.usda.gov/>

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. <http://soils.usda.gov/>

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. <http://soils.usda.gov/>

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. <http://soils.usda.gov/>

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.glti.nrcs.usda.gov/>

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. <http://soils.usda.gov/>

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. <http://soils.usda.gov/>

Custom Soil Resource Report

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

APR 13 2015

Operations Division

NAVFAC Washington
C/o Tom Lewis
1314 Harwood Street SE
Washington, DC 20374

Dear Mr. Lewis:

This is in response to a letter dated October 09, 2013, sent on your behalf from Mr. Mark Burchick, of Environmental Systems Analysis Inc., requesting a jurisdictional determination (JD) and verification of the delineation of waters of the United States, including jurisdictional wetlands, on an approximately 231-acre property known as Greenbury Point, Naval Support Activity Annapolis, located on Greenbury Point Road at Naval Station Annapolis in Annapolis, Anne Arundel County, Maryland. Your project has been assigned the file name, CENAB-OP-RMS (Naval Support Activity Annapolis/Greenbury Point/JD) 2013-02370.

We have reviewed and concur with the plans dated June 07, 2013, prepared by Environmental Systems Analysis Inc. for the approximately 231-acre site. A field inspection was conducted on November 26, 2013 by Ms. Vera Koskelo and Ms. Laura Shively of this office. The inspection indicated that the delineation of waters of the United States within the "Area of Review" on the drawings dated June 07, 2013 is accurate. Those areas indicated as waters of the United States, including jurisdictional wetlands, are regulated by this office pursuant to Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act. Enclosed is a document that outlines the basis of our determination of jurisdiction over these areas.

This letter contains an approved jurisdictional determination for your subject site. This approved jurisdictional determination is valid for five years from the date of this letter unless new information warrants revision of the determination before the expiration date, or a District Engineer has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the North Atlantic Division Office at the following address:

James W. Haggerty
Regulatory Appeals Review Officer
North Atlantic Division, US Army Corps of Engineers
Fort Hamilton Military Community
General Lee Avenue, Bldg 301
Brooklyn, NY 11252-6700

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit a RFA form, it must be received at the above address by **JUN 11 2015**. It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

Please be advised that various development activities, within waters of the United States, including jurisdictional wetlands may be regulated by the Corps. Wetlands and other waters under the jurisdiction of the Maryland Department of the Environment (MDE) may also be located on the parcel. You may contact the MDE at (410) 537-3768 for information regarding jurisdiction and permitting requirements.

You are reminded that any grading or filling of waters of the United States, including jurisdictional wetlands, is subject to Department of the Army authorization. State and local authorizations may also be required to conduct activities in these locations. In addition, the Interstate Land Sales Full Disclosure Act may require that prospective buyers be made aware, by the seller, of the Federal authority over any waters of the United States, including wetlands, being purchased.

In future correspondence and permit applications regarding this parcel, please include the file number located in the first paragraph of this letter.

A copy of this letter is being furnished to the Maryland Department of the Environment for informational purposes. If you have any questions concerning this matter, please call Ms. Laura Shively of this office at (410) 962-6011.

Sincerely,



Kathy B. Anderson
Chief, Maryland Section Southern

Enclosures

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.
JD Form 1 of 4

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): APR 13 2015

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Baltimore/Naval Support Activity Annapolis/Greenbury Point/ JD/2013-02320

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Maryland County/parish/borough: Anne Arundel City: Annapolis

Center coordinates of site (lat/long in degree decimal format):

Longitude: 76.4528° W

Latitude: 38.9852° N

Name of nearest waterbody: Severn River

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: The Severn River is a TNW.

Name of watershed or Hydrologic Unit Code (HUC): Severn River Watershed 10-digit HUC 0206000402

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: December 31, 2014

☒ Field Determination. Date(s) November 26, 2013

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are not "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☒ Waters subject to the ebb and flow of the tide.

☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):

- ☐ TNWs, including territorial seas
- ☒ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters¹ (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 - ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands.

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: 2.42 acres.

Wetland W-1: 31,833 square feet

Wetland W-12: 73,414 square feet

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual and Regional Supplement to the Corps of Engineers

Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010.

Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):²

¹ For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: The Severn River is directly adjacent to the review area.

Summarize rationale supporting determination: The Severn River is subject to the ebb and flow of the tide and is a traditionally navigable waterway.

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": Wetland W-1 directly abuts the Severn River and is subject to tidal influence. Wetland W-12 is adjacent to the Severn River but is not subject to tidal influence. There is an existing bulkhead that has failed and a physical connection with the Severn River was observed for both wetlands during the field investigation.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody² is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

- ☐ Tributary flows directly into TNW.
☐ Tributary flows through Pick List tributaries before entering TNW.

Project waters are Pick List river miles from TNW.

Project waters are Pick List river miles from RPW.

² Supporting documentation is presented in Section III.F.

³ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁴:
Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet
Average depth: feet
Average side slopes: **Pick List**

Primary tributary substrate composition (check all that apply):

<input type="checkbox"/> Silts	<input type="checkbox"/> Sands	<input type="checkbox"/> Concrete
<input type="checkbox"/> Cobbles	<input type="checkbox"/> Gravel	<input type="checkbox"/> Muck
<input type="checkbox"/> Bedrock	<input type="checkbox"/> Vegetation. Type/% cover:	
<input type="checkbox"/> Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

<input type="checkbox"/> Bed and banks	
<input type="checkbox"/> OHWM ⁵ (check all indicators that apply):	
<input type="checkbox"/> clear, natural line impressed on the bank	<input type="checkbox"/> the presence of litter and debris
<input type="checkbox"/> changes in the character of soil	<input type="checkbox"/> destruction of terrestrial vegetation
<input type="checkbox"/> shelving	<input type="checkbox"/> the presence of wrack line
<input type="checkbox"/> vegetation matted down, bent, or absent	<input type="checkbox"/> sediment sorting
<input type="checkbox"/> leaf litter disturbed or washed away	<input type="checkbox"/> scour
<input type="checkbox"/> sediment deposition	<input type="checkbox"/> multiple observed or predicted flow events
<input type="checkbox"/> water staining	<input type="checkbox"/> abrupt change in plant community
<input type="checkbox"/> other (list):	
<input type="checkbox"/> Discontinuous OHWM. ⁶ Explain:	

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

<input type="checkbox"/> High Tide Line indicated by:	<input type="checkbox"/> Mean High Water Mark indicated by:
<input type="checkbox"/> oil or scum line along shore objects	<input type="checkbox"/> survey to available datum;
<input type="checkbox"/> fine shell or debris deposits (foreshore)	<input type="checkbox"/> physical markings;
<input type="checkbox"/> physical markings/characteristics	<input type="checkbox"/> vegetation lines/changes in vegetation types.
<input type="checkbox"/> tidal gauges	
<input type="checkbox"/> other (list):	

⁴ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁵ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁶ Ibid.

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
 - ☐ Discrete wetland hydrologic connection. Explain:
 - ☐ Ecological connection. Explain:
 - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

1. ☐ TNWs: linear feet width (ft), Or,
☒ Wetlands adjacent to TNWs: acres. 2.42 acres.
Wetland W-1: 31,833 square feet
Wetland W-12: 73,414 square feet

2. RPWs that flow directly or indirectly into TNWs.

- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).

- ☐ Other non-wetland waters: acres.
Identify type(s) of waters:

3. **Non-RPWs⁷ that flow directly or indirectly into TNWs.**

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.⁸**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☒ Demonstrate that impoundment was created from "waters of the U.S.," or
☒ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☒ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. **ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):⁹**

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain:
☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

⁷See Footnote # 3.

⁸To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

⁹ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following *Rapanos*.

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters:
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource:
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource:
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland Delineation, Greenbury Point, Final Report, September 2013
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☒ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☒ Data sheets prepared by the Corps:
☒ Corps navigable waters' study:
☒ U.S. Geological Survey Hydrologic Atlas:
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Annapolis, Maryland
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Custom Soil Survey Map.
☒ National wetlands inventory map(s). Cite name:
☒ State/Local wetland inventory map(s): Maryland DNR Wetland Inventory Custom Map
☒ FEMA/FIRM maps: Panel number
☒ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): MD DNR, Infrared, 1994; NAVFAC, 2008; Google Earth aerials
or ☒ Other (Name & Date): Photographs provided with delineation report and photos taken by the Corps on November 26, 2013
☒ Previous determination(s). File no. and date of response letter:
☒ Applicable/supporting case law:
☒ Applicable/supporting scientific literature:
☒ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

JD Form 2 of 4

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): APR 13 2015

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Baltimore/Naval Support Activity Annapolis/Greenbury Point/JD/2013-02320

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Maryland County/parish/borough: Anne Arundel

City: Annapolis

Center coordinates of site (lat/long in degree decimal format):

Longitude: 76.4528° W

Latitude: 38.9852° N

Name of nearest waterbody: Carr Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: The Carr Creek is a TNW.

Name of watershed or Hydrologic Unit Code (HUC): Severn River Watershed 10-digit HUC 0206000402

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: December 31, 2014

☒ Field Determination. Date(s) November 26, 2013

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are not "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☒ Waters subject to the ebb and flow of the tide.

☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):

- ☐ TNWs, including territorial seas
- ☒ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters¹ (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 - ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: 4.07 acres.

Wetland W-4: 4,893 square feet

Wetland W-6: 51,551 square feet

Wetland W-7: 67,678 square feet

Wetland W-8: 14,198 square feet

Wetland W-9: 14,712 square feet

Wetland W-10: 21,583 square feet

Wetland W-11: 2,521 square feet

¹ For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010.

Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):²

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: The Carr Creek is directly adjacent to the review area.

Summarize rationale supporting determination: The Carr Creek is subject to the ebb and flow of the tide and is a traditionally navigable waterway.

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": Wetlands W-7, W-10, and W-11 directly abut Carr Creek subject to tidal influence. Wetlands W-4, W-6, W-8, and W-9 are nontidal wetlands that are adjacent but not abutting to Carr Creek. Wetlands W-4, W-9, and W-8 are all connected via drainage patterns and culvert pipes under an existing road that runs through the wetland and drain into Carr Creek. Prior to roadway construction, it is likely that all 3 wetlands were a part of the same wetland system.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapahos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water; even though a significant nexus finding is not required as a matter of law.

If the waterbody³ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:

² Supporting documentation is presented in Section III.F.

³ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(a) Relationship with TNW:

- ☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.

Project waters are **Pick List** river miles from RPW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Project waters are **Pick List** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁴:

Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

- Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet

Average depth: feet

Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

- | | | |
|--|--|-----------------------------------|
| <input type="checkbox"/> Silts | <input type="checkbox"/> Sands | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Cobbles | <input type="checkbox"/> Gravel | <input type="checkbox"/> Muck |
| <input type="checkbox"/> Bedrock | <input type="checkbox"/> Vegetation. Type/% cover: | |
| <input type="checkbox"/> Other. Explain: | | |

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

- ☐ Dye (or other) test performed:

Tributary has (check all that apply):

- | | |
|---|---|
| <input type="checkbox"/> Bed and banks | |
| <input type="checkbox"/> OHWM ⁵ (check all indicators that apply): | |
| <input type="checkbox"/> clear, natural line impressed on the bank | <input type="checkbox"/> the presence of litter and debris |
| <input type="checkbox"/> changes in the character of soil | <input type="checkbox"/> destruction of terrestrial vegetation |
| <input type="checkbox"/> shelving | <input type="checkbox"/> the presence of wrack line |
| <input type="checkbox"/> vegetation matted down, bent, or absent | <input type="checkbox"/> sediment sorting |
| <input type="checkbox"/> leaf litter disturbed or washed away | <input type="checkbox"/> scour |
| <input type="checkbox"/> sediment deposition | <input type="checkbox"/> multiple observed or predicted flow events |
| <input type="checkbox"/> water staining | <input type="checkbox"/> abrupt change in plant community |
| <input type="checkbox"/> other (list): | |
| <input type="checkbox"/> Discontinuous OHWM. ⁶ Explain: | |

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- ☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:

⁴ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁵ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁶ Ibid.

- | | |
|--|--|
| <input type="checkbox"/> oil or scum line along shore objects | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> other (list): | |

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
 - ☐ Discrete wetland hydrologic connection. Explain:
 - ☐ Ecological connection. Explain:
 - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: Pick List

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

1. ☐ TNWs: linear feet width (ft), Or,
☒ Wetlands adjacent to TNWs: acres. 4.07 acres
Wetland W-4: 4,893 square feet
Wetland W-6: 51,551 square feet
Wetland W-7: 67,678 square feet
Wetland W-8: 14,198 square feet
Wetland W-9: 14,712 square feet
Wetland W-10: 21,583 square feet
Wetland W-11: 2,521 square feet

2. **RPWs that flow directly or indirectly into TNWs.**

- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
- Identify type(s) of waters:

3. **Non-RPWs⁷ that flow directly or indirectly into TNWs.**

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
- Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
- ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
- ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.⁸**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☒ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☒ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☒ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):⁹

⁷See Footnote # 3.

⁸To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

⁹Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following *Rapanos*.

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain:
- ☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
Identify type(s) of waters:
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
- ☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource:
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource:
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland Delineation, Greenbury Point, Final Report, September 2013
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☒ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps:
- ☐ Corps navigable waters' study:
- ☐ U.S. Geological Survey Hydrologic Atlas:
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Annapolis, Maryland
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Custom Soil Survey Map.
- ☒ National wetlands inventory map(s). Cite name:
- ☒ State/Local wetland inventory map(s): Maryland DNR Wetland Inventory Custom Map
- ☐ FEMA/FIRM maps: Panel number
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): MD DNR, Infrared, 1994; NAVFAC, 2008; Google Earth aerials
or ☒ Other (Name & Date): Photographs provided with delineation report and photos taken by the Corps on November 26, 2013
- ☐ Previous determination(s). File no. and date of response letter:

- ☐ Applicable/supporting case law:
- ☐ Applicable/supporting scientific literature:
- ☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

JD Form 3 of 4

SECTION I: BACKGROUND INFORMATION

A. **REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):** APR 13 2015

B. **DISTRICT OFFICE, FILE NAME, AND NUMBER:** Baltimore/Naval Support Activity Annapolis/Greenbury Point/ JD/2013-02320

C. **PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: Maryland County/parish/borough: Anne Arundel City: Annapolis

Center coordinates of site (lat/long in degree decimal format):

Longitude: 76.4528° W

Latitude: 38.9852° N

Name of nearest waterbody: Mill Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Mill Creek is a TNW.

Name of watershed or Hydrologic Unit Code (HUC): Upper Chesapeake Bay Watershed 8-digit HUC 02060001

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. **REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☒ Office (Desk) Determination. Date: December 31, 2014

☒ Field Determination. Date(s) November 26, 2013

SECTION II: SUMMARY OF FINDINGS

A. **RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There are not "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☒ Waters subject to the ebb and flow of the tide.

☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

B. **CWA SECTION 404 DETERMINATION OF JURISDICTION.**

There are "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. **Waters of the U.S.**

a. **Indicate presence of waters of U.S. in review area (check all that apply):**

- ☐ TNWs, including territorial seas
- ☒ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters¹ (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 - ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. **Identify (estimate) size of waters of the U.S. in the review area:**

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: 0.94 acres.

c. **Limits (boundaries) of jurisdiction based on:** 1987 Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010.
Elevation of established OHWM (if known):

2. **Non-regulated waters/wetlands (check if applicable):²**

¹ For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

² Supporting documentation is presented in Section III.F.

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: The Mill Creek is directly adjacent to the review area.

Summarize rationale supporting determination: The Mill Creek is subject to the ebb and flow of the tide and is a traditionally navigable waterway.

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": Wetlands W-5 directly abuts Mill Creek and is subject to tidal influence.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and if helps determine whether or not the standards for jurisdiction established under *Rapans* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody³ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

- ☐ Tributary flows directly into TNW.
☐ Tributary flows through Pick List tributaries before entering TNW.

Project waters are Pick List river miles from TNW.
Project waters are Pick List river miles from RPW.
Project waters are Pick List aerial (straight) miles from TNW.
Project waters are Pick List aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

³ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW⁴:
Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet
Average depth: feet
Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

☐ Bed and banks
☐ OHWM⁵ (check all indicators that apply):
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☐ changes in the character of soil ☐ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☐ vegetation matted down, bent, or absent ☐ sediment sorting
☐ leaf litter disturbed or washed away ☐ scour
☐ sediment deposition ☐ multiple observed or predicted flow events
☐ water staining ☐ abrupt change in plant community
☐ other (list):
☐ Discontinuous OHWM.⁶ Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects ☐ survey to available datum;
☐ fine shell or debris deposits (foreshore) ☐ physical markings;
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

⁴ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁵ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁶ Ibid.

Identify specific pollutants, if known:

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: _____ acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
 - ☐ Discrete wetland hydrologic connection. Explain:
 - ☐ Ecological connection. Explain:
 - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

1. ☐ TNWs: linear feet width (ft), Or,
☒ Wetlands adjacent to TNWs: acres. 0.94 acres
2. RPWs that flow directly or indirectly into TNWs.
☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
Identify type(s) of waters:

3. Non-RPWs⁷ that flow directly or indirectly into TNWs.

⁷See Footnote # 3.

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.⁸**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☒ Demonstrate that impoundment was created from "waters of the U.S.," or
☒ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☒ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. **ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):⁹**

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain:
☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters:

⁸ To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

⁹ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
- ☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
- ☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: _____
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): _____ linear feet, _____ width (ft).
☐ Lakes/ponds: _____ acres.
☐ Other non-wetland waters: _____ acres. List type of aquatic resource: _____
☐ Wetlands: _____ acres.

SECTION IV: DATA SOURCES.

A. **SUPPORTING DATA.** Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland Delineation, Greenbury Point, Final Report, September 2013
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 ☒ Office concurs with data sheets/delineation report.
 ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps:
☐ Corps navigable waters' study:
☐ U.S. Geological Survey Hydrologic Atlas:
 ☐ USGS NHD data.
 ☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Annapolis, Maryland
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Custom Soil Survey Map.
☒ National wetlands inventory map(s). Cite name:
☒ State/Local wetland inventory map(s): Maryland DNR Wetland Inventory Custom Map
☐ FEMA/FIRM maps: Panel number:
☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): MD DNR, Infrared, 1994; NAVFAC, 2008; Google Earth aerals
 or ☒ Other (Name & Date): Photographs provided with delineation report and photos taken by the Corps on November 26, 2013
☐ Previous determination(s). File no. and date of response letter:
☐ Applicable/supporting case law:
☐ Applicable/supporting scientific literature:
☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook, JD Form 4 of 4.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): APR 13 2015

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Baltimore/Naval Support Activity Annapolis/Greenbury Point/ JD/2013-02320

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Maryland County/parish/borough: Anne Arundel City: Annapolis

Center coordinates of site (lat/long in degree decimal format):

Longitude: 76.4528° W

Latitude: 38.9852° N

Name of nearest waterbody: Chesapeake Bay

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: The Chesapeake Bay is a TNW.

Name of watershed or Hydrologic Unit Code (HUC): Upper Chesapeake Bay 02060001

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: December 31, 2014

☒ Field Determination. Date(s) November 26, 2013

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are not "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☒ Waters subject to the ebb and flow of the tide.

☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):

- ☐ TNWs, including territorial seas
- ☒ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters¹ (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 - ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: 2.21 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010.
Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):²

¹ For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

² Supporting documentation is presented in Section III.F.

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: The Chesapeake Bay is directly adjacent to the review area.

Summarize rationale supporting determination: The Chesapeake Bay is subject to the ebb and flow of the tide and is a traditionally navigable waterway.

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": Wetlands W-2 is adjacent to roadway and bulkhead that separates the wetlands from the Chesapeake Bay; however given the proximity to the TNW and the presence of hydrology at this location within the 100 year flood plain, W-2 is considered to be adjacent to the Chesapeake Bay since but for the existence of the road and the bulkhead, the wetlands would likely be directly abutting the Chesapeake Bay and the influence of groundwater is likely. UPL-3 and UPL-4 had problematic soils when investigated by the consultant. Soil pits were dug in these two areas during the Corps site inspection and the soils in both areas were determined to be hydric. UPL-3 and UPL-4 were within a depression within the review area and entirely surrounded by uplands. Wetlands W-3 and W-13 were situated in a depressional area on the property and surrounded by uplands on all sides and by raised roadways on to the west, south, and east, separating the wetlands from waters of the United States. All 4 wetland areas are entirely surrounded by manmade roads within the 100 year floodplain. W-13 is approximately 46 feet from W-2 and is separated from W-3 by a manmade conduit. UPL-3 and UPL-4 area located approximately 170 feet north of W-3 within a flat depressional area. Since all 4 wetlands are within a depressional area within the 100 year flood plain in close proximity to a tidally influenced waterway, the wetlands are considered to be adjacent but not abutting the Chesapeake Bay, a TNW, and/or the Severn River, a TNW.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody³ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: inches
Average annual snowfall: inches

³ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(ii) **Physical Characteristics:**

(a) Relationship with TNW:

- ☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.

Project waters are **Pick List** river miles from RPW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Project waters are **Pick List** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁴:

Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

- Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet

Average depth: feet

Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

- | | | |
|--|--|-----------------------------------|
| <input type="checkbox"/> Silts | <input type="checkbox"/> Sands | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Cobbles | <input type="checkbox"/> Gravel | <input type="checkbox"/> Muck |
| <input type="checkbox"/> Bedrock | <input type="checkbox"/> Vegetation. Type/% cover: | |
| <input type="checkbox"/> Other. Explain: | | |

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

- ☐ Dye (or other) test performed:

Tributary has (check all that apply):

- | | |
|---|---|
| <input type="checkbox"/> Bed and banks | |
| <input type="checkbox"/> OHWM ⁵ (check all indicators that apply): | |
| <input type="checkbox"/> clear, natural line impressed on the bank | <input type="checkbox"/> the presence of litter and debris |
| <input type="checkbox"/> changes in the character of soil | <input type="checkbox"/> destruction of terrestrial vegetation |
| <input type="checkbox"/> shelving | <input type="checkbox"/> the presence of wrack line |
| <input type="checkbox"/> vegetation matted down, bent, or absent | <input type="checkbox"/> sediment sorting |
| <input type="checkbox"/> leaf litter disturbed or washed away | <input type="checkbox"/> scour |
| <input type="checkbox"/> sediment deposition | <input type="checkbox"/> multiple observed or predicted flow events |
| <input type="checkbox"/> water staining | <input type="checkbox"/> abrupt change in plant community |
| <input type="checkbox"/> other (list): | |
| <input type="checkbox"/> Discontinuous OHWM. ⁶ Explain: | |

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

⁴ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁵ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁶ Ibid.

- | | |
|--|--|
| <input type="checkbox"/> High Tide Line indicated by: | <input type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> other (list): | |

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
 - ☐ Discrete wetland hydrologic connection. Explain:
 - ☐ Ecological connection. Explain:
 - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: Pick List

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapans* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

1. ☐ TNWs: linear feet width (ft), Or,
☒ Wetlands adjacent to TNWs: acres. 2.21 acres
Wetland W-2: 10, 526 square feet
Wetland W-3: 39,389 square feet
Wetland W-13: 14, 195 square feet
Wetland UPL-3: 20,154 square feet
Wetland UPL-4: 12,231 square feet

2. RPWs that flow directly or indirectly into TNWs.

- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.

Identify type(s) of waters:

3. Non-RPWs⁷ that flow directly or indirectly into TNWs.

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.

Identify type(s) of waters:

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
- ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
- ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁸

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☒ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☒ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☒ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):⁹

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

⁷See Footnote # 3.

⁸To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

⁹Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain:
- ☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters:

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - ☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
- ☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource:

☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource:

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland Delineation, Greenbury Point, Final Report, September 2013
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - ☒ Office concurs with data sheets/delineation report. (For W-3 and W-13 only)
 - ☒ Office does not concur with data sheets/delineation report. (For UPL-3 and UPL-4 only)
- ☒ Data sheets prepared by the Corps:
- ☒ Corps navigable waters' study:
- ☒ U.S. Geological Survey Hydrologic Atlas:
 - ☐ USGS NHD data.
 - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Annapolis, Maryland
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Custom Soil Survey Map.
- ☒ National wetlands inventory map(s). Cite name:
- ☒ State/Local wetland inventory map(s): Maryland DNR Wetland Inventory Custom Map
- ☒ FEMA/FIRM maps: Panel number
- ☒ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): MD DNR, Infrared, 1994; NAVFAC, 2008; Google Earth aerials
 - or ☒ Other (Name & Date): Photographs provided with delineation report and photos taken by the Corps on November 26, 2013
- ☒ Previous determination(s). File no. and date of response letter:
- ☒ Applicable/supporting case law:

- ☐ Applicable/supporting scientific literature:
- ☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL (NAO/NAP Established & RFA form)**

Applicant: NAVFAC Washington, c/o Tom Lewis		File Number: 2013-02370	Date: APR 13 2015
Attached is:			See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
	PERMIT DENIAL	C	
X	APPROVED JURISDICTIONAL DETERMINATION	D	
	PRELIMINARY JURISDICTIONAL DETERMINATION	E	

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the Baltimore District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations (JD) associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the Baltimore District Engineer. Your objections must be received by the Baltimore District Engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the Baltimore District Engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the Baltimore District Engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the Baltimore District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-PD-PSD-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the Baltimore District Engineer.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-PD-PSD-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the Baltimore District Engineer.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-PD-PSD-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the Baltimore District Engineer.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Ms. Sandy Zelen
U.S. Army Corps of Engineers, Baltimore District
ATTN: CENAB-OP-R
Regulatory Branch, Baltimore District
Baltimore, MD 21203-1715
(410) 962-6028 or 3670

If you only have questions regarding the appeal process you may also contact:

James W. Haggerty
Regulatory Appeals Review Officer
North Atlantic Division, US Army Corps of Engineers
Fort Hamilton Military Community
General Lee Avenue, Bldg 301
Brooklyn, NY 11252-6700
Telephone: (347) 370-4650
Email: james.w.haggerty@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.	Date:	Telephone number:
----------------------------------	-------	-------------------