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NSWC INDIAN HEAD
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FINAL TECHNICAL MEMORANDUM FOR RESULTS OF WETLAND DELINEATION
UNEXPLODED ORDNANCE 9 AND 11 (UXO 9) (UXO 11) NSWC INDIAN HEAD MD
3/17/2016
CH2M HILL

Results of Wetland Delineation for UXOs 9 and 11, Naval Support Facility Indian Head, Indian Head, Maryland

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Introduction

This technical memorandum presents the results of a wetland and waterbody delineation conducted at Unexploded Ordnances (UXOs) 9 and 11 at Naval Support Facility Indian Head (NSFIH) in Indian Head, Maryland. CH2M HILL (CH2M) prepared this memorandum under the Department of the Navy (Navy), Naval Facilities Engineering Command, Atlantic Division, Comprehensive Long-Term Environmental Action – Navy 1000 Contract N62470-08-D-1000, Contract Task Order 88. The purpose of the delineation was to assess the presence or absence of wetlands or other waters located within each site boundary. The environmental survey area focused on the previously identified stream channels that bisect the two sites.

Background

UXO 9 (Single Base Propellant Grains Area) is a 52-acre site in the northeastern portion of the Main Installation. The site contains three former railroad tracks and several former dry houses along the tracks. The tracks are covered with soil for vehicle traffic; in a few areas, the tracks are exposed—probably due to erosion of the soil cover. Some of the dry houses have been demolished, and others are still present but are not in use. The site was used for transporting and drying propellant grains; it started between 1927 and 1942, and ended in the late 1980s.

UXO 11 (The Valley) is a 21-acre site adjacent to the Potomac River along the northwestern portion of the Main Installation. The site was a tidal marshland before the 1880s. It was used for developing and testing numerous ordnance items from 1891 to 1921. Since 1944, part of the site has been redeveloped as the Dashielle Marina for recreational boat access to the Potomac River and as a conference center.

Before conducting the wetland and waterbody delineation, CH2M reviewed the following resources to identify potential locations and extents of wetlands and waterbodies within each site:

- U.S. Geological Survey (USGS). 1966 (revised 1978 and 1982). Indian Head Quadrangle, Maryland-Virginia, 7.5 Minute Series (Topographic-Bathymetric), SW/4 Indian Head 15' Quadrangle.
- Aerial Photography (Google Earth Pro, 2013).
- U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (USDA, 2013)
- USGS National Hydrography Dataset (NHD [USGS, 2012])
- U.S. Fish and Wildlife Service (USFWS, 2012) National Wetlands Inventory (NWI) dataset

The following is a presentation of key findings from reviewing the above resources.

The 1982 USGS topographic map (Figure 1) resulted in the following findings: (1) the presence of the Potomac River along the western boundary of UXO 11 and (2) no streams or surface waters within the boundaries of UXO 9 or UXO 11.

The presence of an NHD or NWI feature is not a definitive indicator that a wetland or waterbody is present, as the information is often outdated and cannot be field-verified. The NHD/NWI map for UXO 9 (Figure 2) shows that no features are mapped or depicted within the site boundary. In addition, a PUBHx – Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated area, or commonly referred to as a pond, is depicted along the southwestern boundary of UXO 9, outside the site boundary. The NHD/NWI map for UXO 11 (Figure 3) shows the surface water of the Potomac River, mapped as E1UBL6 – Estuarine and Marine Wetland and E1UBL6 - Estuarine and Marine Deepwater along the western boundary of the site.

According to the USDA Web Soil Survey (USDA, 2013), UXO 9 is within the BaB – Beltsville Silt Loam, 2 to 5 percent slopes, and is listed as predominantly non-hydric soils (Figure 4). For UXO 11, seven soil map units are mapped within the environmental survey area (Figure 5). All of the soil map units are listed as either predominantly non-hydric or not hydric. Generally, soil units identified as hydric contain soils that indicate through their color and structure that they have experienced dominantly reducing (that is, oxygen poor) conditions, which are a result of inundation and/or saturation by water. Predominantly non-hydric soil units may contain hydric soil inclusions, but the majority of the unit is non-hydric. Soil units identified as non-hydric have no hydric soil components identified in the mapped soil unit. UXO 9 is located within the Marbury Run – Mattawoman Creek (USGS Hydrologic Unit Code 020700110102), and UXO 11 is within the Occoquan Bay-Potomac River (USGS Hydrologic Unit Code 020700100805) (EPA, 2014).

Survey Methodology

Wetlands and waterbodies, if present, were delineated within the environmental survey area to identify potential jurisdictional wetland and stream resource areas in accordance with applicable federal and state regulations and guidance. Wetland boundaries were field-delineated according to the methodology described in *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (Version 2.0) (USACE, 2012). Wetland plant indicator statuses were obtained from *National Wetland Plant List* (USACE, 2014).

The centerline of the waterbody was delineated and recorded using a handheld Trimble GeoXH global positioning system (GPS) receiver. The ordinary high water mark (OHWM) was recorded as the jurisdictional boundary along each bank. As features were collected, they were given unique feature identifications (IDs). Streams were labeled with flags, beginning with an 'S', followed by the number ID of the stream and the numeric ID of the flag. Features that continued beyond the environmental survey area were marked 'opened ended' with an 'OE'.

The U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE) have issued a joint guidance document describing waters that are regulated under the Clean Water Act (USACE and EPA, 2008). According to this guidance, wetlands and waterbodies that are adjacent to or have a significant nexus to traditionally navigable waterways (TNW) are regulated under Sections 401 and 404 of the Clean Water Act. A significant nexus must meet a number of criteria that indicate the wetland provides biological, physical, or chemical benefits to the TNW. Typically, a significant nexus requires a surface water connection to the TNW or to a relatively permanent water (RPW) that is tributary to the TNW. Each identified waterbody within the environmental survey area was evaluated for significant nexus to RPWs according to these guidelines. Wetlands with no apparent surface nexus to an RPW or TNW were considered isolated or likely to be considered non-jurisdictional by USACE.

On June 29, 2015, EPA and USACE finalized a new rule to further clarify whether a water would fall under the jurisdiction of "Waters of the United States" (USACE and EPA, 2015). The rule clarifies that tributaries

that have a bed, bank, and high water mark will be considered jurisdictional. Furthermore, the rule now includes areas that are within the floodplain, as well as riparian areas in “Waters of the United States.”

Preliminary jurisdictional evaluations were based on field surveys and desktop evaluations conducted by CH2M to determine hydrologic or other connection to TNWs. USACE and/or the Maryland Department of the Environment (MDE) are responsible for making final determinations of jurisdiction. USACE and MDE regulate tidal and non-tidal wetlands, and a joint federal application for the alteration of any floodplain, waterway, tidal, or non-tidal wetland is typically required for all work within these regulated areas (MDE, 2011).

Survey Results

This section presents the results of the wetland and waterbody delineations performed at UXO 9 on August 31, 2015 and at UXO 11 on September 1, 2015. Observed weather conditions during the survey were dry. No recent rainfall was observed or recorded during the field surveys. Photo logs are provided as Attachment 1.

UXO 9

Two wetlands (W001 and W002) and one waterbody (S001) were identified at UXO 9, and their locations are shown on Figure 6. A description of the wetlands and waterbody are provided below.

W001 is a palustrine emergent marsh (PEM), freshwater wetland dominated by an invasive herbaceous species Japanese stiltgrass (*Microstegium vimineum*; FAC), a common invader amongst disturbed sites, and common rush (*Juncus effusus*, OBL). The wetland is a ponded area located in an area where the ephemeral stream (S001), which was dry at the time of the delineation, flattens out near Track 1 (a dirt road), before entering a culvert and continuing as a channelized waterbody. Hydrology was confirmed by saturation. Soils appeared disturbed by the presence of mixed layers, glass, and debris, but the native layer under the disturbed soil layer appeared to be under reducing conditions. W001 displays vegetation, hydrology, and problematic hydric soils. Because of the abnormal site characteristics, the area does not meet the full criteria of a wetland but would be considered an atypical wetland subject to a jurisdictional call by USACE and MDE.

W002 is a palustrine forested (PFO) wetland within UXO 9 that was identified as a small ponded, seasonally flooded area within the confines of S001. The wetland was void of vegetation within the previously flooded area, but was surrounded on the fringe by willow oak (*Quercus phellos*; FACW) and American sweetgum (*Liquidambar styraciflua*; FAC), providing approximately 75 percent of the canopy cover for the wetland area. Hydrology was confirmed by saturation, and watermarks were evident. Hydric soils indicators were confirmed by a depleted matrix. W002 displays vegetation, hydrology, and hydric soils, which classify this area as a jurisdictional wetland.

S001 is an ephemeral stream within UXO 9. It was dry at the time of the delineation. S001 begins as a stormwater drainage swale exiting the parking lot around Building 3157. The stream has a discontinuous channel that flattens out within the two wetland areas. Near the eastern facility boundary, the stream returns to sheet flow for about 75 feet before entering a culvert along the eastern boundary of the base. S001 then exits the facility through the fence line as a grass-lined channel. The stream was dry at the time of the delineation, and the OHWM was approximately 4 feet wide. The substrate was primarily silts and vegetation. A waterbody data form is included as Attachment 2.

UXO 11

One wetland (W003) and three waterbodies (S002, S003, and S004) were identified at UXO 11, and their locations are shown on Figure 7. A description of the wetland and waterbodies are provided below.

W003 is a large PEM/PFO wetland complex surrounding S004. The emergent portion of the wetland, on the southern side of the stream, was dominated by herbaceous vegetation consisting of dominant species of rice cutgrass (*Leersia oryzoides*; OBL), arrowleaf tearthumb (*Persicaria sagittata*; OBL), and wild mint

(*Mentha arvensis*; FACW). The canopy cover of the forested portion of the wetland, on the northern side of S004, was dominated by sweet gum (*Liquidambar styraciflua*), bald cypress (*Taxodium distichum*; which appeared to be planted), and pawpaw (*Asimina triloba*). Hydrology was confirmed by water-stained leaves. Hydric soils indicators were confirmed by a depleted matrix. W003 displays vegetation, hydrology, and hydric soils, which classify this area as a jurisdictional wetland.

S002 is an intermittent stream within UXO 11 that enters UXO 11 as it drains north from the hills into S004. Approximately one-third of the stream is enclosed within a culvert under the unnamed paved road shown on Figure 7. The stream banks were recently disturbed by the grading that occurred on the banks to improve stormwater drainage. Average water stream depth was approximately 2 inches at the time of delineation, and the stream width at the OHWM was approximately 2 feet wide. The substrate was primarily silts. A waterbody data form is included as Attachment 2.

S003 is an ephemeral stream /dry ditch within UXO 11 and was identified as a dry drainage/erosional feature that conveys stormwater during significant rain events. The stream has a discontinuous channel that leads to a stormwater culvert under the unnamed paved road that discharges into W003 (Figure 7). No channel was identified with W003. The stream was dry at the time of the delineation, and the OHWM was approximately 1.5 feet wide. The substrate was primarily silts. Because of the lack of continuous bed and banks, this dry channel likely would not be considered a jurisdictional resource. A waterbody data form is included as Attachment 2.

S004 is a perennial stream that bisects UXO 11 from east to west (Figure 4). The stream was part of a large stream/wetland complex and, based on field observations, had a perennial flow. The stream had a continuous channel that discharged directly into the Potomac River. Average stream depth was approximately 3 inches at the time of delineation, and the stream width at the OHWM was approximately 5 feet wide. The substrate was primarily gravel. A waterbody data form is included as Attachment 2.

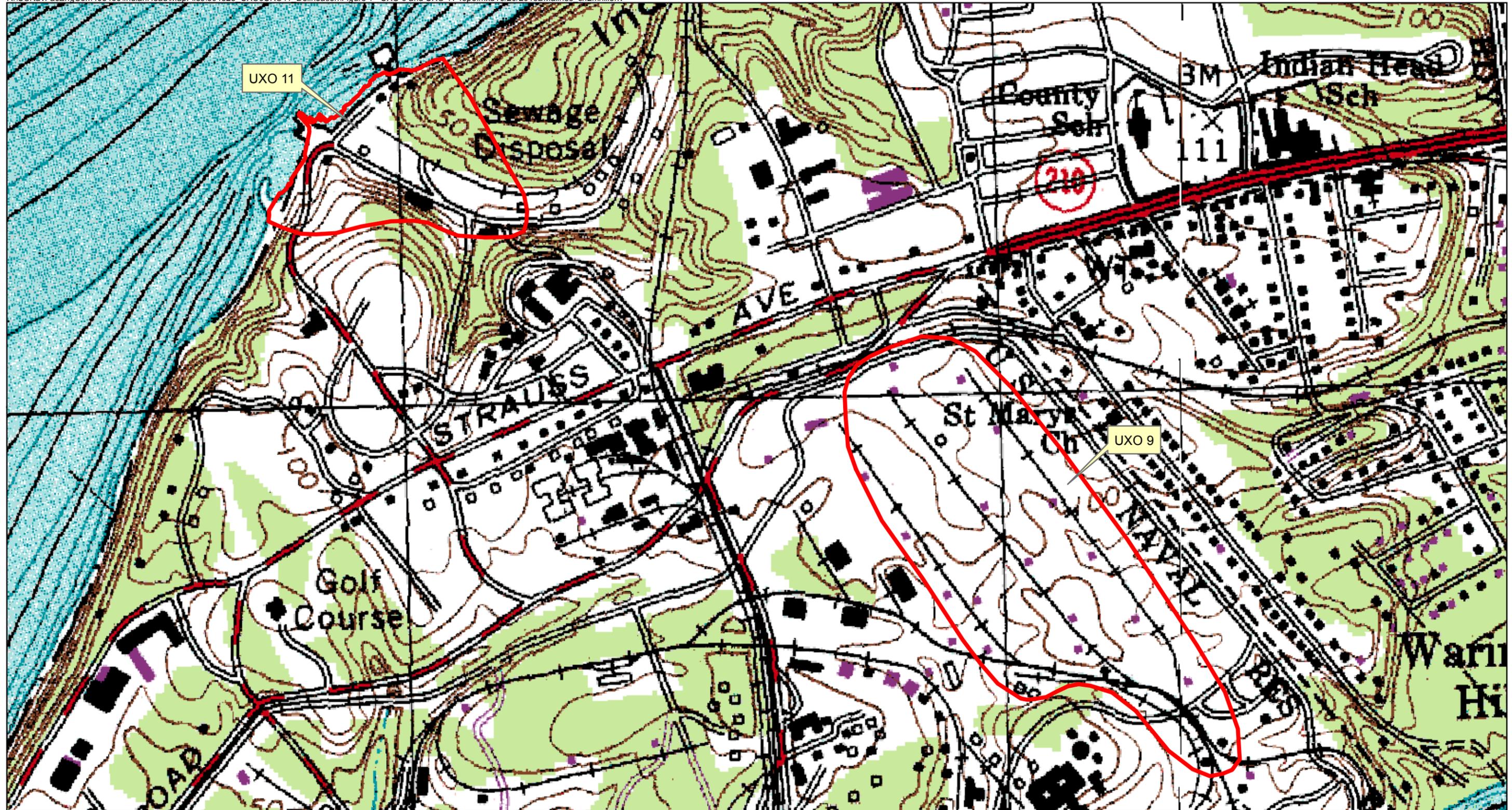
Conclusion

At UXO 9, the two wetlands (W001 and W002) and one waterbody (S001) are likely to be considered jurisdictional Waters of the U.S. Except for waterbody S003, the one wetland (W003) and one waterbody (S002) at UXO 11 also are considered jurisdictional Waters of the U.S. Because of historical disturbance and atypical situations at a site, any wetland or waterbody ultimately would be subject to a jurisdictional determination by USACE, MDE, or both. Pursuant to USACE regulations, restoration and mitigation would be required for temporary and/or permanent impacts to regulated wetlands or waters resulting from remedial practices implemented at a site.

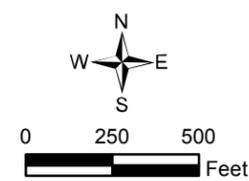
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Figures

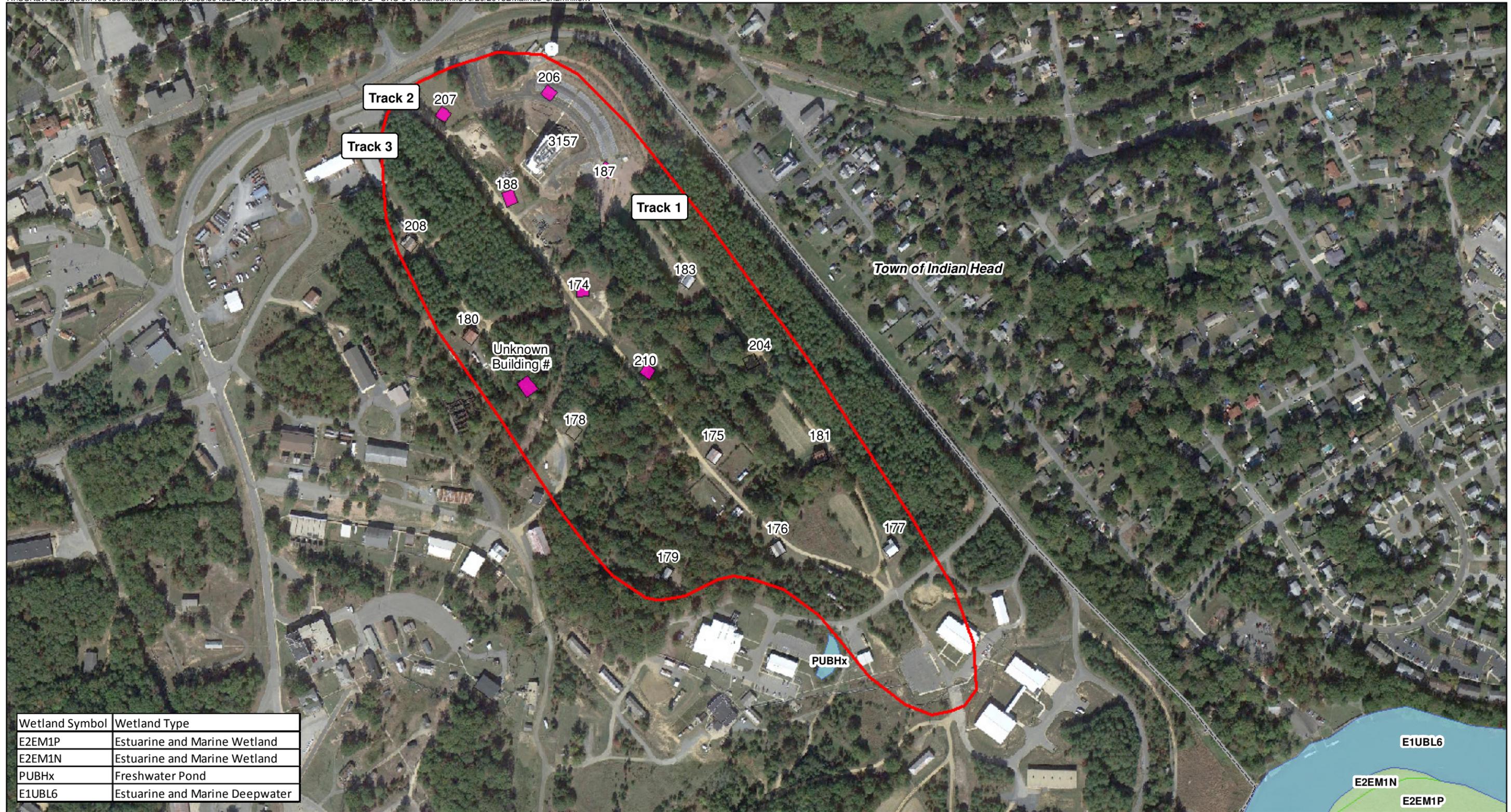


Legend
[Red outline] Approximate Site Boundary



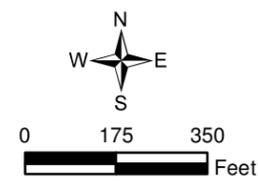
Base Map Source: USGS, 1966

Figure 1
Topographic Map
Results of Wetland Delineation for UXOs 9 and 11
NSFIH, Indian Head, Maryland



| Wetland Symbol | Wetland Type |
|----------------|--------------------------------|
| E2EM1P | Estuarine and Marine Wetland |
| E2EM1N | Estuarine and Marine Wetland |
| PUBHx | Freshwater Pond |
| E1UBL6 | Estuarine and Marine Deepwater |

- Legend**
- Water
 - Wetland Area
 - Approximate Site Boundary
 - Existing Building
 - Demolished Building
 - Installation Boundary



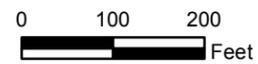
Imagery: Esri ©2015
Wetlands and Hydrography: NHD/NWI, USFWS

Figure 2
UXO 9 National Hydrography Dataset and National Wetlands Inventory
Results of Wetland Delineation for UXOs 9 and 11
NSFIH, Indian Head, Maryland



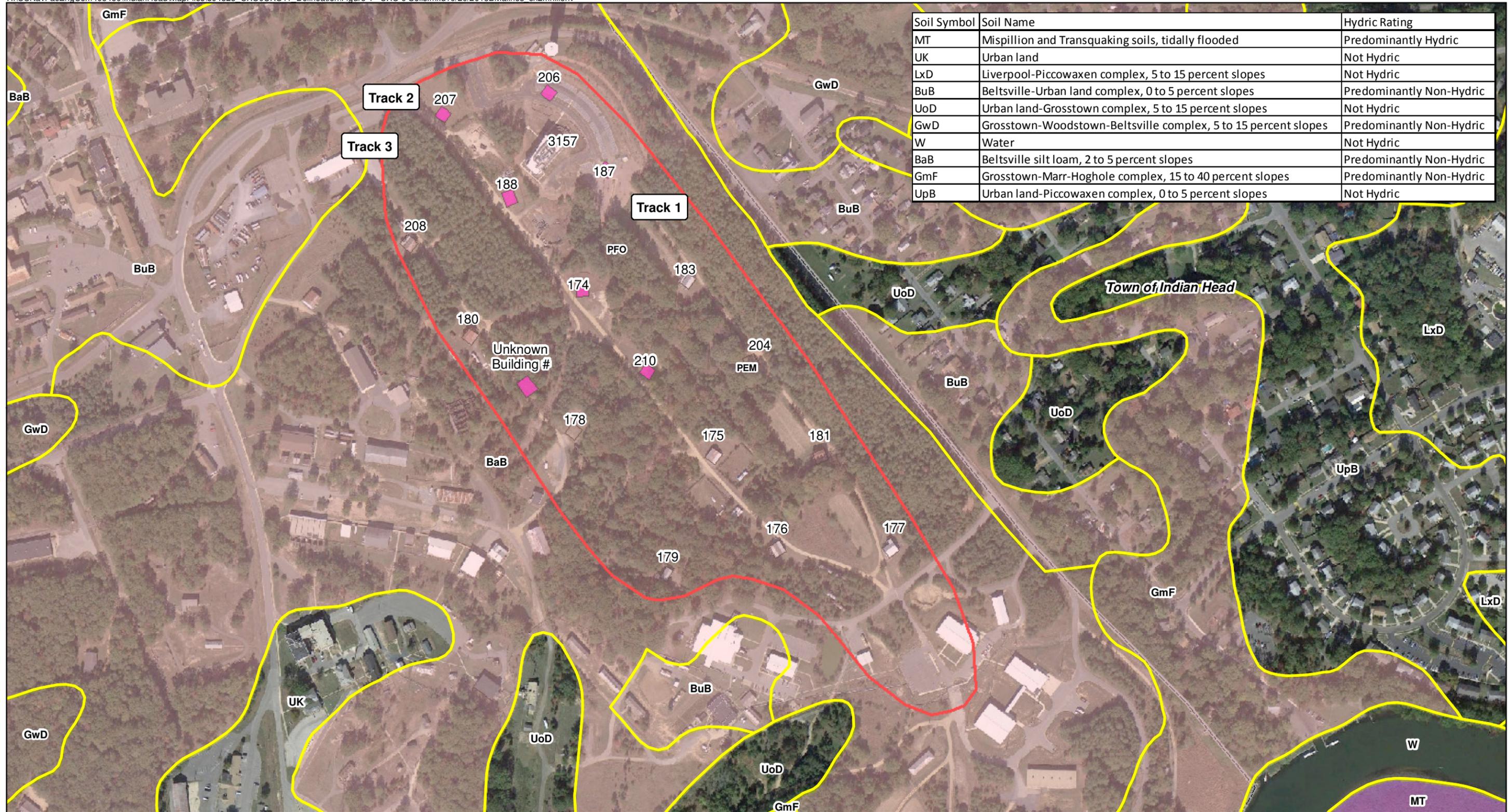
| Wetland Symbol | Wetland Type |
|----------------|--------------------------------|
| E2USN6 | Estuarine and Marine Wetland |
| E1UBL6 | Estuarine and Marine Deepwater |

- Legend**
- Water
 - Wetland Area
 - Approximate Site Boundary



Imagery: Esri ©2015
Wetlands and Hydrography: NHD/NWI, USFWS

Figure 3
UXO 11 National Hydrography Dataset and National Wetlands Inventory
Results of Wetland Delineation for UXOs 9 and 11
NSFIH, Indian Head, Maryland



| Soil Symbol | Soil Name | Hydric Rating |
|-------------|--|--------------------------|
| MT | Mispillion and Transquaking soils, tidally flooded | Predominantly Hydric |
| UK | Urban land | Not Hydric |
| LxD | Liverpool-Piccowaxen complex, 5 to 15 percent slopes | Not Hydric |
| BuB | Beltsville-Urban land complex, 0 to 5 percent slopes | Predominantly Non-Hydric |
| UoD | Urban land-Grosstown complex, 5 to 15 percent slopes | Not Hydric |
| GwD | Grosstown-Woodstown-Beltsville complex, 5 to 15 percent slopes | Predominantly Non-Hydric |
| W | Water | Not Hydric |
| BaB | Beltsville silt loam, 2 to 5 percent slopes | Predominantly Non-Hydric |
| GmF | Grosstown-Marr-Hoghole complex, 15 to 40 percent slopes | Predominantly Non-Hydric |
| UpB | Urban land-Piccowaxen complex, 0 to 5 percent slopes | Not Hydric |

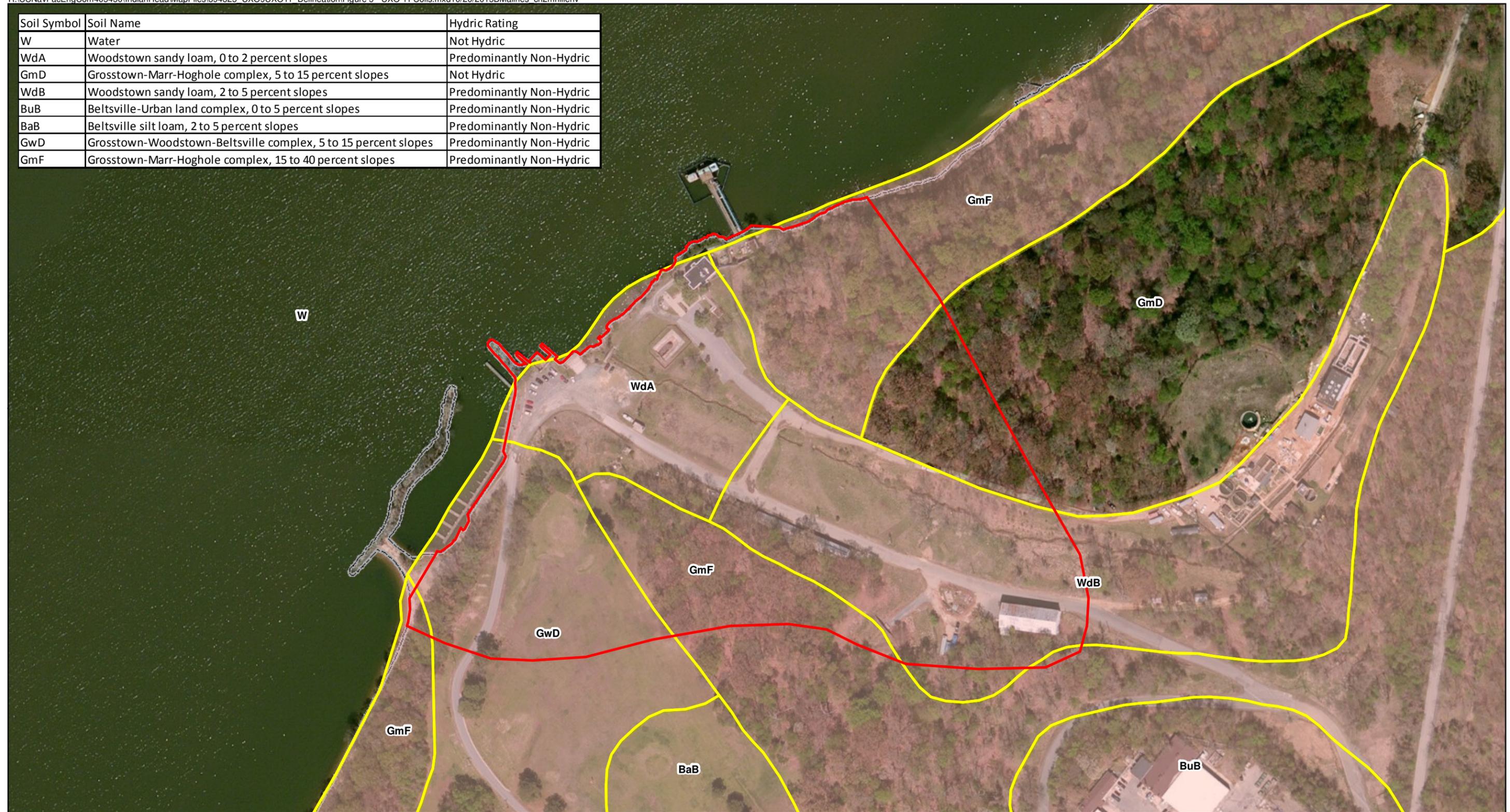
- Legend**
- Approximate Site Boundary
 - Existing Building
 - Demolished Building
 - Not Hydric
 - Predominantly Non-Hydric
 - Predominantly Hydric
 - Installation Boundary



Imagery Source: ©2014 Google
Soils: USDA, NRCS

Figure 4
UXO 9 Soils Map
Results of Wetland Delineation for UXOs 9 and 11
NSFIH, Indian Head, Maryland

| Soil Symbol | Soil Name | Hydric Rating |
|-------------|--|--------------------------|
| W | Water | Not Hydric |
| WdA | Woodstown sandy loam, 0 to 2 percent slopes | Predominantly Non-Hydric |
| GmD | Grosstown-Marr-Hoghole complex, 5 to 15 percent slopes | Not Hydric |
| WdB | Woodstown sandy loam, 2 to 5 percent slopes | Predominantly Non-Hydric |
| BuB | Beltsville-Urban land complex, 0 to 5 percent slopes | Predominantly Non-Hydric |
| BaB | Beltsville silt loam, 2 to 5 percent slopes | Predominantly Non-Hydric |
| GwD | Grosstown-Woodstown-Beltsville complex, 5 to 15 percent slopes | Predominantly Non-Hydric |
| GmF | Grosstown-Marr-Hoghole complex, 15 to 40 percent slopes | Predominantly Non-Hydric |

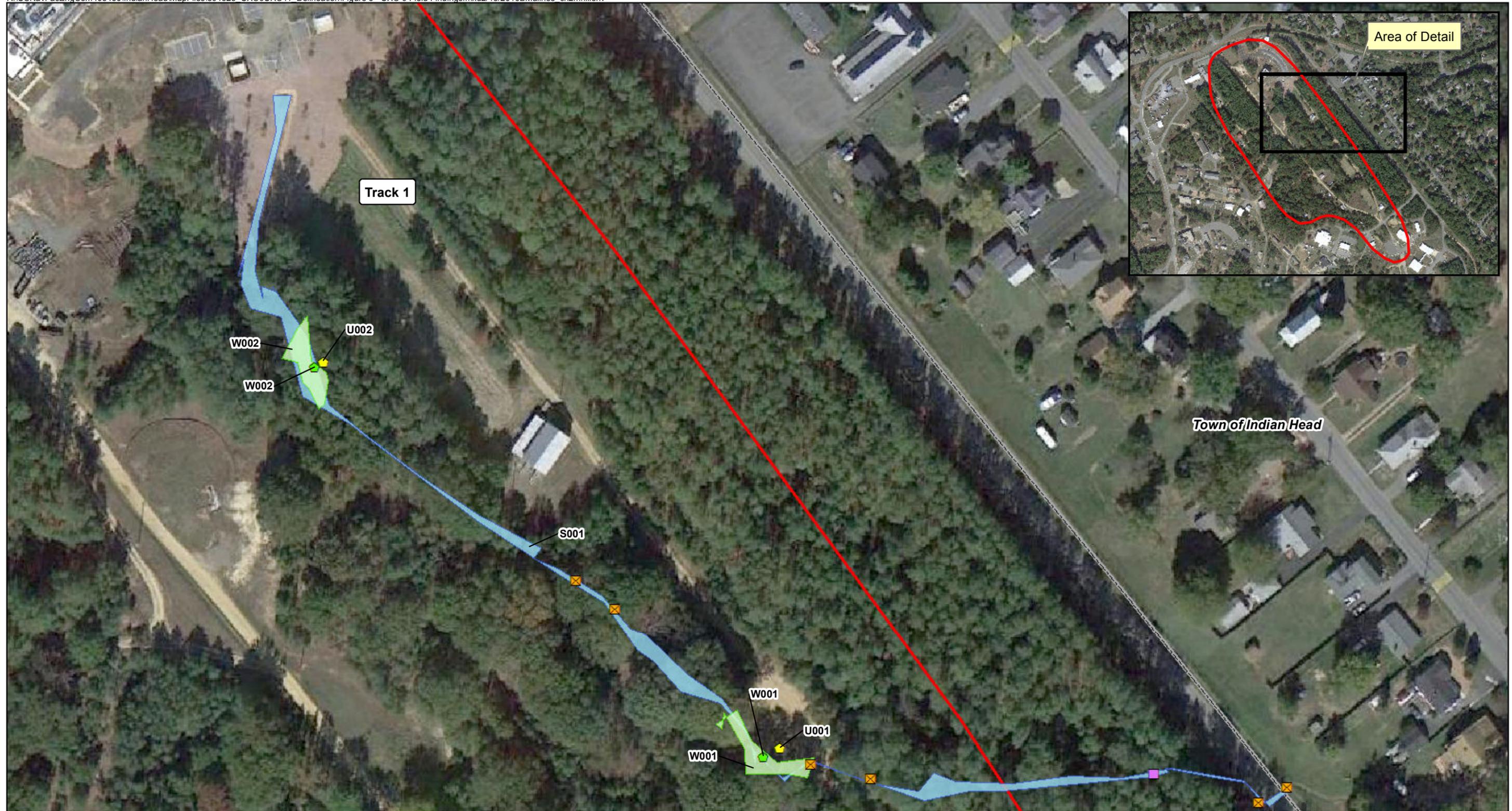


Legend
 [Red outline] Approximate Site Boundary
Soil Unit
 [Yellow outline] Not Hydric
 [Light Yellow outline] Predominantly Non-Hydric



Imagery: Esri ©2015
 Soils: USDA, NRCS

Figure 5
 UXO 11 Soils Map
 Results of Wetland Delineation for UXOs 9 and 11
 NSFII, Indian Head, Maryland



- Legend**
-  Culvert
 -  Upland Data Point
 -  Wetland Data Point
 -  End of Defined Channel
 -  Wetland
 -  Waterbody
 -  Approximate Site Boundary
 -  Installation Boundary

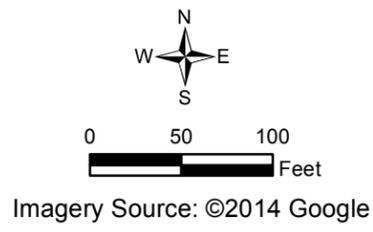


Figure 6
UXO 9 Wetland and Waterbody Delineation Map
Results of Wetland Delineation for UXOs 9 and 11
NSFIH, Indian Head, Maryland



- Legend**
- Culvert
 - Stream
 - ◆ Upland Data Point
 - ◆ Wetland Data Point
 - Stormwater Drainage
 - - - Open Ended Feature
 - Stream
 - - - Stream - Underground
 - Wetland
 - Approximate Site Boundary



Imagery: Esri ©2015

Figure 7
 UXO 11 Wetland and Waterbody Delineation Map
 Results of Wetland Delineation for UXOs 9 and 11
 NSFIIH, Indian Head, Maryland

Attachment 1
Photo Log

UXO 9
Photo Log



Photo 1 **Direction:** Northwest
Notes: W001 PEM.



Photo 2 **Direction:** North
Notes: W002 PFO

UXO 9
Photo Log



Photo 3 **Direction:** North
Notes: S001 – Approximate midpoint.



Photo 4 **Direction:** South
Notes: S001, as it exits stormwater drain from the parking lot.

UXO 9
Photo Log



Photo 5 **Direction:** west
Notes: S001 exiting the facility.



Photo 6 **Direction:** South
Notes: S001, near the edge of the site boundary.

UXO 11
Photo Log



Photo 7 **Direction:** East
Notes: W003, PEM

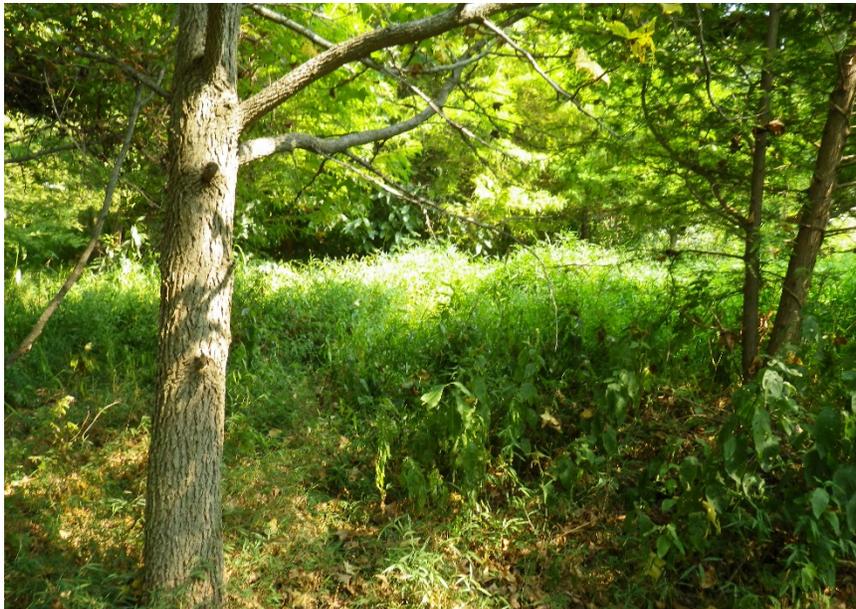


Photo 8 **Direction:** south
Notes: W004, Forest Wetland area adjacent to S004.

UXO 11
Photo Log



Photo 9 **Direction:** East
Notes: S002, Intermittent



Photo 10 **Direction:** south
Notes: S003. Ephemeral

UXO 11
Photo Log

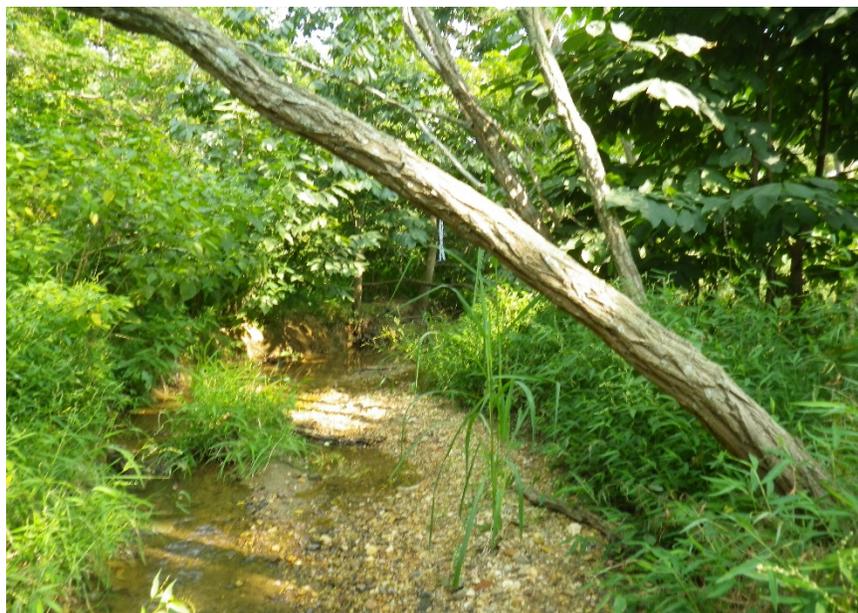


Photo 11 **Direction: East**
Notes: S004, Perennial

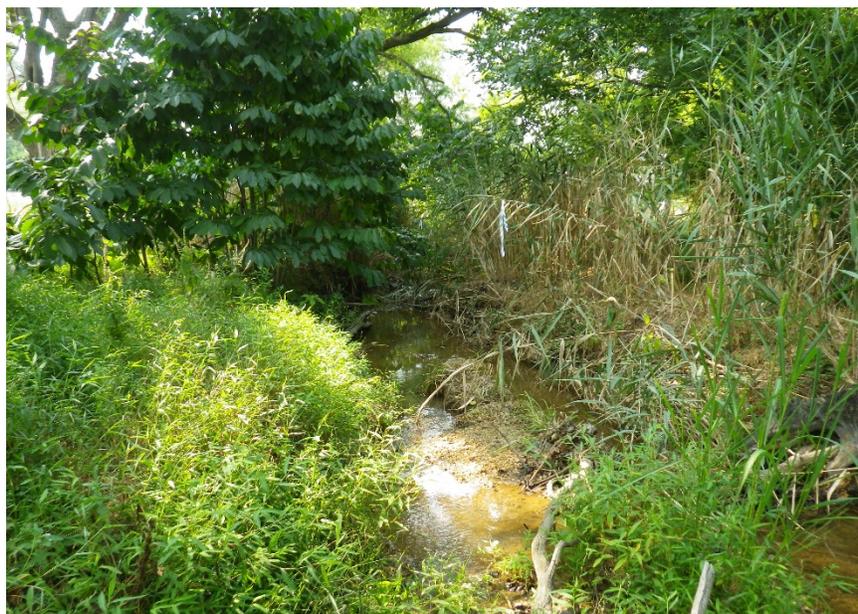


Photo 12 **Direction: West**
Notes: S004, Perennial

Attachment 2
Data Forms

WATERBODY DATA SHEET

| | |
|---------------------------------------|---|
| WATERBODY ID No.: S001 | WATERBODY NAME: UNT Mattawoman |
| SURVEY TYPE: Drainage channel | |
| DATE: 8/31/2015 | CLIENT/PROJECT NAME: NavyClean / UXO 9 |
| INVESTIGATORS: BC/GG | ROVER FILE: R083106A-IH |
| STATE/COUNTY: Maryland/Charles | QUAD NAME: Peterstown |

WATERBODY CHARACTERISTICS

| | | | |
|---|-----------|---|---|
| WATERBODY TYPE: | Stream | | |
| FLOW EVENTS/YEAR: | Unknown | | |
| FLOW TYPE: | Ephemeral | | |
| AVG. STREAM DEPTH: | 0 (in) | | |
| AVG. STREAM WIDTH (WATER SURFACE): | 0 (ft) | TOP OF BANK (AT CROSSING LOCATION): 10 (ft) | ORDINARY HIGH WATER MARK WIDTH (AT CROSSING LOCATION): 4(ft) |
| ORDINARY HIGH WATER MARK INDICATORS: | Scour, | | |
| AVG. BANK HEIGHT: | 2 (ft) | | |
| AVG. BANK SLOPE (RATIO): | 2:1 | | |

QUALITATIVE ATTRIBUTES

| | | | |
|-------------------------------------|--|--|--|
| AVERAGE WATER APPEARANCE: | No Water Present - In most locations | | |
| PRIMARY SUBSTRATE: | Silts/Vegetated | | |
| POTENTIAL HABITAT FOR: | | | |
| RIPARIAN ZONE: | WIDTH OF NATURAL VEGETATION ZONE FROM EDGE OF ACTIVE CHANNEL OUT ONTO FLOOD PLAN: 50 (ft) | | |
| | TYPE OF VEGETATION PRESENT: Herbaceous | | |
| WETLAND FRINGE (IF PRESENT): | | | |
| CHANNEL CONDITION: | Not Significant | | |
| CHANNEL TYPE: | Artificial or manipulated | CHANNEL GEOMETRY: RELATIVELY STRAIGHT | |

COMMENTS

Stream appeared to be a manipulated ditch exiting stormwater culvert from parking area. Channel was inconsistent in wetland locations and flattened out before draining into a grassy road side ditch and then exiting the base fence line, again becoming channelized and flowing offsite through residential neighborhood.

STREAM QUALITY: Low - Due to alternations and lack of water and habitat.

HIGH QUALITY: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

LOW QUALITY: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Navy Site UXO 9 City/County: Indian Head/ Charles County Sampling Date: 8/31/2015
 Applicant/Owner: US NAVY State: MD Sampling Point: W001
 Investigator(s): BC, GG Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR or MLRA): LRR T Outer Coastal Plain Lat: 38.353822 Long: -77.100522 Datum: WGS 84
 Soil Map Unit Name: BaB Beltsville silt loam, 2 to 5 percent slopes NWI classification: NA

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

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

| | |
|---|--|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ |
| Remarks: Soils appeared disturbed by the presence of mixed layers, glass, and debris, but the native layer under the disturbed soil layer appeared to be under reducing conditions. Soils determined to be problematic hydric soils due to the inferred disturbance. | |

HYDROLOGY

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|---|---|---|---|--|---|--|--|---|--|---|---|---|--|--|--|--|--|---|--|--|--|--|--|--|---|--|--|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table> | <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 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) <table style="width:100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)</td></tr> </table> | <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input 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) |
| <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 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) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <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 <u>X</u> No _____ Depth (inches): <u>0"</u> (surface) | Wetland Hydrology Present? Yes <u>X</u> No _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Remarks: The wetland is located in an area where the ephemeral stream (S001), which was dry at the time of the delineation, flattens out near Track 1 (a dirt road), prior to entering a culvert and continuing as a channelized waterbody. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

Sampling Point: W001

| | Absolute % Cover | Dominant Species? | Indicator Status | |
|--|------------------|-------------------|------------------|-------------------------------|
| Tree Stratum (Plot size: <u>30</u>) | | | | |
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| 8. | | | | |
| _____ = Total Cover | | | | |
| 50% of total cover: _____ | | | | 20% of total cover: _____ |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | |
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| 8. | | | | |
| _____ = Total Cover | | | | |
| 50% of total cover: _____ | | | | 20% of total cover: _____ |
| Herb Stratum (Plot size: <u>5</u>) | | | | |
| 1. | <u>65</u> | <u>Y</u> | <u>FAC</u> | |
| 2. | <u>10</u> | <u>N</u> | <u>OBL</u> | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| 8. | | | | |
| 9. | | | | |
| 10. | | | | |
| 11. | | | | |
| 12. | | | | |
| _____ = Total Cover | | | | |
| 50% of total cover: <u>32.5</u> | | | | 20% of total cover: <u>13</u> |
| Woody Vine Stratum (Plot size: _____) | | | | |
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| _____ = Total Cover | | | | |
| 50% of total cover: _____ | | | | 20% of total cover: _____ |
| <p>Remarks: (If observed, list morphological adaptations below).</p> <p>Microstegium vimineum is non-native / invasive.</p> | | | | |

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

| | | |
|----------------|-------------------|-----------------|
| | Total % Cover of: | Multiply by: |
| OBL species | <u>10</u> | x 1 = <u>10</u> |
| FACW species | _____ | x 2 = _____ |
| FAC species | <u>10</u> | x 3 = <u>30</u> |
| FACU species | _____ | x 4 = _____ |
| UPL species | _____ | x 5 = _____ |
| Column Totals: | <u>20</u> (A) | <u>40</u> (B) |

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes No _____

SOIL

Sampling Point: W001

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 | | |
| 0-6 | 7.5YR 4/6 | | None | | | | Silty loam | Mixed material seems to be fill |
| 6-14 | 2.5YR 4/2 | 95 | 10YR 4/6 | 5 | C | PL | Silty loam | Appears to be native soil layer. |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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:

Soils were highly disturbed. Soils appeared disturbed by the presence of mixed layers, glass, and debris, but the native layer under the disturbed soil layer appeared to be under reducing conditions. Problematic hydric soils.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Navy Site UXO 9 City/County: Indian Head/ Charles County Sampling Date: 8/31/2015
 Applicant/Owner: US NAVY State: MD Sampling Point: U001
 Investigator(s): BC, GG Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 2-3
 Subregion (LRR or MLRA): LRR T Outer Coastal Plain Lat: 38.353827 Long: -77.100498 Datum: WGS 84
 Soil Map Unit Name: BaB Beltsville silt loam, 2 to 5 percent slopes NWI classification: NA

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

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

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

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 _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe) | Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | |
| Remarks: Upland data point 001. | |

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

Sampling Point: U001

| | Absolute % Cover | Dominant Species? | Indicator Status | |
|---|------------------|-------------------|------------------|--|
| Tree Stratum (Plot size: <u>30</u>) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| 50% of total cover: _____ 20% of total cover: _____ | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| 50% of total cover: _____ 20% of total cover: _____ | | | | |
| Herb Stratum (Plot size: <u>5</u>) | | | | |
| 1. <u>Microstegium vimineum</u> | <u>40</u> | <u>Y</u> | <u>FAC</u> | |
| 2. <u>Paspalum notatum</u> | <u>40</u> | <u>Y</u> | <u>FACU</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| 12. _____ | _____ | _____ | _____ | |
| <u>80</u> = Total Cover | | | | |
| 50% of total cover: <u>40</u> 20% of total cover: <u>16</u> | | | | |
| 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). | | | | |
| Previously disturbed road shoulder. | | | | |
| 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>2</u> (B) | | | | |
| Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B) | | | | |
| Prevalence Index worksheet: | | | | |
| Total % Cover of: _____ Multiply by: _____ | | | | |
| OBL species _____ x 1 = _____ | | | | |
| FACW species _____ x 2 = _____ | | | | |
| FAC species <u>40</u> x 3 = <u>120</u> | | | | |
| FACU species <u>40</u> x 4 = <u>160</u> | | | | |
| UPL species _____ x 5 = _____ | | | | |
| Column Totals: <u>80</u> (A) <u>280</u> (B) | | | | |
| Prevalence Index = B/A = <u>3.5</u> | | | | |
| Hydrophytic Vegetation Indicators: | | | | |
| ___ 1 - Rapid Test for Hydrophytic Vegetation | | | | |
| ___ 2 - Dominance Test is >50% | | | | |
| ___ 3 - Prevalence Index is ≤3.0 ¹ | | | | |
| ___ Problematic Hydrophytic Vegetation ¹ (Explain) | | | | |
| ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | |
| Definitions of Four Vegetation Strata: | | | | |
| Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. | | | | |
| Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. | | | | |
| Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. | | | | |
| Woody vine – All woody vines greater than 3.28 ft in height. | | | | |
| Hydrophytic Vegetation Present? Yes _____ No <u>X</u> | | | | |

SOIL

Sampling Point: U001

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 | | |
| 0-12 | 10YR 4/6 | | none | | | | silt loam | Mixed black fragments |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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:

Disturbed soil, appears to be filled, graded.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Navy Site UXO 9 City/County: Indian Head/ Charles County Sampling Date: 8/31/2015
 Applicant/Owner: US NAVY State: MD Sampling Point: W002
 Investigator(s): BC, GG Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR or MLRA): LRR T Outer Coastal Plain Lat: 38.59506 Long: -77.169739 Datum: WGS 84
 Soil Map Unit Name: Beltsville silt loam, 2 to 5 percent slopes NWI classification: NA

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

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

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

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 checked="" 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 <u>X</u> No _____ Depth (inches): <u>0-12 (surface)</u> | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | |
| Remarks: Located within S001 | |

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

Sampling Point: W002

| | Absolute % Cover | Dominant Species? | Indicator Status | |
|--|------------------|-------------------|------------------|---|
| Tree Stratum (Plot size: <u>30</u>) | | | | |
| 1. <u>Quercus phellos</u> | <u>25</u> | <u>Y</u> | <u>FACW</u> | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) |
| 2. <u>Liquidambar styraciflua</u> | <u>50</u> | <u>Y</u> | <u>FAC</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| <u>75</u> = Total Cover 50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u> | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | |
| 1. <u>Liquidambar styraciflua</u> | <u>10</u> | <u>Y</u> | <u>FAC</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>25</u> x 2 = <u>50</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>85</u> (A) <u>230</u> (B) Prevalence Index = B/A = <u>2.70</u> |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| <u>10</u> = Total Cover 50% of total cover: <u>5</u> 20% of total cover: <u>2</u> | | | | |
| Herb Stratum (Plot size: <u>5</u>) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| 12. _____ | _____ | _____ | _____ | |
| _____ = Total Cover 50% of total cover: _____ 20% of total cover: _____ | | | | |
| Woody Vine Stratum (Plot size: _____) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover 50% of total cover: _____ 20% of total cover: _____ | | | | |
| Remarks: (If observed, list morphological adaptations below). | | | | Hydrophytic Vegetation Present? Yes <u>X</u> No _____ |
| Trees located along the edge of the seasonally ponded area but make up the total canopy cover. | | | | |

SOIL

Sampling Point: W002

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 | 5Y 5/2 | 90 | 10 YR 5/8 | 5 | C | PL | Clay loam | saturated |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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: Navy Site UXO 9 City/County: Indian Head/ Charles County Sampling Date: 8/31/2015
 Applicant/Owner: US NAVY State: MD Sampling Point: U002
 Investigator(s): BC, GG Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 2
 Subregion (LRR or MLRA): LRR T Outer Coastal Plain Lat: 38.59508 Long: -77.169709 Datum: WGS 84
 Soil Map Unit Name: Beltsville silt loam, 2 to 5 percent slopes NWI classification: NA

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

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

| | |
|--|---|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: Upland reference point U002, adjacent to Wetland W002. | |

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 _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe) | Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | |
| Remarks: | |

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

Sampling Point: U002

| | Absolute % Cover | Dominant Species? | Indicator Status | |
|---|------------------|-------------------|------------------|--|
| Tree Stratum (Plot size: <u>30</u>) | | | | |
| 1. <u>Pinus virginiana</u> | <u>75</u> | <u>Y</u> | <u>NI</u> | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) |
| 2. <u>Quercus phellos</u> | <u>10</u> | <u>N</u> | <u>FAC</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| <u>85</u> = Total Cover | | | | |
| 50% of total cover: <u>42.5</u> 20% of total cover: <u>17</u> | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | |
| 1. <u>Liquidambar styraciflua</u> | <u>15</u> | <u>Y</u> | <u>FAC</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>50</u> x 3 = <u>150</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>50</u> (A) <u>150</u> (B) Prevalence Index = B/A = <u>3.0</u> |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| <u>15</u> = Total Cover | | | | |
| 50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u> | | | | |
| Herb Stratum (Plot size: <u>5</u>) | | | | |
| 1. <u>Pinus virginiana</u> | <u>15</u> | <u>Y</u> | <u>FAC</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 checked="" type="checkbox"/> <u>X</u> Problematic Hydrophytic Vegetation ¹ (Explain) |
| 2. <u>Smilax rotundifolia</u> | <u>10</u> | <u>Y</u> | <u>FAC</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| 12. _____ | _____ | _____ | _____ | |
| <u>25</u> = Total Cover | | | | |
| 50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u> | | | | |
| 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). | | | | |
| All dominant vegetation is FAC, excluding the upland Pinus virginiana, which dominate the upland landscape. | | | | |
| | | | | 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. Forested dominated by upland pines, which do not have a wetland indicator. Hydrophytic Vegetation Present? Yes _____ No <u>X</u> |

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 | 2.5 6/4 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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 _____ No X

Remarks:

WATERBODY DATA SHEET

| | | | |
|---|--|-------------------------------|--|
| WATERBODY ID No.: S002 | WATERBODY NAME: UNT to Potomac | | |
| SURVEY TYPE: Wetland / Waterbody | | | |
| DATE: 9/1/2015 | CLIENT/PROJECT NAME: NavyClean / UXO 11 | | |
| INVESTIGATORS: BC/GG | | ROVER FILE: R090102015 | |
| STATE/COUNTY: Maryland/Charles | | QUAD NAME: Peterstown | |

WATERBODY CHARACTERISTICS

| | | | |
|---|--------------|---|--|
| WATERBODY TYPE: | Stream | | |
| FLOW EVENTS/YEAR: | Unknown | | |
| FLOW TYPE: | Intermittent | | |
| AVG. STREAM DEPTH: | 2 (in) | | |
| AVG. STREAM WIDTH (WATER SURFACE): | 1 (ft) | TOP OF BANK (AT CROSSING LOCATION): 14 (ft) | ORDINARY HIGH WATER MARK WIDTH (AT CROSSING LOCATION): 2 (ft) |
| ORDINARY HIGH WATER MARK INDICATORS: | Scour | | |
| AVG. BANK HEIGHT: | 2 (ft) | | |
| AVG. BANK SLOPE (RATIO): | 2:1 | | |

QUALITATIVE ATTRIBUTES

| | | | |
|-------------------------------------|--|--|--|
| AVERAGE WATER APPEARANCE: | Clear | | |
| PRIMARY SUBSTRATE: | Silts | | |
| POTENTIAL HABITAT FOR: | NA | | |
| RIPARIAN ZONE: | WIDTH OF NATURAL VEGETATION ZONE FROM EDGE OF ACTIVE CHANNEL OUT ONTO FLOOD PLAN: 50 (ft) | | |
| | TYPE OF VEGETATION PRESENT: Herbaceous | | |
| WETLAND FRINGE (IF PRESENT): | NA | | |
| CHANNEL CONDITION: | Not Significant erosion. | | |
| CHANNEL TYPE: | Manipulated | CHANNEL GEOMETRY: RELATIVELY STRAIGHT | |

COMMENTS

Stream appeared to be a manipulated stream that crosses under the road. Recent grading on both sides of the intermittent stream.

STREAM QUALITY: Low

HIGH QUALITY: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

LOW QUALITY: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

WATERBODY DATA SHEET

| | |
|---|--|
| WATERBODY ID No.: S003 / Ditch | WATERBODY NAME: UNT to Potomac |
| SURVEY TYPE: Wetland / Waterbody | |
| DATE: 9/1/2015 | CLIENT/PROJECT NAME: NavyClean / UXO 11 |
| INVESTIGATORS: BC/GG | ROVER FILE: R090102015SITE11 |
| STATE/COUNTY: Maryland/Charles | QUAD NAME: Peterstown |

WATERBODY CHARACTERISTICS

| | | | |
|---|-----------|--|--|
| WATERBODY TYPE: | Stream | | |
| FLOW EVENTS/YEAR: | Unknown | | |
| FLOW TYPE: | Ephemeral | | |
| AVG. STREAM DEPTH: | 0 (in) | | |
| AVG. STREAM WIDTH (WATER SURFACE): | 0 (ft) | TOP OF BANK (AT CROSSING LOCATION): 3 (ft) | ORDINARY HIGH WATER MARK WIDTH (AT CROSSING LOCATION): 1.5 (ft) |
| ORDINARY HIGH WATER MARK INDICATORS: | Scour | | |
| AVG. BANK HEIGHT: | 2 (ft) | | |
| AVG. BANK SLOPE (RATIO): | 2:1 | | |

QUALITATIVE ATTRIBUTES

| | | | |
|-------------------------------------|---|--|--|
| AVERAGE WATER APPEARANCE: | NA | | |
| PRIMARY SUBSTRATE: | Silts | | |
| POTENTIAL HABITAT FOR: | NA | | |
| RIPARIAN ZONE: | WIDTH OF NATURAL VEGETATION ZONE FROM EDGE OF ACTIVE CHANNEL OUT ONTO FLOOD PLAN: 0 (ft) | | |
| | TYPE OF VEGETATION PRESENT: Herbaceous | | |
| WETLAND FRINGE (IF PRESENT): | NA | | |
| CHANNEL CONDITION: | Not Significant erosion. | | |
| CHANNEL TYPE: | Manipulated | CHANNEL GEOMETRY: RELATIVELY STRAIGHT | |

COMMENTS

Discontinuous ditch / ephemeral stream channel that flattens out on hillslope. Water discharged from channels would then enter stormwater culvert under road and then into the wetland area.

STREAM QUALITY: Low

HIGH QUALITY: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

LOW QUALITY: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

WATERBODY DATA SHEET

| | |
|---|--|
| WATERBODY ID No.: S004 | WATERBODY NAME: UNT to the Potomac |
| SURVEY TYPE: Wetland / Waterbody | |
| DATE: 9/1/2015 | CLIENT/PROJECT NAME: NavyClean / UXO 11 |
| INVESTIGATORS: BC/GG | ROVER FILE: R090102015 |
| STATE/COUNTY: Maryland/Charles | QUAD NAME: Peterstown |

WATERBODY CHARACTERISTICS

| | | | |
|---|--------------------|--|--|
| WATERBODY TYPE: | Stream | | |
| FLOW EVENTS/YEAR: | Unknown | | |
| FLOW TYPE: | Perennial | | |
| AVG. STREAM DEPTH: | 3 (in) | | |
| AVG. STREAM WIDTH (WATER SURFACE): | 3 (ft) | TOP OF BANK (AT CROSSING LOCATION): 8 (ft) | ORDINARY HIGH WATER MARK WIDTH (AT CROSSING LOCATION): 5 (ft) |
| ORDINARY HIGH WATER MARK INDICATORS: | Scour and shelving | | |
| AVG. BANK HEIGHT: | 2 (ft) | | |
| AVG. BANK SLOPE (RATIO): | Vertical (<=1:1) | | |

QUALITATIVE ATTRIBUTES

| | | | |
|-------------------------------------|--|--|--|
| AVERAGE WATER APPEARANCE: | Clear | | |
| PRIMARY SUBSTRATE: | Gravel | | |
| POTENTIAL HABITAT FOR: | NA | | |
| RIPARIAN ZONE: | WIDTH OF NATURAL VEGETATION ZONE FROM EDGE OF ACTIVE CHANNEL OUT ONTO FLOOD PLAN: 50 (ft) | | |
| | TYPE OF VEGETATION PRESENT: Forested and Herbaceous | | |
| WETLAND FRINGE (IF PRESENT): | Yes - PFO Northside/PEM Southside | | |
| CHANNEL CONDITION: | Erosion (downcutting and undercut banks) | | |
| CHANNEL TYPE: | Manipulated | CHANNEL GEOMETRY: RELATIVELY STRAIGHT | |

COMMENTS

Metal debris throughout stream channel bottom.

STREAM QUALITY: Low

HIGH QUALITY: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

LOW QUALITY: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: US Navy UXO 11 City/County: Charles County Sampling Date: 9/1/15
 Applicant/Owner: US NAVY State: MA Sampling Point: W003
 Investigator(s): BC, GG Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3
 Subregion (LRR or MLRA): LRR T Outer Coastal Plain Lat: 38.355713 Long: -77.104514 Datum: WGS
 Soil Map Unit Name: WdB Woodstown sandy loam, 2 to 5 percent slopes NWI classification: NA

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

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

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

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 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 <u>X</u> No _____ Depth (inches): <u>0-12 (surface)</u> | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | |
| Remarks: Wetland hydrology confirmed by saturation. | |

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

Sampling Point: W003

| | Absolute % Cover | Dominant Species? | Indicator Status | |
|--|------------------|-------------------|------------------|--|
| Tree Stratum (Plot size: <u>30</u>) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| 50% of total cover: _____ 20% of total cover: _____ | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | |
| 1. <u>Liquidambar styraciflua</u> | <u>10</u> | <u>Y</u> | <u>FAC</u> | |
| 2. <u>Salix nigra</u> | <u>5</u> | <u>N</u> | <u>OBL</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| 50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u> | | | | |
| Herb Stratum (Plot size: <u>5</u>) | | | | |
| 1. <u>Leersia oryzoides</u> | <u>50</u> | <u>Y</u> | <u>OBL</u> | |
| 2. <u>Persicaria sagittata</u> | <u>20</u> | <u>Y</u> | <u>OBL</u> | |
| 3. <u>Mentha arvensis</u> | <u>10</u> | <u>N</u> | <u>FACW</u> | |
| 4. <u>Polygonum spp</u> | <u>4</u> | <u>N</u> | <u>NI</u> | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| 12. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| 50% of total cover: <u>42</u> 20% of total cover: <u>16.8</u> | | | | |
| Woody Vine Stratum (Plot size: _____) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| 50% of total cover: _____ 20% of total cover: _____ | | | | |
| <p>Remarks: (If observed, list morphological adaptations below).</p> <p style="text-align: center; font-size: 1.2em; margin-top: 20px;">Hydric vegetation confirmed by rapid test, dominance test, and prevalence index.</p> | | | | |

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>75</u> | x 1 = <u>75</u> |
| FACW species | <u>10</u> | x 2 = <u>20</u> |
| FAC species | <u>10</u> | x 3 = <u>30</u> |
| FACU species | _____ | x 4 = _____ |
| UPL species | _____ | x 5 = _____ |
| Column Totals: | <u>95</u> (A) | <u>125</u> (B) |

Prevalence Index = B/A = 1.31

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes No _____

SOIL

Sampling Point: W003

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 | 10YR 4/1 | 90 | 5YR 4/6 | 10 | | | silty clay loam | Redox concentrations begin at surface. |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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: US Navy UXO 11 City/County: Charles County Sampling Date: 9/1/15
 Applicant/Owner: US NAVY State: MA Sampling Point: W003 - PFO
 Investigator(s): BC, GG Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): flat Slope (%): 0-1
 Subregion (LRR or MLRA): LRR T Outer Coastal Plain Lat: 38.355826 Long: -77.104717 Datum: WGS
 Soil Map Unit Name: WdA Woodstown sandy loam, 0 to 2 percent slopes and WdB Woodstown sandy loam, 2 to 5 percent slopes NWI classification: NA

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

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

| | |
|---|--|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ |
| Remarks: W003C is a PFO forested wetland | |

HYDROLOGY

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|---|--|---|---|--|---|--|--|---|--|---|---|---|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table> | <input 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 checked="" type="checkbox"/> Water-Stained Leaves (B9) | | Secondary Indicators (minimum of two required) <table style="width:100%; border: none;"> <tr><td><input checked="" type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)</td></tr> </table> | <input checked="" 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) |
| <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 checked="" type="checkbox"/> Water-Stained Leaves (B9) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" 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 <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: W003-PFO

| | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | | | |
|---|------------------|-------------------|------------------|--|-------------------|--------------|-----------------------|-----------------|------------------------|-------------|------------------------|------------------|--------------------|-------------|-------------------|-------------|-------------------------------|----------------|--------------------------------------|--|
| Tree Stratum (Plot size: <u>30</u>) | | | | | | | | | | | | | | | | | | | | |
| 1. <u>Liquidambar styraciflua</u> | <u>90</u> | <u>Y</u> | <u>FAC</u> | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) | | | | | | | | | | | | | | | | |
| 2. <u>Taxodium distichum</u> | <u>10</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | | | |
| 3. _____ | | | | | | | | | | | | | | | | | | | | |
| 4. _____ | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | | | | | | | | | | | | | | | | | | | | |
| 6. _____ | | | | | | | | | | | | | | | | | | | | |
| 7. _____ | | | | | | | | | | | | | | | | | | | | |
| 8. _____ | | | | | | | | | | | | | | | | | | | | |
| $\frac{100}{\quad} = \text{Total Cover}$ 50% of total cover: <u>50</u> 20% of total cover: <u>20</u> | | | | Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:right;">Multiply by:</td> </tr> <tr> <td>OBL species <u>50</u></td> <td>x 1 = <u>50</u></td> </tr> <tr> <td>FACW species <u>15</u></td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species <u>160</u></td> <td>x 3 = <u>320</u></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: <u>225</u> (A)</td> <td><u>370</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>1.64</u></td> </tr> </table> 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) | Total % Cover of: | Multiply by: | OBL species <u>50</u> | x 1 = <u>50</u> | FACW species <u>15</u> | x 2 = _____ | FAC species <u>160</u> | x 3 = <u>320</u> | FACU species _____ | x 4 = _____ | UPL species _____ | x 5 = _____ | Column Totals: <u>225</u> (A) | <u>370</u> (B) | Prevalence Index = B/A = <u>1.64</u> | |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | | | |
| OBL species <u>50</u> | x 1 = <u>50</u> | | | | | | | | | | | | | | | | | | | |
| FACW species <u>15</u> | x 2 = _____ | | | | | | | | | | | | | | | | | | | |
| FAC species <u>160</u> | x 3 = <u>320</u> | | | | | | | | | | | | | | | | | | | |
| FACU species _____ | x 4 = _____ | | | | | | | | | | | | | | | | | | | |
| UPL species _____ | x 5 = _____ | | | | | | | | | | | | | | | | | | | |
| Column Totals: <u>225</u> (A) | <u>370</u> (B) | | | | | | | | | | | | | | | | | | | |
| Prevalence Index = B/A = <u>1.64</u> | | | | | | | | | | | | | | | | | | | | |
| $\frac{20}{\quad} = \text{Total Cover}$ 50% of total cover: <u>10</u> 20% of total cover: <u>4</u> | | | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | | | | | | | | | | | | | | | | | |
| 1. <u>Asimina triloba</u> | <u>10</u> | <u>Y</u> | <u>FAC</u> | | | | | | | | | | | | | | | | | |
| 2. <u>Taxodium distichum</u> | <u>10</u> | <u>Y</u> | <u>OBL</u> | | | | | | | | | | | | | | | | | |
| 3. _____ | | | | | | | | | | | | | | | | | | | | |
| 4. _____ | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | | | | | | | | | | | | | | | | | | | | |
| 6. _____ | | | | | | | | | | | | | | | | | | | | |
| 7. _____ | | | | | | | | | | | | | | | | | | | | |
| 8. _____ | | | | | | | | | | | | | | | | | | | | |
| $\frac{20}{\quad} = \text{Total Cover}$ 50% of total cover: <u>10</u> 20% of total cover: <u>4</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. | | | | | | | | | | | | | | | | |
| $\frac{60}{\quad} = \text{Total Cover}$ 50% of total cover: <u>52.5</u> 20% of total cover: <u>21</u> | | | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: <u>5</u>) | | | | | | | | | | | | | | | | | | | | |
| 1. <u>Microstegium vimineum</u> | <u>60</u> | <u>Y</u> | <u>FAC</u> | | | | | | | | | | | | | | | | | |
| 2. <u>Polygonum hydropiperoides</u> | <u>40</u> | <u>Y</u> | <u>OBL</u> | | | | | | | | | | | | | | | | | |
| 3. <u>Clethra alnifolia</u> | <u>5</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | | | |
| 4. _____ | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | | | | | | | | | | | | | | | | | | | | |
| 6. _____ | | | | | | | | | | | | | | | | | | | | |
| 7. _____ | | | | | | | | | | | | | | | | | | | | |
| 8. _____ | | | | | | | | | | | | | | | | | | | | |
| 9. _____ | | | | | | | | | | | | | | | | | | | | |
| 10. _____ | | | | | | | | | | | | | | | | | | | | |
| 11. _____ | | | | | | | | | | | | | | | | | | | | |
| 12. _____ | | | | | | | | | | | | | | | | | | | | |
| $\frac{105}{\quad} = \text{Total Cover}$ 50% of total cover: <u>52.5</u> 20% of total cover: <u>21</u> | | | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: _____) | | | | | | | | | | | | | | | | | | | | |
| 1. _____ | | | | | | | | | | | | | | | | | | | | |
| 2. _____ | | | | | | | | | | | | | | | | | | | | |
| 3. _____ | | | | | | | | | | | | | | | | | | | | |
| 4. _____ | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | | | | | | | | | | | | | | | | | | | | |
| $\frac{\quad}{\quad} = \text{Total Cover}$ 50% of total cover: _____ 20% of total cover: _____ | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ | | | | | | | | | | | | | | | | |
| Remarks: (If observed, list morphological adaptations below). | | | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: W003-PFO

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 | 10YR 4/2 | 95 | 7.5YR 4/6 | 5 | C | PL | 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 X No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: US Navy UXO 11 City/County: Charles County Sampling Date: 9/1/15
 Applicant/Owner: US NAVY State: MA Sampling Point: U003
 Investigator(s): BC, GG Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 0-5
 Subregion (LRR or MLRA): LRR T Outer Coastal Plain Lat: 38.59919 Long: -77.179321 Datum: WGS
 Soil Map Unit Name: Woodstown sandy loam, 0 to 2 percent slopes (WdA) NWI classification: NA

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

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

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

HYDROLOGY

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

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

Sampling Point: U003

| | Absolute % Cover | Dominant Species? | Indicator Status | |
|---|------------------|-------------------|------------------|--|
| Tree Stratum (Plot size: <u>30</u>) | | | | |
| 1. <u>Robinia pseudoacacia</u> | <u>20</u> | <u>Y</u> | <u>FACU</u> | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B) |
| 2. <u>Juniperus virginiana</u> | <u>10</u> | <u>Y</u> | <u>FACU</u> | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| <u>30</u> = Total Cover | | | | |
| 50% of total cover: <u>10</u> | | | | 20% of total cover: <u>6</u> |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | |
| 1. _____ | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species <u>100</u> x 4 = <u>400</u> UPL species _____ x 5 = _____ Column Totals: <u>100</u> (A) <u>400</u> (B) Prevalence Index = B/A = <u>4.0</u> |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| _____ = Total Cover | | | | |
| 50% of total cover: _____ | | | | 20% of total cover: _____ |
| Herb Stratum (Plot size: <u>5</u>) | | | | |
| 1. <u>Dactylis glomerata</u> | <u>40</u> | <u>Y</u> | <u>FACU</u> | Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) |
| 2. <u>Festuca rubra</u> | <u>20</u> | <u>Y</u> | <u>FACU</u> | |
| 3. <u>Lonicera japonica</u> | <u>10</u> | <u>N</u> | <u>FACU</u> | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| 9. _____ | | | | |
| 10. _____ | | | | |
| 11. _____ | | | | |
| 12. _____ | | | | |
| <u>70</u> = Total Cover | | | | |
| 50% of total cover: <u>35</u> | | | | 20% of total cover: <u>14</u> |
| Woody Vine Stratum (Plot size: _____) | | | | |
| 1. _____ | | | | Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| _____ = Total Cover | | | | |
| 50% of total cover: _____ | | | | 20% of total cover: _____ |
| Remarks: (If observed, list morphological adaptations below). | | | | Hydrophytic Vegetation Present? Yes _____ No <u>X</u> |

SOIL

Sampling Point: U003

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 | | |
| 0-6 | 10YR 3/3 | 100 | | | | | 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 X

Remarks: