

6/1/04-00371

Wetland Delineation Report

Site 4 - Landfill D
St. Juliens Creek Annex
Chesapeake, Virginia

Prepared for
Department of the Navy
Atlantic Division
Naval Facilities Engineering Command

June 2004

CH2MHILL
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Introduction

CH2M HILL has been contracted by the Navy to conduct a wetland delineation at Site 4 (Landfill) at St. Juliens Creek Annex, Chesapeake, Virginia. This delineation is being conducted to support a Remedial Investigation/Human Health Risk Assessment/Ecological Risk Assessment and a Feasibility Study at Site 4. The extent of surface debris at Site 4 has been determined as part of the Remedial Investigation (March 2003). Some of this surface debris is located within or adjacent to wetland areas. Planned removal of this debris has the potential to adversely impact wetland areas through the construction of access roads and the use of heavy equipment. The objective of the wetland delineation is to define the spatial extent of the on-site wetlands (by wetland type) relative to the areas of visible surface debris and qualitatively determine wetland quality. These data will be considered during the surface debris removal to minimize wetland impacts as well as to guide proposed analytical sampling at the site as part of the RI and ERA.

This report summarizes the results of a jurisdictional wetland delineation, which was performed by CH2M HILL environmental scientists on May 26, 2004. This report presents a summary description of the site, a description of the wetland types found at the site, the methodology used in the jurisdictional delineation, a qualitative evaluation of the value of the wetland types, and the results of CH2M HILL's delineation. Routine Wetland Determination Data Forms (data forms) and a figure showing the wetland boundaries are included.

Site Description

St. Juliens Creek Annex is located in western Chesapeake, VA, along the northern shore of Blows Creek at its confluence with the Southern Branch of the Elizabeth River.

Most of Site 4 was observed to be areas of mixed scrub-shrub forest and routinely mowed open field. The landfill is situated adjacent to the north side of freshwater emergent and estuarine emergent wetlands that drain to Blows Creek.

Wetland Delineation

The jurisdictional wetland delineation was performed by CH2M HILL environmental scientists on May 26, 2004. CH2M HILL environmental scientists delineated wetlands along the estuarine and freshwater wetlands along Blows Creek. Using the three-parameter approach in the 1987 *U. S. Army Corps of Engineers Wetlands Delineation Manual* (Manual; ACOE 1987), wetland flagging was attached to plants in the field to mark the wetland/upland boundaries. The flag locations were surveyed at the time of the delineation using a Trimble Pro-XRS Global Positioning System (GPS). The flag locations were then downloaded from the GPS onto a base map to define the wetland boundaries and calculate the wetland impact acreages (Figure 1). Data forms were completed to document the types of wetland plants, the presence or absence of hydrologic indicators, and the presence or

absence of hydric soil conditions in three representative areas. These two areas were designated as Wetland Area 1 and Wetland Area 2 (Figure 2). The data forms are presented in Appendix A of this report.

The vegetation section of the data form provides of listing of the plant species identified and used in the wetland boundary determination. Vegetation was identified and characterized by stratum and regional indicator status (Reed 1995) at each wetland sampling plot. At each sampling plot, the vegetation was identified and characterized by stratum (herb, shrub, and tree layers), the soil was described, and evidence of hydrology was noted. Areas meeting the technical criteria of the Manual were flagged in the field as jurisdictional wetland boundaries thus marking the wetlands/upland boundaries.

The dominant wetland types located within Site 4 are characterized as Wetland 1 - freshwater Palustrine Emergent (PEM) wetland high marsh and Wetland 2 - PEM swale. Wetland 1 is dominated by common reed (*Phragmites australis*) and contains silty organic soils that are saturated at the surface and observed to be predominantly 10YR 3/1 in color. Hydrologic indicators observed included drainage pathways, surface saturation and water in the soil probe hole at a range of 6 to 12 inches.

Wetland 2 is dominated by common reed and contains sandy organic soils that are saturated at the surface and observed to be predominantly 10YR 4/1 in color. Hydrologic indicators observed included a defined channel with banks, surface saturation and water in the soil probe hole at a range of 1 to 2 inches.

Lower elevations of Wetland 1 closer to Blows Creek were observed to be salt meadow cordgrass (*Spartina patens*) and smooth cordgrass (*Spartina alterniflora*). These are not expected to be impacted as part of the remedial activities of the project, and therefore were not further characterized.

Figures 1 and 2 show the wetland boundaries relative to land fill extent at Site 4. On the southwestern portion of the landfill, concrete and mixed construction debris lie directly on the ground surface and comprise the upland/wetland transitional slope.

References

Army Corps of Engineers (ACOE). 1987. *Corps of Engineers wetlands delineation manual*. Wetlands Research Program Technical Report Y-87-1. 100 pp. plus appendices.

Reed, Porter B. 1995. *National List of Plant Species that occur in Wetlands: Northeast (Region 1)*. National Ecology Research Center, U.S. Fish and Wildlife Service. October.

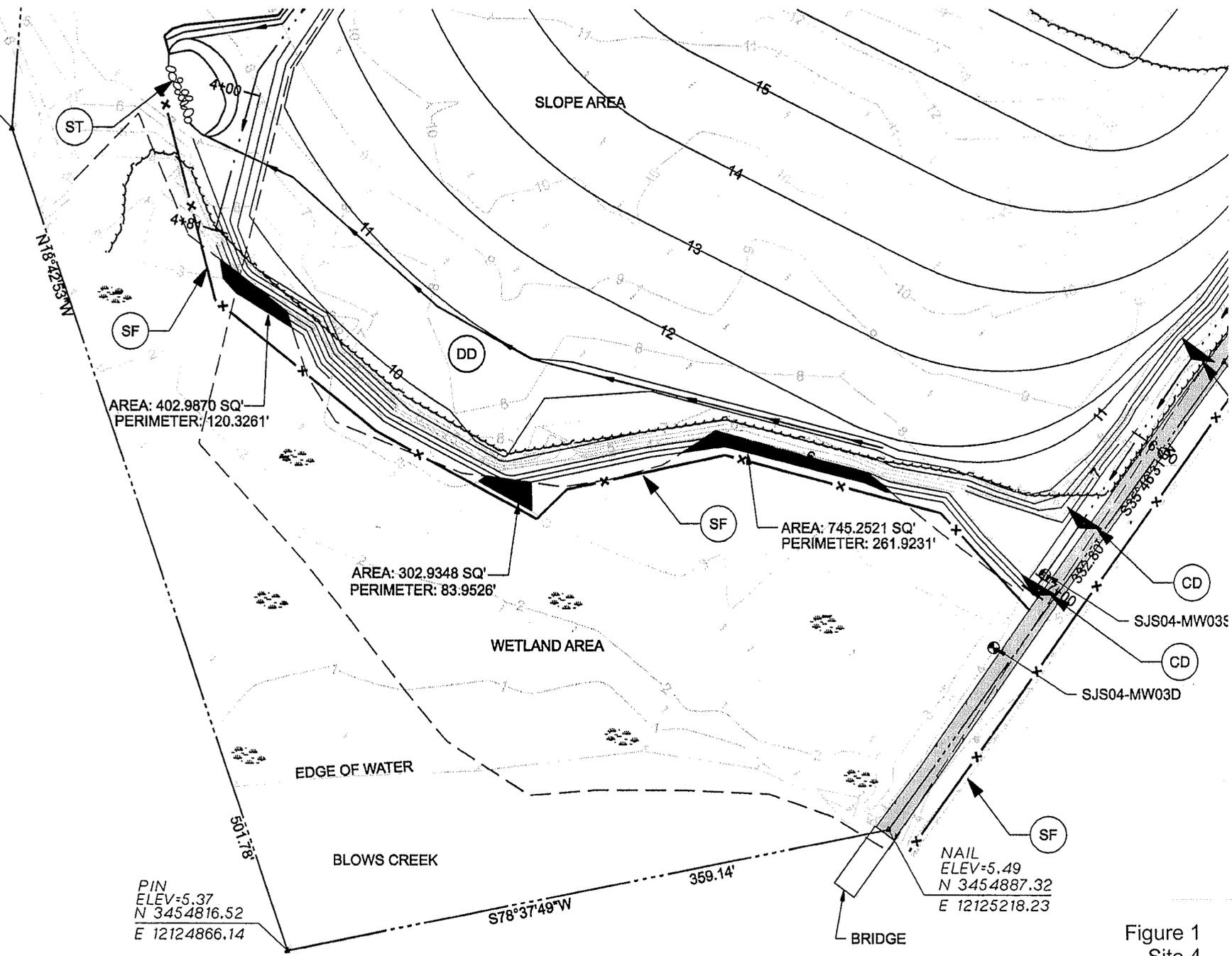
Noxious Weed Control Board Web Page (accessed 4/12/2001):

<http://www.wa.gov/agr/weedboard/weed/info/smoothcordgrass.html>

Virginia Native Plant Society Web Page (accessed 4/12/2001):

<http://www.dcr.state.va.us/dnh/invphrag.htm>

HUB
ELEV=7.03
N 3455291.77
E 12124705.14



AREA: 402.9870 SQ'
PERIMETER: 120.3261'

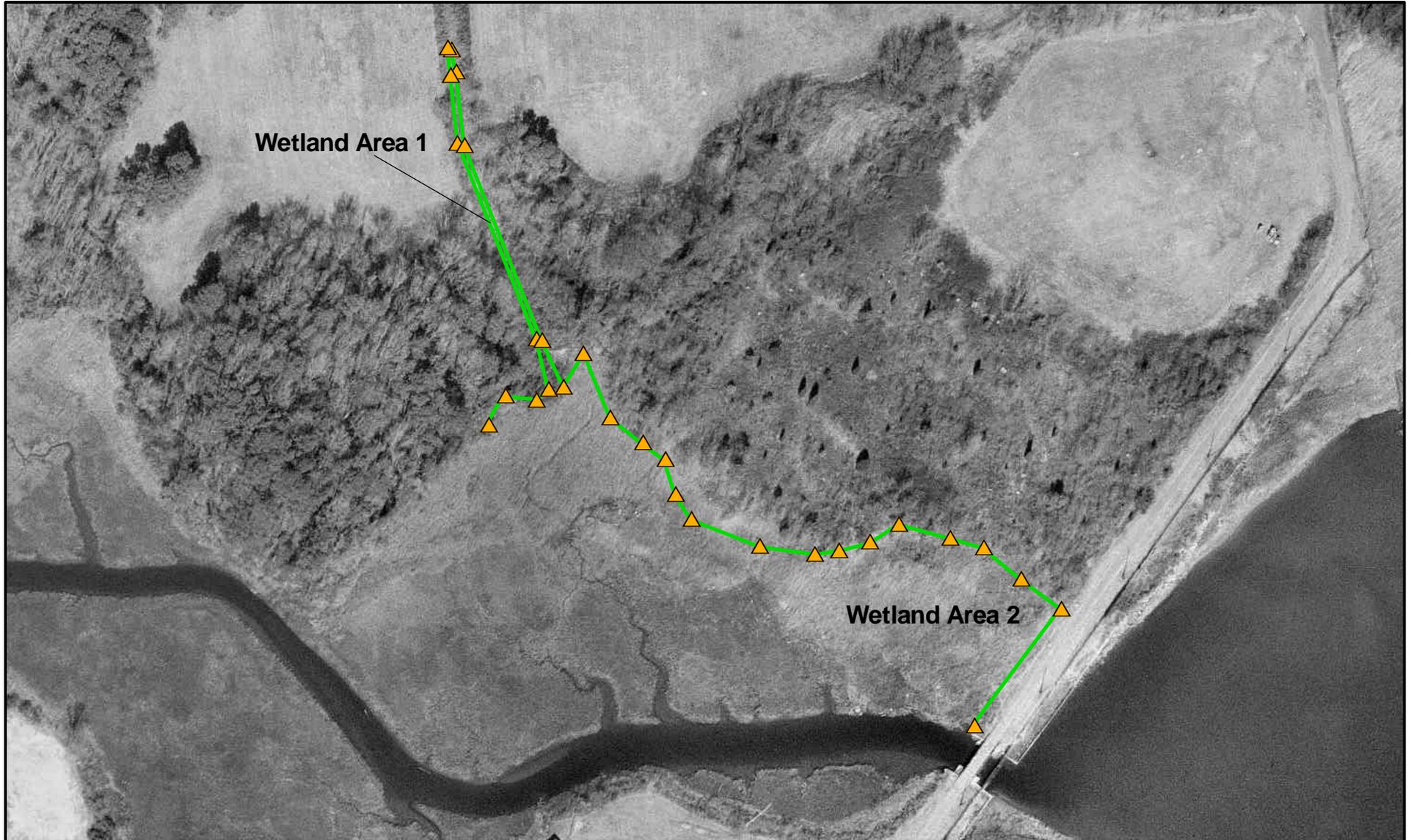
AREA: 302.9348 SQ'
PERIMETER: 83.9526'

AREA: 745.2521 SQ'
PERIMETER: 261.9231'

PIN
ELEV=5.37
N 3454816.52
E 12124866.14

NAIL
ELEV=5.49
N 3454887.32
E 12125218.23

Figure 1
Site 4
Wetland Impact
St. Juliens Creek Annex
Chesapeake, Virginia



LEGEND

▲ GPS Survey Points



0 75 150 Feet



Figure 2
Site 4
Wetland Delineation - GPS Coordinates
St. Juliens Creek Annex
Chesapeake, Virginia

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>St, Juliens Annex - Site 4</u>	Date: <u>5/26/04</u>
Applicant/Owner: <u>Navy</u>	County: <u>Chesapeake</u>
Investigator: <u>DD/CP</u>	State: <u>VA</u>
Do Normal Circumstances exist on the site? Yes No	Community ID: <u>Wetland 1</u>
Is the site significantly disturbed (Atypical Situation)? Yes No	Transect ID: <u>1-1</u>
Is the area a potential Problem Area? (If needed, explain on reverse) Yes No	Plot ID: <u>Wetland</u>

VEGETATION

<u>Dominant Plant Species</u>	<u>Stratum</u>	<u>Indicator</u>	<u>Dominant Plant Species</u>	<u>Stratum</u>	<u>Indicator</u>
1. <u><i>Phragmites communis</i></u>	<u>HB</u>	<u>FACW</u>	9. _____	_____	_____
2. <u><i>Juncus effusus</i></u>	<u>HB</u>	<u>FACW</u>	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). <u>100%</u>					
Remarks: Greater than 50% of the predominant vegetation was observed to be hydrophytic.					

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input checked="" type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>2</u> (in.) Depth to Saturated Soil <u>0</u> (in.)	
Remarks: Evidence of hydrology observed.	

SOILS

Map Unit Name (Series and Phase): <u>Disturbed Land</u>		Drainage Class: _____	
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No	
<u>Profile Description</u>			
<u>Depth (inches)</u>	<u>Horizon</u>	<u>Matrix Color (Munsell Moist)</u>	<u>Mottle Colors (Munsell Moist)</u>
0-12		10YR 4/1	NI
12+		NI	NI
			NI
Hydric Soil Indicators:			
_____ Histosol		_____ Concretions	
_____ Histic Epipedon		_____ High Organic Content in Surface Layer in Sandy Soils	
<u>x</u> _____ Sulfidic Odor		_____ Organic Streaking in Sandy Soils	
_____ Aquic Moisture Regime		_____ Listed on Local Hydric Soils List	
_____ Reducing Conditions		_____ Listed on National Hydric Soils List	
<u>x</u> _____ Gleyed or Low-Chroma Colors		_____ Other (Explain in Remarks)	
Remarks: Evidence of hydric soils observed.			

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <u>Yes</u> No	Is this Sampling Point Within a Wetland? <u>Yes</u> No
Wetland Hydrology Present? <u>Yes</u> No	
Hydric Soils Present? <u>Yes</u> No	
Remarks: All parameters have been met.	

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Applicant/Owner: <u>Navy</u>	County: <u>Chesapeake</u>
Investigator: <u>DD/CP</u>	State: <u>VA</u>
Do Normal Circumstances exist on the site? Yes No	Community ID: <u>Wetland 2</u>
Is the site significantly disturbed (Atypical Situation)? Yes No	Transect ID: <u>1-5a</u>
Is the area a potential Problem Area? (If needed, explain on reverse) Yes No	Plot ID: <u>Wetland</u>

VEGETATION

<u>Dominant Plant Species</u>	<u>Stratum</u>	<u>Indicator</u>	<u>Dominant Plant Species</u>	<u>Stratum</u>	<u>Indicator</u>
1. <u>Phragmites communis</u>	<u>HB</u>	<u>FACW</u>	9. _____	_____	_____
2. _____	_____	_____	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). <u>100%</u>					
Remarks: Greater than 50% of the predominant vegetation was observed to be hydrophytic.					

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>_____ Stream, Lake or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p>_____ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>6</u> (in.)</p> <p>Depth to Saturated Soil <u>0</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>_____ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>_____ Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
Remarks: Evidence of hydrology observed.	

SOILS

Map Unit Name (Series and Phase): <u>Disturbed Land</u>		Drainage Class: _____	
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type?	Yes No
<u>Profile Description</u>			
<u>Depth (inches)</u>	<u>Horizon</u>	<u>Matrix Color (Munsell Moist)</u>	<u>Mottle Colors (Munsell Moist)</u>
0-12		10YR 3/1	NI
12+		NI	NI
Hydric Soil Indicators:			
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions		
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils		
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List		
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List		
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Evidence of hydric soils observed.			

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<u>Yes</u>	No	Is this Sampling Point Within a Wetland? <u>Yes</u> No
Wetland Hydrology Present?	<u>Yes</u>	No	
Hydric Soils Present?	<u>Yes</u>	No	
Remarks: All parameters have been met.			

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Applicant/Owner: <u>Navy</u>	County: <u>Chesapeake</u>
Investigator: <u>DD/CP</u>	State: <u>VA</u>
Do Normal Circumstances exist on the site? Yes No	Community ID: <u>Wetland 2</u>
Is the site significantly disturbed (Atypical Situation)? Yes No	Transect ID: <u>1-10</u>
Is the area a potential Problem Area? (If needed, explain on reverse) Yes No	Plot ID: <u>Wetland</u>

VEGETATION

<u>Dominant Plant Species</u>	<u>Stratum</u>	<u>Indicator</u>	<u>Dominant Plant Species</u>	<u>Stratum</u>	<u>Indicator</u>
1. <u>Phragmites communis</u>	<u>HB</u>	<u>FACW</u>	9. _____	_____	_____
2. _____	_____	_____	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
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6. _____	_____	_____	14. _____	_____	_____
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Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>12</u> (in.) Depth to Saturated Soil <u>0</u> (in.)	
Remarks: Evidence of hydrology observed.	

SOILS

Map Unit Name (Series and Phase): <u>Disturbed Land</u>		Drainage Class: _____	
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type?	Yes No
<u>Profile Description</u>			
<u>Depth (inches)</u>	<u>Horizon</u>	<u>Matrix Color (Munsell Moist)</u>	<u>Mottle Colors (Munsell Moist)</u>
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<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Evidence of hydric soils observed.			

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<u>Yes</u>	No	Is this Sampling Point Within a Wetland? <u>Yes</u> No
Wetland Hydrology Present?	<u>Yes</u>	No	
Hydric Soils Present?	<u>Yes</u>	No	
Remarks: All parameters have been met.			