APPENDIX E: WETLAND INVESTIGATION REPORT

WETLAND INVESTIGATION REPORT

FOR ACTIVITIES TO IMPLEMENT 2005 BASE REALIGNMENT AND CLOSURE ACTIONS

AT

NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND

Department of Navy

March 2008

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1.0 INTRODUCTION

1.1 Project Background

NNMC in Bethesda, Maryland was founded in 1940, and was originally composed of the Naval Hospital, the Naval Medical School, the Naval Dental School, and the Naval Medical Research Institute. It has undergone many expansion and renovation projects over the years, to become one of the largest medical facilities in the country. NNMC has a campus that is surrounded by the National Institutes of Health (NIH) main campus to the west; Stone Ridge School of the Sacred Heart (Pre-K to 12 girls school) and residential housing to the north; North Chevy Chase Recreation Center, residential housing, and Rock Creek Park to the east, and Columbia Country Club, residential housing, parks, and a golf course to the south. Interstate 495 (I-495) is adjacent to the northeastern corner of the installation. Jones Bridge Road and Rockville Pike form the southern and western boundaries of the installation, respectively.

Under the 2005 Base Realignment and Closure Actions (BRAC) law, the Army's flagship Medical Center at WRAMC will relocate all tertiary (sub- specialty and complex care) medical services to the NNMC campus in Bethesda from WRAMC. Tertiary care is treatment provided in a health center that includes highly trained specialists and often advanced technology. The term tertiary care is most often associated with inpatient services of a complex nature involving very specialized fields of medicine, such as cardiology and neurology. In the military health care system, a tertiary care facility such as NNMC Bethesda also provides primary care services such as family health care services. The transfer and integration of these services with existing functions at NNMC will result by law in creation of a new premier military health care command to be named the Walter Reed National Military Medical Center (WRNMMC) at Bethesda. The BRAC law calls for completion of the merger, establishment of the WRNMMC, and closure of WRAMC to be accomplished by 15 September 2011. To implement the actions directed by the 2005 BRAC law, the Navy proposes to provide:

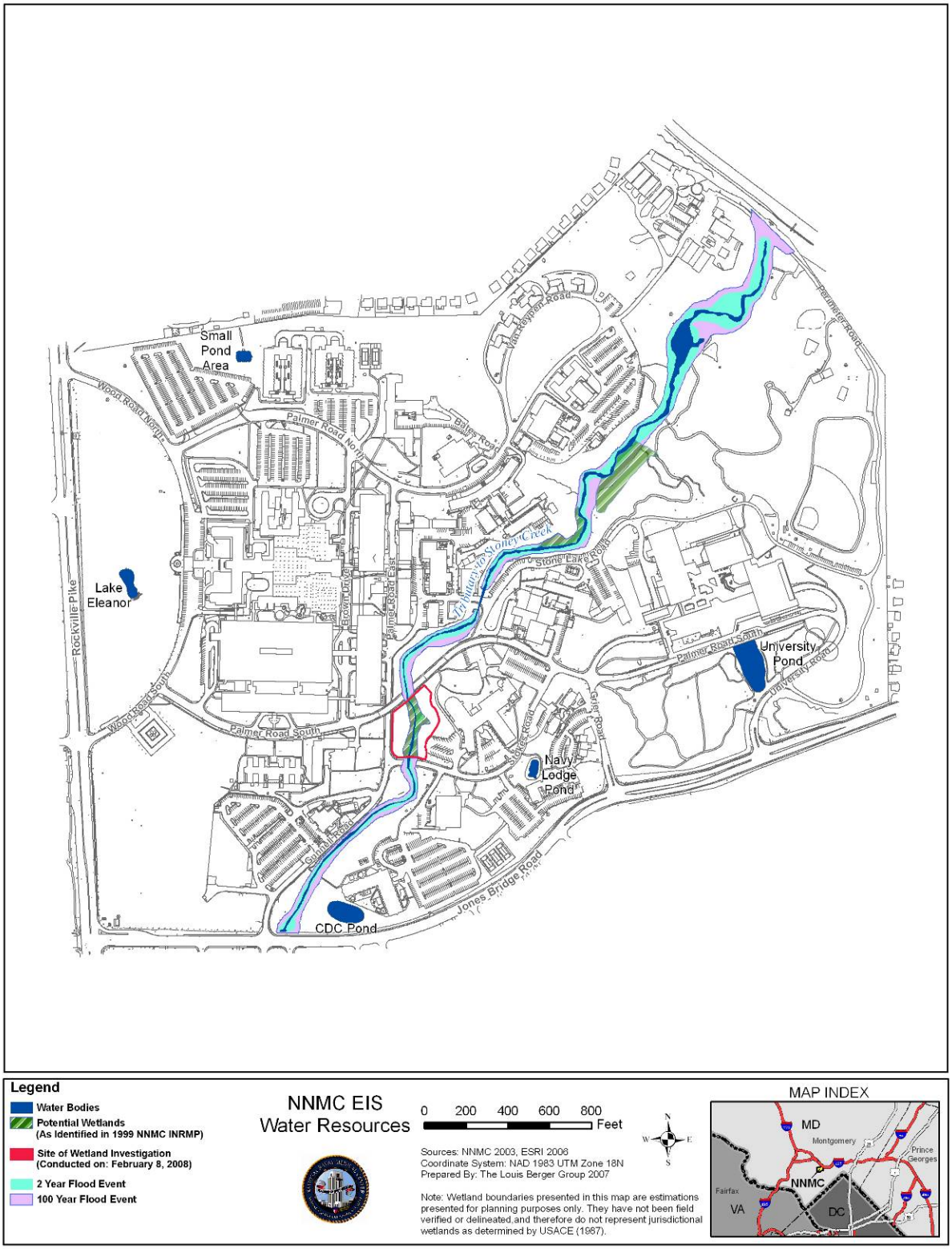
- Additional space for inpatient and outpatient medical care as well as necessary renovation of existing medical care space to accommodate the increase in patients
- A National Intrepid Center of Excellence (NICoE™) for Traumatic Brain Injury and Psychological Health diagnosis, treatment, clinical training, and related services to meet an urgent need for traumatic brain injury and psychological health care
- Medical administration space
- Clinical and administrative space for the Warrior Transition Unit to deliver transitional aftercare and associated patient education programs

- Bachelor Enlisted Quarters (BEQ) to accommodate the projected increase in permanent party enlisted medical and support staff as well as provide transitional lodging required to support aftercare patients receiving treatment on an extended basis
- A fitness center for staff as well as the rehabilitation of patients
- Parking for the additional patients, staff, and visitors
- Two Fisher Houses™ that would support short-term lodging and a home-like reintegration experience for the service members and their family member/care taker while they participate in education and treatment programs in the NICoE™. Fisher Houses™ are "family-style lodging" to address short-term lodging needs of patients and their families in hospital or requiring extended aftercare treatment.

To implement the Proposed Action, the Navy has identified two action alternatives within the Environmental Impact Statement (EIS) that was prepared for this Federal action, as required by the National Environmental Policy Act of 1969 (NEPA). The two action alternatives differed in the siting of several the required facilities within the installation and whether the new facilities would be housed in newly constructed structures or renovated existing structures. One new structure common to both action alternatives that will be constructed is the South Parking structure, which would occur on or about where Building 23 is presently located. Building 23 sits approximately 150-feet to the east of the unnamed tributary to Stoney Creek that runs through the campus. The area adjacent to the creek, near Building 23 was noted in NNMC's Integrated Natural Resources Management Plan as having the potential of being a wetland. Due to the potential for the South Parking Structure to encroach upon this potential wetland, the Navy decided to conduct an on-site investigation to determine the presence or absence of wetlands and to describe any other waters of the United States found within in this potentially affected area.

To determine the presence or absence of wetlands, an on-site investigation was conducted to identify any wetlands and other waters of the United States that may be affected by this proposed action. This wetland investigation report supports the EIS, for the Navy's Proposed Action of providing the necessary facilities to implement BRAC 2005 actions at NNMC. The area investigated (herein referred to as the study area) is less than 1.0 acre, and is located along both sides the unnamed tributary to Stoney Creek bounded by Gunnel Road to the west, Palmer Road South to the north, Building 23 to the East, and Stokes Road to the south. This area is located directly west of the proposed South Parking Facility (Figure 1-1).

Figure 1-1: NNMC Investigation Site



1.2 Wetland Criteria

The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (USEPA) define jurisdictional wetlands as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR, Part 328.3). USACE regulates development in jurisdictional wetlands pursuant to Section 404 of the CWA (33 CFR, Parts 320-330). Identification and delineation of jurisdictional wetlands is based on three parameters:

- Hydrophytic vegetation – Macrophytic plant life growing in water or on a substrate that is periodically deficient of oxygen as a result of excessive water content. The National List of Plant Species that Occur in Wetlands: Northeast (Region 1) (USFWS, 1988) provides an indicator status for many of the plant species found in Maryland.
- Hydric soils - A soil that formed under saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.
- Wetland hydrology - Permanent or periodic inundation or soil saturation to the surface for sufficient duration during the growing season to support hydrophytic vegetation.

1.3 Methodology

Before conducting field investigations, federal and state documentation were reviewed, including Natural Resources Conservation Service (NRCS) soil data for Montgomery County, Maryland (NRCS, 2007), and surface water and wetland Geographic Information System (GIS) data from NNMC.

Field investigations were conducted on 8 February 2008 to determine the presence or absence of all federal jurisdictional wetlands and other waters of the United States in the study area. Determination of the presence of wetlands was based on procedures prescribed in the USACE Wetlands Delineation Manual (Environmental Laboratory, 1987). Wetlands, as defined in the manual, are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The three criteria listed in Section 1.2 *Wetland Criteria* were used to determine the occurrence of jurisdictional wetlands - hydric soils, wetland hydrology, and hydrophytic vegetation.

At the beginning of the wetland investigation, a general reconnaissance of the site was conducted, which involved walking the project area looking for wetland indicators. Plant species were observed, and the soil was probed periodically with an Oakfield soil

probe. This general reconnaissance of the site revealed no obvious indications of wetlands on the site (i.e., no hydrophytic vegetation, no signs of hydrology, and no hydric soils). To confirm these findings, a data point was then taken at the point of lowest elevation in the study area. A soil test pit was excavated to look for the presence of hydric soils. No hydric soil indicators were found within the soil test pit. There was no hydrophytic vegetation, and no signs of wetland hydrology. See Appendix B for complete data sheet.

2.0 PROJECT SITE DESCRIPTION

2.1 Geology and Topography

NNMC Bethesda is located on the eastern side of the Piedmont physiographic province, which is made up of hard, crystalline igneous and metamorphic rocks. Bedrock in the eastern part of the Piedmont consists of schist, gneiss, gabbro, and other highly metamorphosed sedimentary and igneous rocks of probable volcanic origin.

The highest elevation on NNMC, 330 feet above mean sea level, is found near the southwest corner of the property where Rockville Pike intersects Jones Bridge Road. The lowest elevation, 210 feet above mean sea level, is along the unnamed tributary to Stoney Creek where it leaves the property and passes into a culvert under Interstate 495. Net relief throughout the campus is approximately 120 feet (NNMC, 2000). The topography within the study area is gently rolling with elevations ranging from 290 to 270 feet above MSL, sloping to the west. The highest elevations occur to the east of the study area, near Building 23.

2.2 Soils

Glenville silt loam is the only soil mapping unit documented within and adjacent to study area (NRCS 2007). The natural drainage class of this soil mapping unit is moderately well drained. Water movement in the most restrictive layer is moderately low and available water to a depth of 60 inches is moderate. This soil is neither flooded nor ponded, and the organic matter content in the surface horizon is about 3 percent.

On-site field investigations, however, revealed that the soils present differed slightly from the documented NRCS mapping unit. The general texture of the soil observed at the soil test pit was loamy with gravel and mica present and mottles were present below 7-inches. The soil color was 10YR 3/4 to 7-inches and 10YR 4/4 below 7-inches. The color of the mottles was 7.5YR 4/6. There also appears that some of the soils within the study area have been modified with fill material.

Hydric Soils

Hydric soils are defined by the National Technical Committee for Hydric Soils as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Such conditions can produce organic hydric soils comprised of muck and/or peat or mineral hydric soils. Mineral hydric soils manifest various redoximorphic features including grey soils and deposits of iron or manganese. The soil mapping unit found within the delineation area is not listed as a hydric soil in Maryland. On-site field investigation confirmed the lack of hydric soils and hydric soil indicators within the study area.

2.3 Hydrology

The NNMC campus is located within the Lower Rock Creek Watershed in Montgomery County, Maryland. Rock Creek is the second largest watershed in Montgomery County with a drainage area of approximately 60 square miles. Rock Creek begins as a small spring emerging from a spring house in the Laytonsville area, and flows approximately 21 miles before entering the District of Columbia. This urban watershed is highly developed and densely populated in the lower portion, while the upper portion is moderately developed, with some remaining agricultural and open areas (MDEP, 2001).

An unnamed stream traverses the NNMC campus in a northeasterly direction and crosses under Interstate 495. This is a tributary to Stoney Creek, which ultimately flows into Rock Creek. Stoney Creek is designated as a Class I surface water by the Maryland Department of the Environment (MDE). Uses for Class I waters include water contact recreation, aquatic life, and water supply. The Stoney Creek watershed is approximately 565 acres and includes portions of NNMC, the Bethesda Central Business District, the National Institutes of Health, and residential areas. Those portions of NNMC that do not drain into Stoney Creek drain into Rock Creek. There are six freshwater ponds on NNMC Campus used for stormwater management, which include University Pond, Lake Eleanor, a pond by the Navy Lodge, one by the Child Development Center (CDC), one west of Building 61 and an in stream pond near the picnic pavilion (NNMC, 2007).

2.4 Biological Resource

The core of the NNMC campus consists of developed land, which comprises approximately 80 percent or 195 acres of the total 243-acre property. Much of the developed areas are landscaped in lawn, individual trees and groves, and shrubbery that provide some wildlife habitat. Approximately 97 acres are pervious landscaped vegetation and 98 acres of the developed area are impervious due to buildings, parking lots, or other development. The remainder of the NNMC campus, 20 percent of the property or 48 acres, is undeveloped land. These lands generally include natural areas and bodies of water. At NNMC the unimproved lands include forested areas and aquatic areas. The

forested areas can be further divided into forested buffers and mature, contiguous forests. Forested buffers occur along the stream and roads and account for about 20 acres.

The majority of the study area is composed of a maintained lawn made up of Kentucky bluegrass (*Poa pratensis)* and tall fescue (*Festuca arundinacea).* The upland area adjacent to the manicured lawn contains planted specimens of native trees such as yellow poplar (*Liriodendron tulipifera L.),* white oak (*Quercus alba*), black walnut (*Juglans nigra*), black willow (*Salix nigra*), and white pine (*Pinus strobus*), as well as non-native trees such as Norway spruce (*Picea abies*). The lowland area adjacent to the unnamed tributary have been actively maintained within the study area, and much of the understory has been recently removed (Appendix C). Species observed include poison ivy (*Rhus toxicodendron*), *Virginia creeper (Parthenocissus quinquefolia*), common milkweed (*Asclepias syriaca*), black willow, and black cherry (*Prunus serotina*).

3.0 WETLAND INVESTIGATION RESULTS

Results of the wetland investigation show one watercourse (the unnamed tributary to Stoney Creek) and no wetlands occur within the study area. The watercourse accounted for a total of .058 acres (.0235 ha) of the study area. This watercourse is characterized as a riverine lower perennial creek with an unconsolidated bottom made up of gravel and cobble. It runs the entire length of the study area, entering the study area from underneath the bridge on Stokes Road and exiting beneath the Palmer Road Bridge. The banks of this watercourse are typically 3 to 6 feet apart and 0.5 to 2 feet high, with several stormwater outfalls draining into this stretch. Much of the banks along this stretch have been armored with boulders. This stream has perennial system characteristics such as evidence of bed and bank, gravel bars and sediment sorting. There was also some meandering in the stream and some small riffles and pools.

4.0 CONCLUSIONS

After reviewing existing data and field investigations conducted on 8 February 2008, it was determined that there are no wetlands within the study area site. The determination that no wetlands occur within the study area was based on criteria established in the USACE Wetlands Delineation Manual (1987). Hydrophytic vegetation and indicators of hydric soils were not present, and there was no evidence or the presence of wetland hydrology.

The portion of the unnamed tributary of Stoney Creek totals approximately .058 acres (.0235 ha) of the study area, and is characterized as a riverine lower perennial creek with an unconsolidated bottom made up of gravel and cobble.

5.0 GLOSSARY

Wetland definitions are from *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et al., 1979).

Emergent Wetland - The Emergent Wetland Class is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

Hydric Soil – A soil that formed under saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

Hydrophytic Vegetation – Macrophytic plant life growing in water or on a substrate that is periodically deficient of oxygen as a result of excessive water content.

Intermittent watercourse - In this Subsystem of Riverine, the channel contains flowing water for only part of the year. When the water is not flowing, it may remain in isolated pools or surface water may be absent.

Lower Perennial – The gradient is low and water velocity is slow. There is no tidal influence, and some water flows throughout the year. The substrate consists mainly of sand and mud. The gradient is lower than that of the Upper Perennial Subsystem and the floodplain is well developed.

Mean Sea Level (MSL) - The average height of the surface of the sea at a particular location for all stages of the tide.

Non-persistent – Non-persistent emergent wetlands are dominated by plants which fall to the surface of the substrate or below the surface of the water at the end of the growing season so that, at certain seasons of the year, there is no obvious sign of emergent vegetation.

Palustrine - The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 percent.

Persistent - Persistent Emergent Wetlands are dominated by species that normally remain standing at least until the beginning of the next growing season. This Subclass is found only in the Estuarine and Palustrine Systems.

Riverine - The Riverine System includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or

lichens, and (2) habitats with water containing ocean-derived salts in excess of 0.5 percent.

Upper Perennial - The gradient is high and velocity of the water fast. There is no tidal influence and some water flows throughout the year. The substrate consists of rock, cobbles, or gravel with occasional patches of sand. The gradient is high compared with that of the Lower Perennial Subsystem, and there is very little floodplain development.

Wetlands – Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wetland Hydrology - Permanent or periodic inundation or soil saturation to the surface for sufficient duration during the growing season to support hydrophytic vegetation.

6.0 REFERENCES

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APPENDIX A – WETLAND INVESTIGATION MAP

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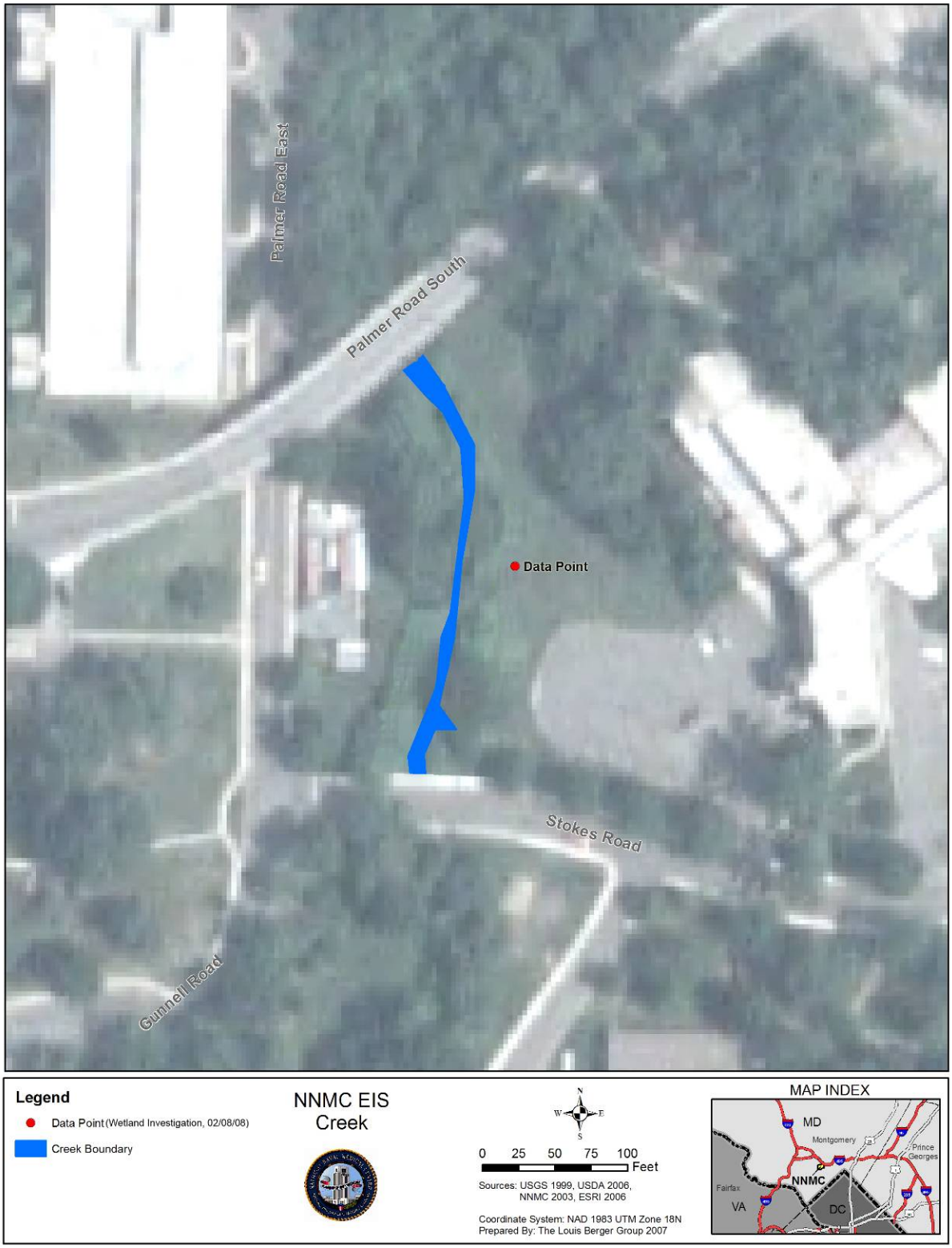
Figure A-1: Map of Study Area



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APPENDIX B – DATA FORM

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

Project/Site:	National Naval Medical Center	Date:	2/08/08
Applicant/Owner:	Department of Navy	County:	Montgomery
Investigator:	W. Sipple, J, Gorder	State:	MD
Do Normal Circumstances exist on the site?	☒Yes* ☐No	Community ID:	Lawn
Is the site significantly disturbed (Atypical Situation)?*	☐Yes ☒No	Transect ID:	-
Is the area a potential Problem Area?	☐Yes ☒No	Plot ID:	1

(If needed, explain on reverse.) *Landscape surrounding within the study appears to have been maintained for many years.

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Poa pratensis*	H	FACU	9.		
2. *Festuca arundinacea*	H	FACU	10.		
3.	H		11.		
4.	H		12.		
5.	H		13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0%

Remarks: Non-dominant species observed: Potentilla canadensis, Veronica hederifolia, unidentified herb. Less than 50 percent of the dominant plants are OBL ; FACW, or FAC, therefore, hydrophytic vegetation is not present.

The percentage of plant species rated OBL, FACW, or FAC is less than 50% ; therefore, hydrophytic vegetation is not present

HYDROLOGY

☐ Recorded Data (Describe in Remarks):

☐ Stream, Lake, or Tide Gauge

☐ Aerial Photographs

☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: n/a (in.)

Depth to Free Water in Pit: n/a (in.)

Depth to Saturated Soil: n/a* (in.)

*Within 15 inches

Wetland Hydrology Indicators:

Primary Indicators:

☐ Inundated

☐ Saturated in Upper 12 Inches

☐ Water Marks

☐ Drift Lines

☐ Sediment Deposits

☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

☐ Oxidized Root Channels in Upper 12 Inches

☐ Water-Stained Leaves

☐ Local Soil Survey Data

☐ FAC-Neutral Test

☐ Other (Explain in Remarks)

Remarks: No wetland hydrology indicators are present.

SOILS

Map Unit Name (Series and Phase): Glenville Silt Loam, 0-3%

Drainage Class: Moderately well drained

Field Observations

Taxonomy (Subgroup): Typic Hapudults

Confirm Mapped Type? ☐ Yes ☒ No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-7”		10YR 3/4	n/a	n/a	loam; gravel; and mica present
7-15”		10YR4/4	7.5 YR 4/6	few, medium, prominent	loam; gravel; and mica present

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: No hydric soil indicators are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes ☒ No (Check)	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☐ Yes ☒ No	Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks: None of the three wetland parameters are met, therefore, the sampling point is not a wetland.

Approved by HQUSACE 3/92

Forms version 1/02

APPENDIX C – PHOTOGRAPHS

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Figure C-1 Watercourse A (Southern View/Upstream)

Figure C-2: Watercourse A (Northern View/Downstream)

Figure C-3: Watercourse A (Northern View/Downstream) First Stormwater Outfall Downstream from Stokes Road Bridge

Figure C-4: Data Point Test Pit

Figure C-4: Data Point Test Pit

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