D Appendix D: Wetlands Reports and Jurisdictional Determination Requests

D.1 Wetland and Waterbody Delineation Report for Alternative A

U.S. Department of Veterans Affairs

WETLAND AND WATERBODY DELINEATION REPORT FOR THE RALEIGH OUTPATIENT CLINIC – ALTERNATIVE A, WAKE COUNTY, NORTH CAROLINA

May 2020

Contract Number: GS-10F-0360T **Order Number:** 36C10F20F0039

Prepared for:
U.S. Department of Veterans Affairs
Office of Construction and Facilities Management

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1 INTRODUCTION

The United States Department of Veterans Affairs (VA) is proposing to construct an outpatient facility in Wake County, North Carolina (herein called the project). The project consists of two build alternatives and one no-build alternative currently under consideration. Alternative A is located southwest of the intersection of Rand Road and Benson Road (Appendix A: Figure 1). The Alternative A study area (project study area) consists of approximately 16.76 acres of scrub growth and new growth forest, with rural residential development in the northern portion of the project study area. The following Wetlands and Waterbody Delineation Report (report) has been prepared to assist in the preparation of an Environmental Assessment (EA) document for the purposes of the National Environmental Policy Act (NEPA).

The objectives of this report are to identify and evaluate jurisdictional wetlands and other waters within the project study area that may be subject to U.S. Army Corps of Engineers (USACE) and North Carolina Department of Environmental Quality (NCDEQ) jurisdiction under Section 404 and/or 401 of the Clean Water Act (CWA).

This report describes the methods used to conduct an on-site delineation, results of the delineation, and provides a summary conclusion regarding the jurisdictional status of the aquatic resources identified. Results and conclusions provided in this report represent SWCA's professional opinion based on knowledge and experience with the USACE, including their regulatory guidance, documents, and manuals. Potentially jurisdictional areas identified in the project study area have not yet been verified by the USACE and/or NCDEQ as of the time of this report.

The principal personnel contributing to this report and associated field work are:

Lead Investigator:	Mark Mickley
Education:	B.S. Biology, 2003
Experience:	Sr. Project Manager, SWCA, Inc., January 2019 - Present
	Manager/Project Manager, CALYX, Inc., June 2004 – December 2018
Responsibilities:	Wetland and stream delineation, T/E species assessment, document preparation
Investigator:	Lucas Coleman
Education:	B.S. Environmental Science, 2012
Experience:	Development Manager, SWCA, Inc., April 2019 - Present
	Development Associate, REAP NC, LLC, May 2016 – April 2019
Responsibilities:	Wetland and stream delineation support, GPS/GIS data collection

2 METHODOLOGY

In accordance with USACE methodology outlined in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Eastern Mountains and Piedmont Region* (USACE 2012), wetlands and other potentially jurisdictional waters were identified and approximated through the combined use of existing publicly available baseline data and field investigations.

2.1 Desktop Analysis Methodology

The following publicly available data sources were used to complete a desktop analysis of the project study area to assess the likelihood of wetlands and other jurisdictional waters to occur within the project study area:

- Current and historical aerial imagery
- Federal Emergency Management Agency (FEMA) National Flood Hazard mapping (FEMA 2020)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI [USFWS 2015]) mapping
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD; [USGS 2013])
- NCDEQ wetland mapping system (NCDEQ 2003)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2020)

The results of the desktop analysis were used to identify the likely locations of wetlands and waterbodies for field evaluations described below.

2.2 Field Methodology

SWCA conducted a field evaluation to determine the presence or absence of wetlands and other potentially jurisdictional waters in accordance with guidance and information available from the following sources:

- Corps of Engineers Wetlands Delineation Manual (USACE 1987)
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (USACE 2012)
- Field Indicators of Hydric Soils in the United States, Version 8.0 (NRCS 2016a)
- Revised (December 2, 2008) Guidance on Clean Water Act Jurisdiction following the Supreme Court Decision in Rapanos v. U.S. and Carabell v. U.S. (revision to the joint memorandum issued by the USACE and the U.S. Environmental Protection Agency [EPA] on June 5, 2007) (EPA 2008)
- North Carolina Department of Water Quality (NCDWQ) Methodology for Identification of Intermittent and Perennial Streams and Their Origins, Version 4.11 (NCDWQ 2010)

The presence or absence of wetlands was determined in the field using routine determination methods outlined in the Corps of Engineers Wetlands Delineation Manual and Regional Supplement (USACE 1987, 2012). Wetlands were identified by positive indicators of hydrology, hydrophytic vegetation, and hydric soils. Under normal conditions, all three parameters must be present for an area to be considered a wetland in accordance with Section 404 of the CWA.

Wetlands were then classified according to the Cowardin System, as described in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). This is a hierarchical system based on the topographic position and vegetation type of a wetland which aids resource managers and others by providing uniformity of concepts and terms used to define wetlands according to hydrologic, geomorphologic, chemical, and biological factors. Data collected at each site were used to approximate the wetland boundary and were recorded on USACE Eastern Mountains and Piedmont wetland determination data forms. Wetland boundaries were recorded using GPS units capable of sub-meter accuracy and were flagged using standard survey flagging.

3 DESKTOP RESULTS

3.1 Landscape Setting

Topography within the project study area is gently sloping, with the elevation ranging from approximately 229 to 287 feet above mean sea level (Appendix A: Figure 2). A review of the FEMA National Flood Hazard Layer showed that the entire project study area is located within Zone X (area of minimal flood hazard) (FEMA 2020). No NWI, NHD, or NCDEQ wetlands or waterbody features were identified within the project study area during desktop reviews.

3.2 Soils

Four mapped soil types are present within the project study area (Appendix A: Figure 3) according to the USDA NRCS (2020). No hydric soils were identified as present in the project study area. Hydric soils are defined as soils formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Table 1 provides additional detail for the soil types present in the project study area.

Table 1. NRCS Soil Types within the Raleigh Outpatient Clinic – Alternative A Study Area

Soil Name (Map Unit)	Hydric	Drainage Class	Frequency of Flooding/ Ponding	Depth to Water Table (inches)	Acreage within Project Study Area
Altavista fine sandy loam, 0 to 4 percent slopes, rarely flooded (AaA)	No	Moderately well drained	Rare/None	18 to 30	0.93
Cecil sandy loam, 2 to 6 percent slopes (CeB)	No	Well drained	None/None	>80	4.84
Pacolet sandy loam, 10 to 15 percent slopes (PaD)	No	Well drained	None/None	>80	10.51
Urban land (Ur)	No	N/A	N/A	N/A	0.48

Source: NRCS (2020)

3.3 Hydrology

Rainfall has the most substantial influence on maintaining wetland hydrology. During the summer months, evapotranspiration rates are at their highest, which often results in receding water tables.

Therefore, it is important to accurately evaluate the normality of rainfall with respect to its influence on wetland hydrology. This was done by employing the Direct Antecedent Rainfall Evaluation Method (DAREM) (Sprecher and Warne 2000). Precipitation data from the National Weather Service's Clayton Water Treatment Plant, North Carolina station, approximately 8 miles east of the project study area, was used to determine the normality of rainfall for the project study area (NRCS 2016b). This was compared with the DAREM calculations data for Johnston County, North Carolina for the 3-month period prior to field evaluation. The DAREM data was calculated using observed rainfall data and comparative Wetland Climate Table (WETS) data (Table 2).

Table 2. Antecedent Rainfall Conditions for the Raleigh Outpatient Clinic – Alternative A Study Area

Prior Month	WETS Rainfall Percentile (inches)		Measured Rainfall (inches)	Evaluation Month: May 2020		
	30th	70th		Condition[a]	Month Weight[b]	Score[c]
April	2.18	4.21	3.80	2	3	6
March	3.30	5.01	3.53	2	2	4
February	2.30	4.17	6.45	3	1	3
					Sum:	**13**
				Description[d]:	**Normal**	

[a] Condition values are 1 for <30th percentile, 2 for between 30th and 70th percentile, 3 for > 70th percentile

[b] Month weight is 3 for the most recent month, 2 for the previous month, and so on

[c] Score is the product of the condition and month weight

[d] Description: Drier than normal (sum is 6–9), normal (sum is 10–14), wetter than normal (sum is 15–18)

Based upon these calculations, hydrologic conditions for the project study area were expected to be normal at the time of field evaluations.

4 FIELD RESULTS

SWCA conducted a field investigation on May 14, 2020 to assess the general site characteristics, ground-truth the results of desktop analysis, assess the likelihood of wetland presence in areas mapped as hydric soils, and delineate the boundaries of all features determined to be present. Figure 4 in Appendix A shows the delineated features and data point locations. Data point data sheets are included in Appendix B. Representative photographs for delineated aquatic features are provided in Appendix C.

4.1 Vegetation Communities

SWCA observed three vegetation community types within the project study area including one wetland community; Palustrine Forested Wetland (PFO), and two non-wetland/upland communities; scrub-shrub and forested. Vegetation was identified to the species level when possible to identify the plant communities present. Hydrophytic vegetation, which is one parameter of a jurisdictional wetland, is defined as a plant community with over 50 percent of the dominant plant species ranked as obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC) when compared to dominant plant species ranked as facultative upland (FACU) or upland (UPL). In wetlands, the species identified at each data point along with their areal coverage are recorded on the data forms included in Appendix B. A photographic log, which includes a representative subset of all vegetation communities observed within

the project study area as viewed from select data points, is provided in Appendix C. The dominant species identified within each vegetation community type are listed in the following sections.

Forested Upland

The forested upland community consists of non-wetland areas dominated by woody species 20 feet or greater in height and 3 inches or greater in diameter at breast height. Dominant trees include American sweetgum (*Liquidambar styraciflua*), loblolly pine (*Pinus taeda*), red maple (*Acer rubrum*), water oak (*Quercus nigra*), and white oak (*Quercus alba*).

Scrub-Shrub Upland

The scrub-shrub upland community consists of non-wetland areas with woody vegetation less than 20 feet in height. This type of woody vegetation is invasive into old fields and timber harvested areas, typically covering greater than 30% of the area. Dominant woody species include sweetgum, red maple, loblolly pine, common persimmon (*Diospyros virginiana*), and eastern red cedar (*Juniperus virginiana*). Dominant herbaceous species include broomsedge (*Andropogon virginicus*), goldenrods (*Solidago* sp.), and blackberry (*Rubus* sp.).

Palustrine Forested Wetland (PFO)

The PFO wetland community consists of a prevalence of hydrophytic woody species 20 feet or greater in height and 3 inches or greater in diameter at breast height. The tree stratum is dominated by American sweetgum, red maple, and loblolly pine.

4.2 Wetlands

SWCA delineated one distinct wetland area, Wetland WA, totaling 0.02 acres within the project study area. Wetland WA is not underlain by hydric soils and appeared to be a manmade or man-altered depressional wetland primarily influenced by concentrated rainwater runoff, possibly a relic stormwater retention device or upland pond that has naturalized over time. The location of Wetland WA is depicted on Figure 4 in Appendix A and representative photographs are provided in Appendix C. Additional information is detailed below in Table 3.

Table 3. Wetlands Identified within the Raleigh Outpatient Clinic – Alternative A Study Area

Feature ID	Survey Date	Soil Series	Jurisdictional Status*	Classification‡	Acreage within Project Study Area
Wetland WA	05/14/2020	Pacolet sandy loam (non-hydric)	Jurisdictional	PFO	0.02
Overall Total					**0.02**

* This determination is SWCA's professional opinion of USACE jurisdictional status of each feature under Section 404 of the Clean Water Act (CWA)

‡ PFO = Palustrine Forested Wetland

4.3 Waterbodies

One small surface water, a relic stormwater basin, was identified in the project study area. A review of historic aerial photographs revealed that the project study area was cleared and grubbed sometime

between July 2006 and June 2007. It is likely this feature was constructed during that time to manage stormwater runoff. Rip rap was observed surrounding the feature and a rip rap-lined swale was observed leading into it. The feature contained ponded water, but no hydrophytic vegetation or hydric soils were present. The location of this feature is depicted on Figure 4 in Appendix A and representative photographs are provided in Appendix C.

Additionally, two ephemeral channels (EPH1 and EPH2) were observed in the project study area (Appendix A: Figure 4). EPH1 originates from Wetland WA and is approximately 2 feet wide and 0.5-1 feet deep. This feature is visible on historic aerial photographs and appears to be manmade and has naturalized over time. No baseflow was present in the channel during the time of survey and the feature lost all geomorphic characteristics after approximately 100 feet. A second ephemeral feature, EPH2, was identified behind the houses in the northern portion of the project study area (Appendix A: Figure 4). This feature is approximately 3 feet wide and 6 inches deep and has been manipulated/culverted in sections. SWCA completed a NCDWQ Methodology for Identification of Intermittent and Perennial Streams and Their Origins, Version 4.11 data form for features EPH1 and EPH2. Copies of the data forms are included in Appendix B.

5 CONCLUSIONS

SWCA conducted a field investigation of the project study area on May 14, 2020. SWCA biologists identified one potentially jurisdictional wetland (Wetland WA), one likely non-jurisdictional surface water (a relic stormwater basin), and two likely non-jurisdictional ephemeral channels (EPH1 and EPH2) under Sections 404 and/or 401 of the CWA. Wetlands and waterbodies are regulated in North Carolina by the USACE, who authorize projects in compliance with Section 404 of the Clean Water Act; U.S. Environmental Protection Agency (EPA), who enforces Section 404; and NCDEQ, who issue Section 401 Water Quality Certifications for all Section 404 Permits.

The conclusions provided in this report represent SWCA's professional opinion based on SWCA's knowledge and experience with the USACE, including the USACE's regulatory guidance documents and manuals. The USACE have final authority in determining the status and presence of jurisdictional waters of the U.S. and the extent of their boundaries.

6 LITERATURE CITED

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Washington, D.C.: U.S. Fish and Wildlife Service, Office of Biological Services.

Federal Emergency Management Administration (FEMA). 2020. National Flood Hazard Layer Viewer. Available at: https://hazards-fema.maps.arcgis.com/home/webmap/viewer.html?useExisting=1. Accessed May 2020.

Natural Resources Conservation Service (NRCS). 2015. Hydric Soils Definitions. Available at: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/pr/soils/?cid=nrcs141p2_037283. Accessed May 2020.

———. 2016a. *Field Indicators of Hydric Soils in the United States, Version 8.0*. U.S. Department of Agriculture, Natural Resources Conservation Service in cooperation with the National Technical Committee for Hydric Soils.

———. 2016b. Wetlands Climate Evaluation Dataset (WETS) for Wake County, NC (Cary, NC). Natural Resources Conservation Service, National Weather and Climate Center. Available at: http://agacis.rcc-acis.org/?fips=37139. Accessed May 2020.

———. 2020. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/. Accessed May 2020.

North Carolina Department of Environmental Quality (NCDEQ). 2003. Wetlands Interactive Mapping. Available at: https://deq.nc.gov/about/divisions/coastal-management/coastal-management-data/setback-factor-maps-1998-shoreline/wetlands-interactive-mapping. Accessed May 2020.

North Carolina Division of Water Quality (NCDWQ). 2010. *Methodology for Identification of Intermittent and Perennial Streams and Their Origins, Version 4.11*. North Carolina Department of Environment and Natural Resources, Division of Water Quality. Raleigh, NC.

Sprecher, S.W., and A.G. Warne. 2000. *Accessing and Using Meteorological Data to Evaluate Wetland Hydrology*. ERDC/EL TR-WRAP-00-01. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (USACE). 1987. *U.S. Army Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station Environmental Laboratory.

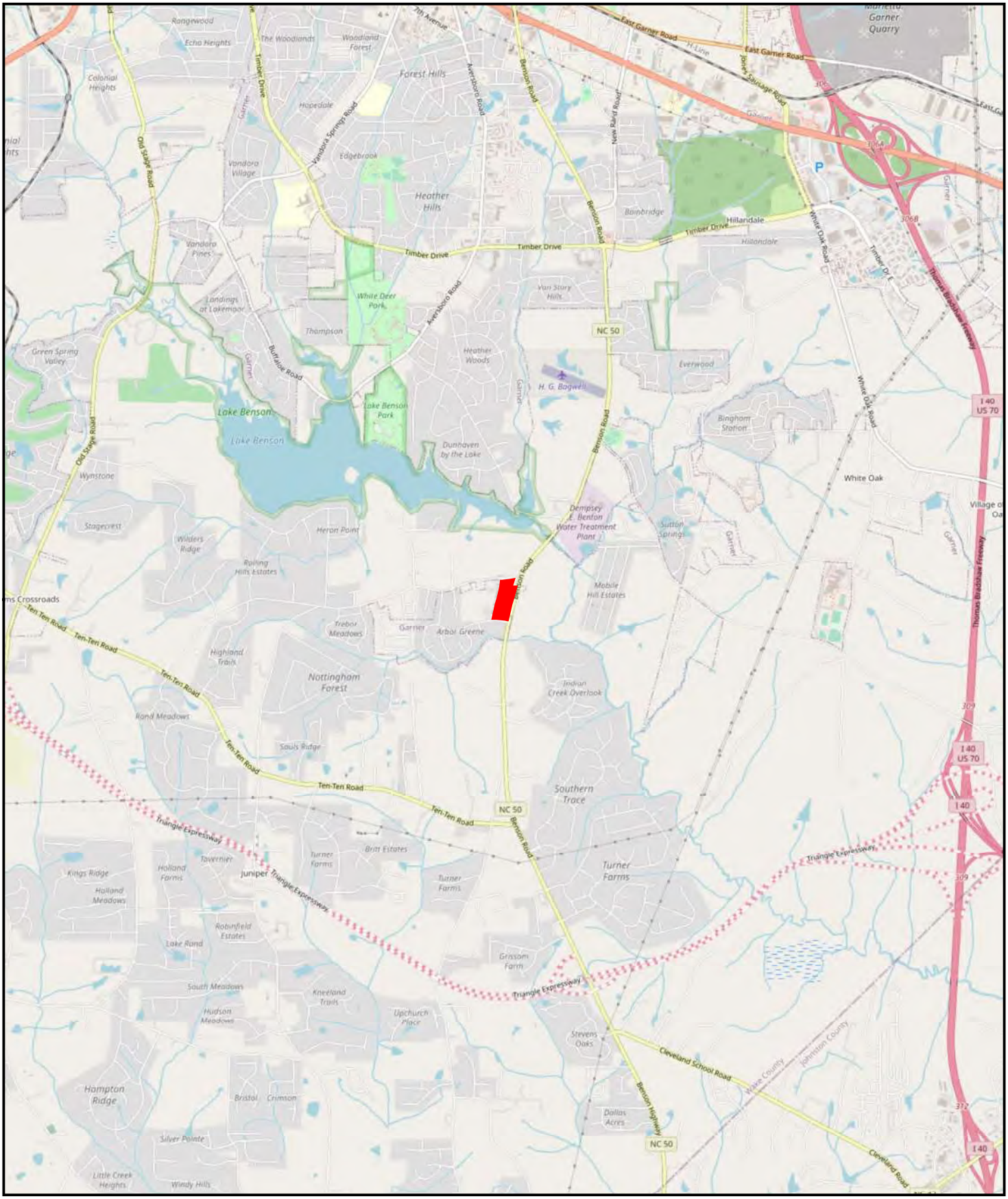
———. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region.* ERDC/EL TR-12-9. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service (USFWS). 2015. National Wetlands Inventory. Available at: http://www.fws.gov/wetlands/Data/Mapper.html. Accessed May 2020.

U.S. Geological Survey (USGS). 2013. National Hydrography Dataset. Available at: http://nhd.usgs.gov/. Accessed May 2020.

APPENDIX A

Figures



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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE A
FIGURE 1

VICINITY MAP
WAKE COUNTY, NORTH CAROLINA

Alternative A

Background:	Open Street Map
Scale:	1:50,000
Created By:	JLZ
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	May 22, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 3,000 6,000 Feet

0 800 1,600 Meters

Path: N:\Projects\61000\61235_VA_NEPA\MXD_APRX\NR\Report\61235_AltA_02_USGS.mxd

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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE A
FIGURE 2

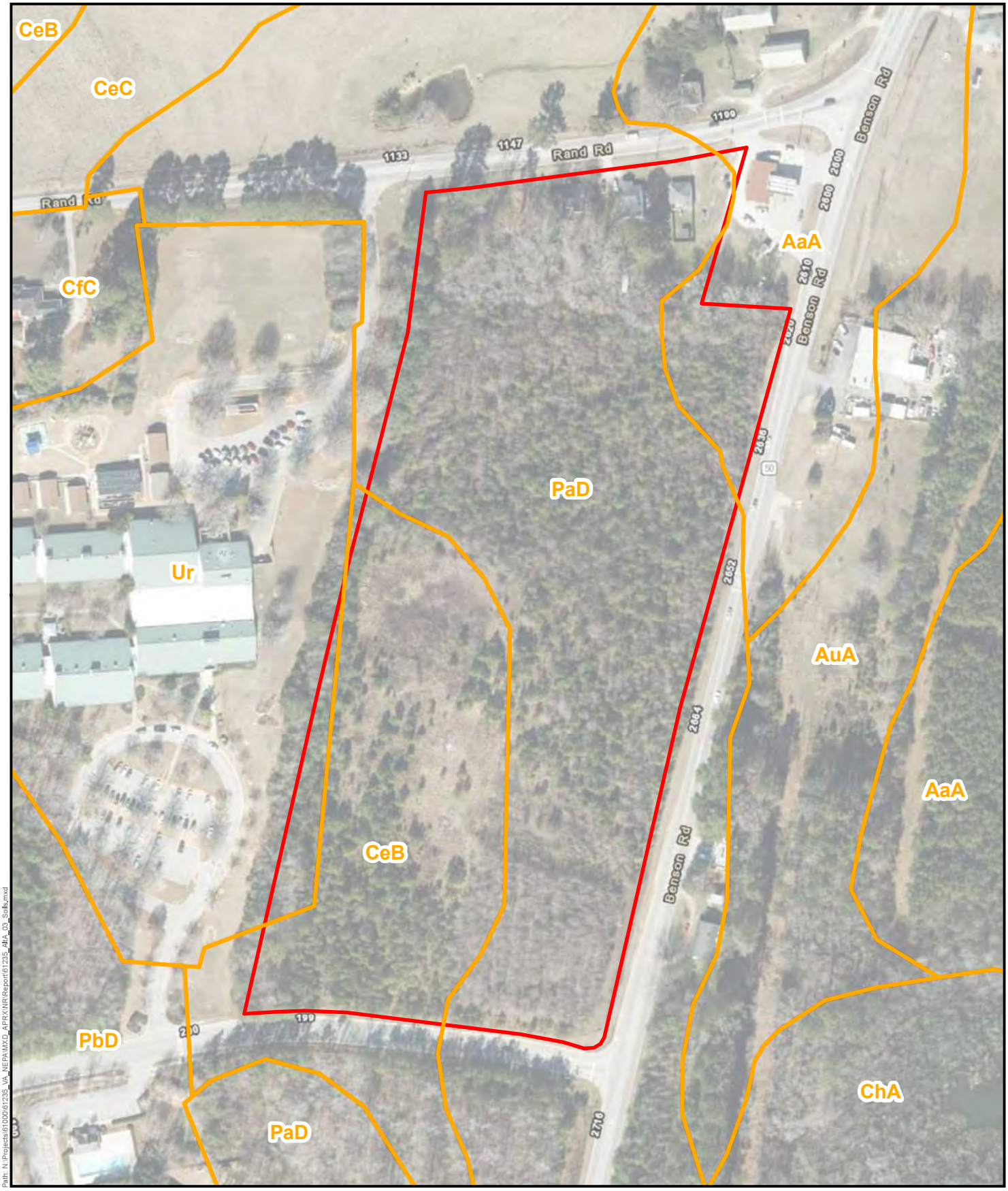
7.5-MINUTE USGS TOPOGRAPHIC
1976 GARNER QUADRANGLE
WAKE COUNTY, NORTH CAROLINA

Alternative A
Quadrangle Boundary

Background:	USGS Topographic
Scale:	1:24,000
Created By:	JLZ
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	May 22, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 1,600 3,200 Feet
0 450 900 Meters



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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE A
FIGURE 3

SOIL MAP UNITS
WAKE COUNTY, NORTH CAROLINA

Soil Map Unit Boundary
Alternative A

Background:	ESRI World Imagery 2017
Scale:	1:2,400
Created By:	JLZ
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	May 22, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 160 320 Feet
0 40 80 Meters

Path: N:\Projects\61000\61235_VA_NEPA\MXD_APRX\NR\Report\61235_AttA_04_Delineation.mxd

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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE A
FIGURE 4

DELINEATION RESULTS
WAKE COUNTY, NORTH CAROLINA

- Data Point
- Wetland Flag
- Culvert
- Alternative A

Potential JD Resources

- Ephemeral Channel
- PFO Wetland

Background:	ESRI World Imagery 2017
Scale:	1:2,000
Created By:	JLZ
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	May 22, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 140 280 Feet

0 30 60 Meters

APPENDIX B

Data Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative A City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WA_Wet

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Garner

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.656087 Long: -78.615151 Datum: NAD83

Soil Map Unit Name: Pacolet sandy loam NWI classification: PFO

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 _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Wetland appears to be a relic pond dug in uplands with an ephemeral outfall channel dug through uplands. Water level is low enough that wetland vegetation is present around the periphery of the feature.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 6
Water Table Present?	Yes ✓	No _____	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ 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: WA_Wet

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	20	YES	FAC
2. Liquidambar styraciflua	20	YES	FAC
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Liquidambar styraciflua	20	YES	FAC
2. Salix nigra	5	NO	OBL
3. Ligustrum sinense	5	NO	FACU
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	30	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Carex sp. (species unknown)	20	-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	20	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	0	= Total Cover	

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		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ___

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

SOIL

Sampling Point: WA_Wet

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	90	10YR 5/6	10	C	PL	SCL	faint ORCs
4-8	10YR 5/2	80	10YR 5/6	20	C	M	SCL	prominent mottles
8-12	10YR 6/1	50	10YR 5/6	50			SCL	
12-16+	10YR 5/6	80	10YR 6/1	20			SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative A City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WA_Up

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Garner

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.656177 Long: -78.615116 Datum: NAD83

Soil Map Unit Name: Pacolet sandy loam NWI classification: Upland

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 _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Vegetation comprised of FAC and FACU species only.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology indicators present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WA_Up

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	20	YES	FAC
2. Liquidambar styraciflua	20	YES	FAC
3. Quercus phellos	20	YES	FAC
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Quercus phellos	10	YES	FAC
3. Ligustrum sinense	15	YES	FACU
4. Prunus serotina	10	YES	FACU
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	45	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1. Lonicera japonica	5	YES	FACU
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 62.5 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ___

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

SOIL

Sampling Point: WA_Up

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					sandy loam	
2-10	5YR 4/6	100					SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: see below

Depth (inches): 10"

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicators present.

Upland data was taken on north side of Wetland WA. Soils were extremely compacted from the surface down. Could not penetrate auger deeper than 10". Likely a result of previous mechanical clearing/grubbing observed on historical aerials for the site.

NC DWQ Stream Identification Form Version 4.11

Date: 5/14/2020	**Project/Site**: VA Clinic - Alternative A	**Latitude:** 35.656219
Evaluator: M. Mickley, L. Coleman	**County:** Wake	**Longitude:** -78.615000
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 13.0	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name*: Garner

A. Geomorphology (Subtotal = 6.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 1.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 5.0)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 5/14/2020	**Project/Site**: VA Clinic - Alternative A	**Latitude:** 35.656748
Evaluator: M. Mickley, L. Coleman	**County:** Wake	**Longitude:** -78.613611
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 13.0	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name*: Garner

A. Geomorphology (Subtotal = 5.0)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5.0)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 3.0)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

APPENDIX C

Photographs

Photograph 1. Representative upland forest community; primarily pine in southern half of the project study area (May 14, 2020 by L. Coleman).

Photograph 2. Representative upland forest community; primarily mixed pine/hardwood in the northern half of project study area (May 14, 2020 by L. Coleman).

Photograph 3. Representative upland scrub-shrub community; primarily hardwood species surrounding disturbed areas (May 14, 2020 by L. Coleman).

Photograph 4. Representative upland scrub-shrub community; open areas with more pine and herbaceous mixed in (May 14, 2020 by L. Coleman).

Photograph 5. Wetland WA, facing southwest (May 14, 2020 by L. Coleman).

Photograph 6. Ephemeral channel EPH1 from Wetland WA, facing northeast (May 14, 2020 by L. Coleman).

Photograph 7. Ephemeral channel EPH1 approximately 50' below Wetland WA, facing northeast (May 14, 2020 by L. Coleman).

Photograph 8. Ephemeral channel EPH2 above culvert, facing northeast (May 14, 2020 by L. Coleman).

Photograph 9. Ephemeral channel EPH2 below culvert, facing west from eastern study limits (May 14, 2020 by L. Coleman).

Photograph 10. Relic stormwater basin, facing south (May 14, 2020 by L. Coleman).

D.2 Jurisdictional Determination Request to USACE for Alternative A

F. JURISDICTIONAL DETERMINATION (JD) TYPE (Select One)

☐ I am requesting that the Corps provide a preliminary JD for the property identified herein.

A Preliminary Jurisdictional Determination (PJD) provides an indication that there may be "waters of the United States" or "navigable waters of the United States"on a property. PJDs are sufficient as the basis for permit decisions. For the purposes of permitting, all waters and wetlands on the property will be treated as if they are jurisdictional "waters of the United States". PJDs cannot be appealed (33 C.F.R. 331.2); however, a PJD is "preliminary" in the sense that an approved JD can be requested at any time. PJDs do not expire.

☑ I am requesting that the Corps provide an approved JD for the property identified herein.

An Approved Jurisdictional Determination (AJD) is a determination that jurisdictional "waters of the United States" or "navigable waters of the United States" are either present or absent on a site. An approved JD identifies the limits of waters on a site determined to be jurisdictional under the Clean Water Act and/or Rivers and Harbors Act. Approved JDs are sufficient as the basis for permit decisions. AJDs are appealable (33 C.F.R. 331.2). The results of the AJD will be posted on the Corps website. A landowner, permit applicant, or other "affected party" (33 C.F.R. 331.2) who receives an AJD may rely upon the AJD for five years (subject to certain limited exceptions explained in Regulatory Guidance Letter 05-02).

☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

G. ALL REQUESTS

☐ Map of Property or Project Area. This Map must clearly depict the boundaries of the review area.

☐ Size of Property or Review Area 16.76 acres.

☐ The property boundary (or review area boundary) is clearly physically marked on the site.

Path: N:\Projects\61000\61235_VA_NEPA\MXD_APRX\NR\Report\61235_AIA_04_Delineation_20200716.mxd

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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE A
FIGURE 4

DELINEATION RESULTS
WAKE COUNTY, NORTH CAROLINA

Upland Pond
Alternative A Boundary

Background:	ESRI World Imagery 2017
Scale:	1:2,000
Created By:	EWS
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	July 16, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 140 280 Feet

0 30 60 Meters

D.3 Wetland and Waterbody Delineation Report for Alternative B

U.S. Department of Veterans Affairs

WETLAND AND WATERBODY DELINEATION REPORT FOR THE RALEIGH OUTPATIENT CLINIC – ALTERNATIVE B, WAKE COUNTY, NORTH CAROLINA

May 2020

Contract Number: GS-10F-0360T **Order Number:** 36C10F20F0039

Prepared for:
U.S. Department of Veterans Affairs
Office of Construction and Facilities Management

Prepared by:
SWCA Environmental Consultants
201 Chatham Street, Suite 3
Sanford, North Carolina 27330
(919) 292-2200
www.swca.com

Under Subcontract to:
LRS Federal LLC
565 Benfield Blvd, Suite 400
Severna Park, MD 21146
(443) 760-4460
www.lrsfederal.com

CONTENTS

Appendices

Tables

1 INTRODUCTION

The United States Department of Veterans Affairs (VA) is proposing to construct an outpatient facility in Wake County, North Carolina (herein called the project). The project consists of two build alternatives and one no-build alternative currently under consideration. Alternative B is located southeast of the intersection of Ten Ten Road and Old Stage Road (Appendix A: Figure 1). The Alternative B study area (project study area) consists of approximately 32.88 acres of active agricultural fields, small wooded stands, and rural residential development. The following Wetlands and Waterbody Delineation Report (report) has been prepared to assist in the preparation of an Environmental Assessment (EA) for the purposes of the National Environmental Policy Act (NEPA).

The objectives of this report are to identify and evaluate jurisdictional wetlands and other waters within the project study area that may be subject to U.S. Army Corps of Engineers (USACE) and North Carolina Department of Environmental Quality (NCDEQ) jurisdiction under Section 404 and/or 401 of the Clean Water Act (CWA).

This report describes the methods used to conduct an on-site delineation, results of the delineation, and provides a summary conclusion regarding the jurisdictional status of the aquatic resources identified. Results and conclusions provided in this report represent SWCA's professional opinion based on knowledge and experience with the USACE, including their regulatory guidance, documents, and manuals. Potentially jurisdictional areas identified in the project study area have not yet been verified by the USACE and/or NCDEQ as of the time of this report.

The principal personnel contributing to this report and associated field work are:

Lead Investigator:	Mark Mickley
Education:	B.S. Biology, 2003
Experience:	Sr. Project Manager, SWCA, Inc., January 2019 - Present Manager/Project Manager, CALYX, Inc., June 2004 – December 2018
Responsibilities:	Wetland and stream delineation, T/E species assessment, document preparation
Investigator:	Lucas Coleman
Education:	B.S. Environmental Science, 2012
Experience:	Development Manager, SWCA, Inc., April 2019 - Present Development Associate, REAP NC, LLC, May 2016 – April 2019
Responsibilities:	Wetland and stream delineation support, GPS/GIS data collection

2 METHODOLOGY

In accordance with USACE methodology outlined in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Eastern Mountains and Piedmont Region* (USACE 2012), wetlands and other potentially jurisdictional waters were identified and approximated through the combined use of existing publicly available baseline data and field investigations.

2.1 Desktop Analysis Methodology

The following publicly available data sources were used to complete a desktop analysis of the project study area to assess the likelihood of wetlands and other jurisdictional waters to occur within the project study area:

- Current and historical aerial imagery
- Federal Emergency Management Agency (FEMA) National Flood Hazard mapping (FEMA 2020)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI [USFWS 2015]) mapping
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD; [USGS 2013])
- NCDEQ wetland mapping system (NCDEQ 2003)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2020)

The results of the desktop analysis were used to identify the likely locations of wetlands and waterbodies for field evaluations described below.

2.2 Field Methodology

SWCA conducted a field evaluation to determine the presence or absence of wetlands and other potentially jurisdictional waters in accordance with guidance and information available from the following sources:

- Corps of Engineers Wetlands Delineation Manual (USACE 1987)
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (USACE 2012)
- Field Indicators of Hydric Soils in the United States, Version 8.0 (NRCS 2016a)
- Revised (December 2, 2008) Guidance on Clean Water Act Jurisdiction following the Supreme Court Decision in Rapanos v. U.S. and Carabell v. U.S. (revision to the joint memorandum issued by the USACE and the U.S. Environmental Protection Agency [EPA] on June 5, 2007) (EPA 2008)
- North Carolina Department of Water Quality (NCDWQ) Methodology for Identification of Intermittent and Perennial Streams and Their Origins, Version 4.11 (NCDWQ 2010)

The presence or absence of wetlands was determined in the field using routine determination methods outlined in the Corps of Engineers Wetlands Delineation Manual and Regional Supplement (USACE 1987, 2012). Wetlands were identified by positive indicators of hydrology, hydrophytic vegetation, and hydric soils. Under normal conditions, all three parameters must be present for an area to be considered a wetland in accordance with Section 404 of the CWA.

Wetlands were then classified according to the Cowardin System, as described in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). This is a hierarchical system based on the topographic position and vegetation type of a wetland which aids resource managers and others by providing uniformity of concepts and terms used to define wetlands according to hydrologic, geomorphologic, chemical, and biological factors. Data collected at each site were used to approximate the wetland boundary and were recorded on USACE Eastern Mountains and Piedmont wetland determination data forms. Wetland boundaries were recorded using GPS units capable of sub-meter accuracy and were flagged using standard survey flagging.

3 DESKTOP RESULTS

3.1 Landscape Setting

Topography within the project study area is relatively flat, with the elevation ranging from approximately 395 to 412 feet above mean sea level (Appendix A: Figure 2). A review of the FEMA National Flood Hazard Layer showed that the entire project study area is located within Zone X (area of minimal flood hazard) (FEMA 2020). No NWI, NHD, or NCDEQ wetlands or waterbody features were identified within the project study area during desktop reviews.

3.2 Soils

Two mapped soil types are present within the project study area (Appendix A: Figure 3) according to the USDA NRCS (2020). One hydric soil, Rains sandy loam, was identified as present in the project study area. Hydric soils are defined as soils formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Table 1 provides additional detail for the soil types present in the project study area.

Table 1. NRCS Soil Types within the Raleigh Outpatient Clinic – Alternative B Study Area

Soil Name (Map Unit)	Hydric	Drainage Class	Frequency of Flooding/ Ponding	Depth to Water Table (inches)	Acreage within Project Study Area
Fuquay loamy sand, 0 to 6 percent slopes (FrB)	No	Well drained	None/None	34 to 40	23.76
Rains sandy loam, 0 to 2 percent slopes (RaA)	Yes	Poorly drained	None/None	12 to 36	9.12

Source: NRCS (2020)

3.3 Hydrology

Rainfall has the most substantial influence on maintaining wetland hydrology. During the summer months, evapotranspiration rates are at their highest, which often results in receding water tables. Therefore, it is important to accurately evaluate the normality of rainfall with respect to its influence on wetland hydrology. This was done by employing the Direct Antecedent Rainfall Evaluation Method (DAREM) (Sprecher and Warne 2000). Precipitation data from the National Weather Service's Cary, North Carolina station, approximately 8 miles northwest of the project study area, was used to determine the normality of rainfall for the project study area (NRCS 2016b). This was compared with the DAREM

calculations data for Wake County, North Carolina for the 3-month period prior to field evaluation. The DAREM data was calculated using observed rainfall data and comparative Wetland Climate Table (WETS) data (Table 2).

Table 2. Antecedent Rainfall Conditions for the Raleigh Outpatient Clinic – Alternative B Study Area

Prior Month	WETS Rainfall Percentile (inches)		Measured Rainfall (inches)	Evaluation Month: May 2020		
	30th	70th		Condition[a]	Month Weight[b]	Score[c]
April	2.82	4.50	3.82	2	3	6
March	2.54	4.00	2.27	1	2	2
February	2.00	3.33	6.27	3	1	3
					Sum:	**11**
				Description[d]:	**Normal**	

[a] Condition values are 1 for <30th percentile, 2 for between 30th and 70th percentile, 3 for > 70th percentile

[b] Month weight is 3 for the most recent month, 2 for the previous month, and so on

[c] Score is the product of the condition and month weight

[d] Description: Drier than normal (sum is 6–9), normal (sum is 10–14), wetter than normal (sum is 15–18)

Based upon these calculations, hydrologic conditions for the project study area were expected to be normal at the time of field evaluations.

4 FIELD RESULTS

SWCA conducted a field investigation on May 14, 2020 to assess the general site characteristics, ground-truth the results of desktop analysis, assess the likelihood of wetland presence in areas mapped as hydric soils, and delineate the boundaries of all features determined to be present. Figure 4 in Appendix A shows the delineated features and data point locations. Data point data sheets are included in Appendix B. Representative photographs for delineated aquatic features are provided in Appendix C.

4.1 Vegetation Communities

SWCA observed four vegetation community types within the project study area including two wetland communities—Palustrine Emergent Wetland (PEM) and Palustrine Forested Wetland (PFO)—and two non-wetland/upland communities—herbaceous and forested. Vegetation was identified to the species level when possible to identify the plant communities present. Hydrophytic vegetation, which is one parameter of a jurisdictional wetland, is defined as a plant community with over 50 percent of the dominant plant species ranked as obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC) when compared to dominant plant species ranked as facultative upland (FACU) or upland (UPL). In wetlands, the species identified at each data point along with their areal coverage are recorded on the data forms included in Appendix B. A photographic log, which includes a representative subset of all vegetation communities observed within the project study area as viewed from select data points, is provided in Appendix C. The dominant species identified within each vegetation community type are listed in the following sections.

Palustrine Emergent Wetland (PEM)

The PEM wetland communities consist of a prevalence of hydrophytic non-woody vegetation less than 3 feet in height. Dominant herbaceous species include broomsedge (*Andropogon virginicus*), lamp rush (*Juncus effusus*), cottongrass bulrush (*Scirpus cyperinus*), and goldenrod species (*Solidao* sp.).

Palustrine Forested Wetland (PFO)

The PFO wetland communities consist of a prevalence of hydrophytic woody species 20 feet or greater in height and 3 inches or greater in diameter at breast height. The tree stratum is dominated by American sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), and loblolly pine (*Pinus taeda*).

Herbaceous Upland

The herbaceous upland communities consist of non-wetland areas dominated by non-woody vegetation. Dominant herbaceous species include broomsedge, goldenrods, blackberry (*Rubus* sp.), henbit (*Lamium amplexicaule*), and meadow false rye grass (*Schedonorus pratensis*). This community includes recently plowed agricultural fields.

Forested Upland

The forested upland communities consist of non-wetland areas dominated by woody species 20 feet or greater in height and 3 inches or greater in diameter at breast height. Dominant trees include American sweetgum, loblolly pine, red maple, water oak (*Quercus nigra*), and white oak (*Quercus alba*).

4.2 Wetlands

SWCA delineated two distinct wetland areas totaling 2.58 acres within the project study area. These wetlands are underlain by hydric soils. The locations of these wetlands are depicted on Figure 4 in Appendix A and additional information is detailed below in Table 3.

Table 3. Wetlands Identified within the Raleigh Outpatient Clinic – Alternative B Study Area

Feature ID	Survey Date	Soil Series	Jurisdictional Status*	Classification‡	Acreage within Project Study Area
Wetland WA	05/14/2020	Rains sandy loam (hydric)	Jurisdictional	PEM	0.28
				PFO	0.68
Wetland WB	05/14/2020	Rains sandy loam (hydric)	Jurisdictional	PEM	0.16
				PFO	1.46
Total PEM					**0.44**
Total PFO					**2.14**
Overall Total					**2.58**

* This determination is SWCA's professional opinion of USACE jurisdictional status of each feature under Section 404 of the Clean Water Act (CWA)

‡ PEM = Palustrine Emergent Wetland; PFO = Palustrine Forested Wetland

4.3 Waterbodies

No surface waters were identified in the project study area. One ephemeral channel (EPH1) was observed connecting two portions of Wetland WA (Appendix A: Figure 4). This feature appeared to be a manmade ditch approximately 3-5 feet wide and 2 feet deep. No water or vegetation was present in the channel during the time of survey. SWCA completed a NCDWQ Methodology for Identification of Intermittent and Perennial Streams and Their Origins, Version 4.11 data form for feature EPH1. Based upon conditions observed at the time of survey, EPH1 scored less than 19 which is the lower threshold necessary to meet jurisdictional status. A copy of the data form has been included in Appendix B.

5 CONCLUSIONS

SWCA conducted a field investigation of the project study area on May 14, 2020. SWCA biologists identified two potentially jurisdictional wetlands and one likely non-jurisdictional ephemeral channel under Sections 404 and/or 401 of the CWA. Wetlands and waterbodies are regulated in North Carolina by the USACE, who authorize projects in compliance with Section 404 of the Clean Water Act; U.S. Environmental Protection Agency (EPA), who enforces Section 404; and NCDEQ, who issue Section 401 Water Quality Certifications for all Section 404 Permits.

The conclusions provided in this report represent SWCA's professional opinion based on SWCA's knowledge and experience with the USACE, including the USACE's regulatory guidance documents and manuals. The USACE have final authority in determining the status and presence of jurisdictional waters of the U.S. and the extent of their boundaries.

6 LITERATURE CITED

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Washington, D.C.: U.S. Fish and Wildlife Service, Office of Biological Services.

Federal Emergency Management Administration (FEMA). 2020. National Flood Hazard Layer Viewer. Available at: https://hazards-fema.maps.arcgis.com/home/webmap/viewer.html?useExisting=1. Accessed May 2020.

Natural Resources Conservation Service (NRCS). 2015. Hydric Soils Definitions. Available at: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/pr/soils/?cid=nrcs141p2_037283. Accessed May 2020.

———. 2016a. *Field Indicators of Hydric Soils in the United States, Version 8.0*. U.S. Department of Agriculture, Natural Resources Conservation Service in cooperation with the National Technical Committee for Hydric Soils.

———. 2016b. Wetlands Climate Evaluation Dataset (WETS) for Wake County, NC (Cary, NC). Natural Resources Conservation Service, National Weather and Climate Center. Available at: http://agacis.rcc-acis.org/?fips=37139. Accessed May 2020.

———. 2020. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/. Accessed May 2020.

North Carolina Department of Environmental Quality (NCDEQ). 2003. Wetlands Interactive Mapping. Available at: https://deq.nc.gov/about/divisions/coastal-management/coastal-management-data/setback-factor-maps-1998-shoreline/wetlands-interactive-mapping. Accessed May 2020.

North Carolina Division of Water Quality (NCDWQ). 2010. *Methodology for Identification of Intermittent and Perennial Streams and Their Origins, Version 4.11.* North Carolina Department of Environment and Natural Resources, Division of Water Quality. Raleigh, NC.

Sprecher, S.W., and A.G. Warne. 2000. *Accessing and Using Meteorological Data to Evaluate Wetland Hydrology*. ERDC/EL TR-WRAP-00-01. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (USACE). 1987. *U.S. Army Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station Environmental Laboratory.

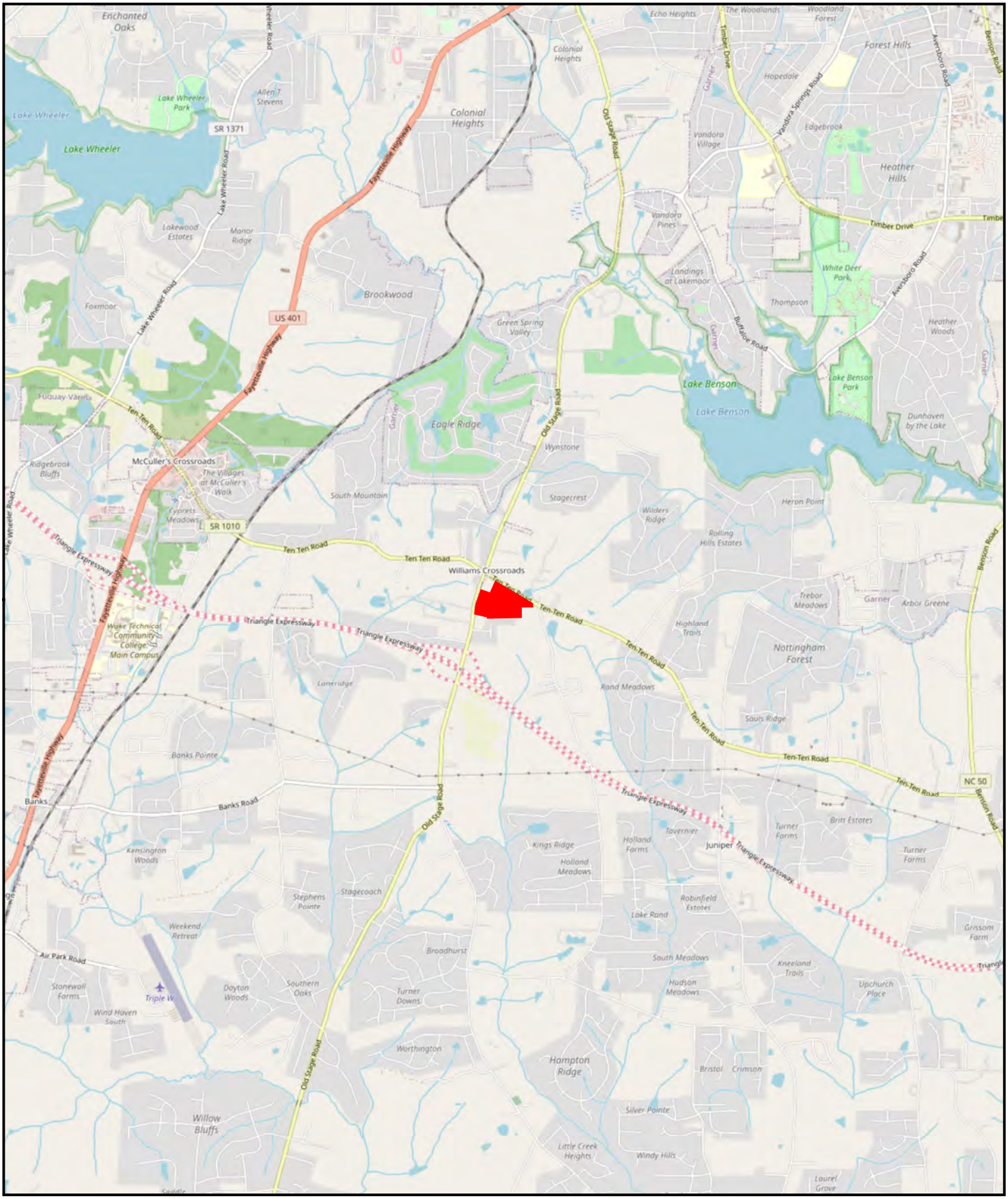
———. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region.* ERDC/EL TR-12-9. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service (USFWS). 2015. National Wetlands Inventory. Available at: http://www.fws.gov/wetlands/Data/Mapper.html. Accessed May 2020.

U.S. Geological Survey (USGS). 2013. National Hydrography Dataset. Available at: http://nhd.usgs.gov/. Accessed May 2020.

APPENDIX A

Figures



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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE B
FIGURE 1

VICINITY MAP
WAKE COUNTY, NORTH CAROLINA

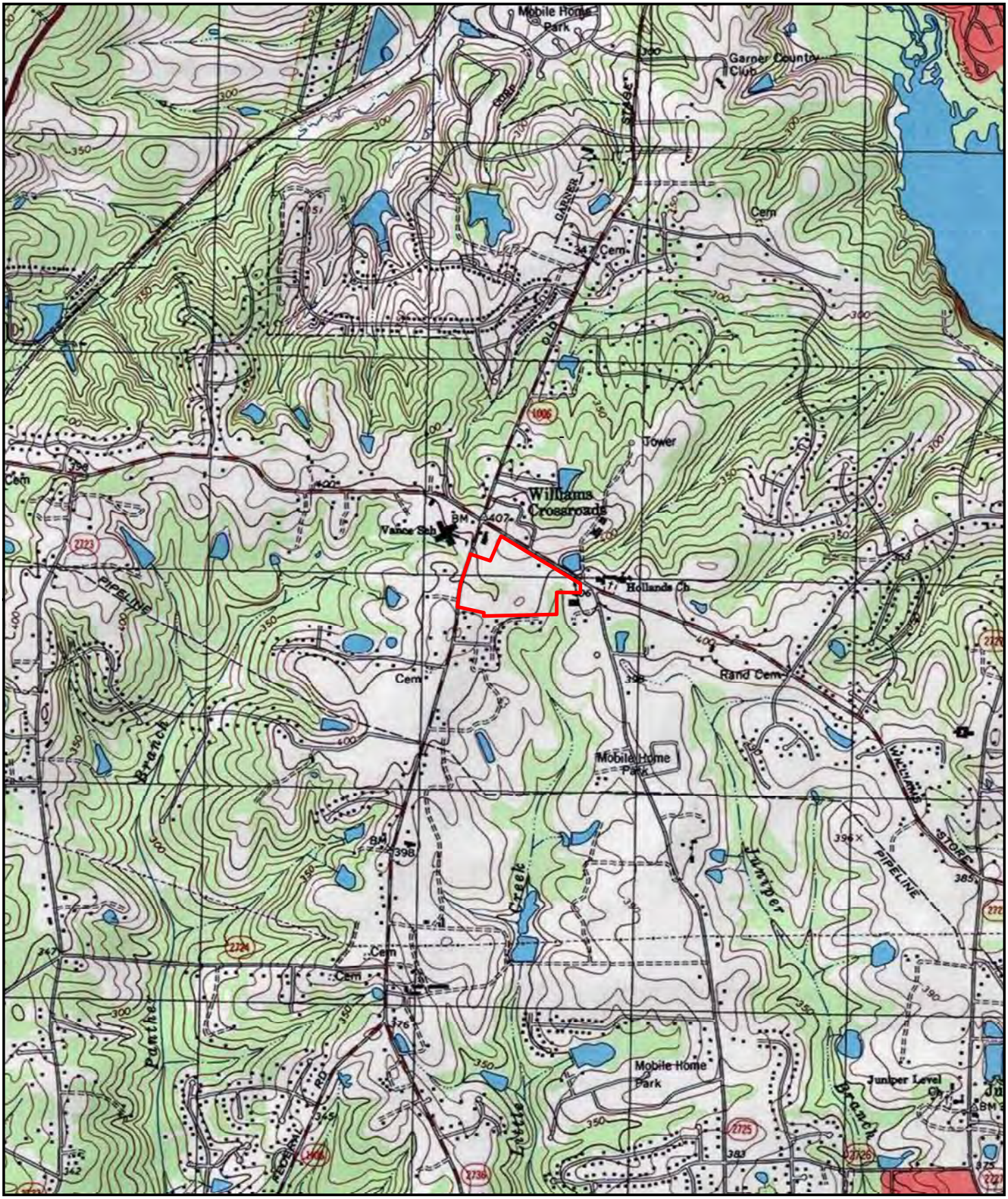
Alternative B

Background:	Open Street Maps
Scale:	1:50,000
Created By:	JLZ
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	May 22, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 3,000 6,000 Feet

0 800 1,600 Meters



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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE B
FIGURE 2

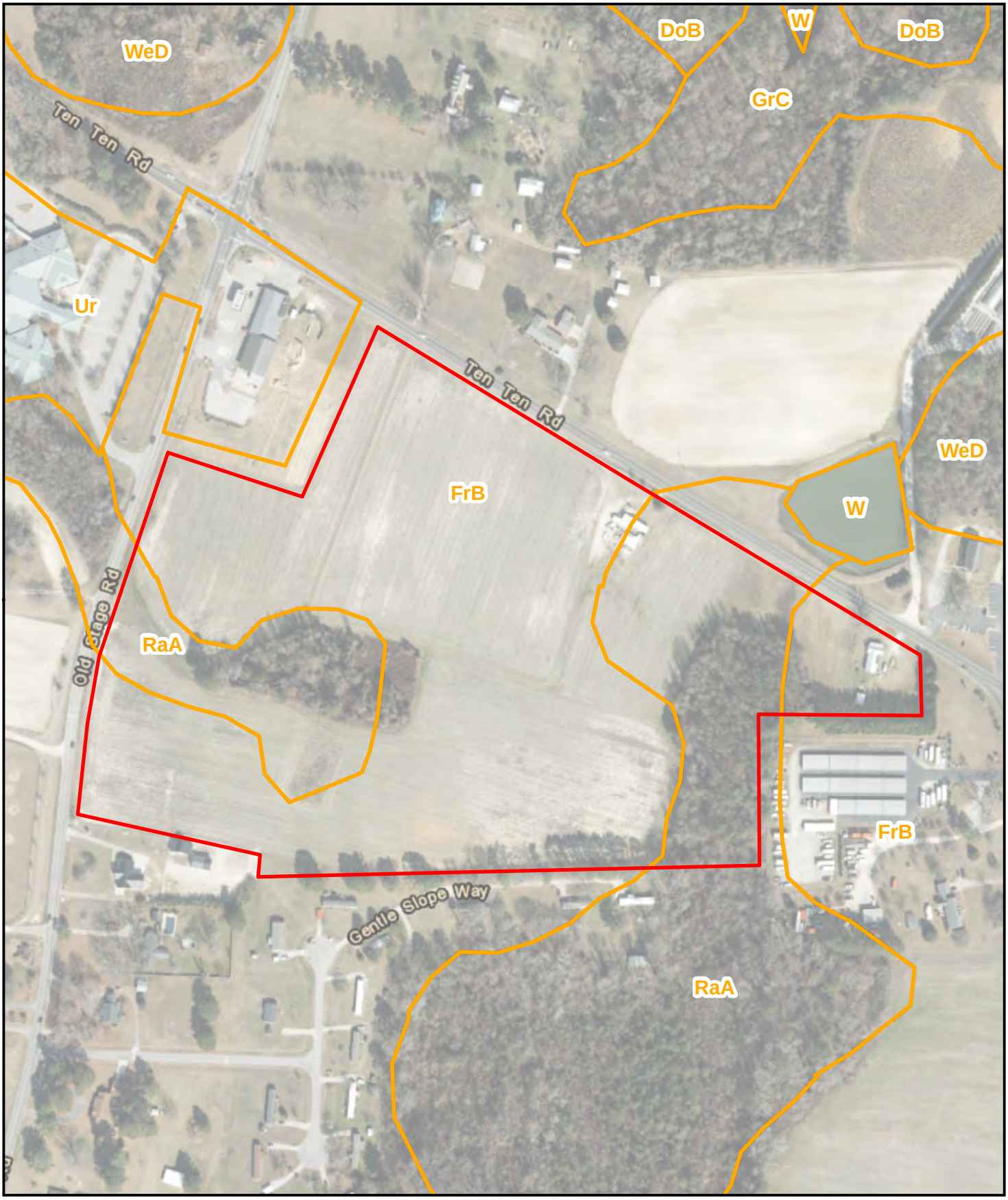
7.5-MINUTE USGS TOPOGRAPHIC
1976 LAKE WHEELER QUADRANGLE
WAKE COUNTY, NORTH CAROLINA

Alternative B
Quadrangle Boundary

Background:	USGS Topographic
Scale:	1:24,000
Created By:	JLZ
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	May 22, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 1,600 3,200 Feet
0 450 900 Meters



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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE B
FIGURE 3

SOIL MAP UNITS
WAKE COUNTY, NORTH CAROLINA

Soil Map Unit Boundary
Alternative B

Background:	ESRI World Imagery 2017
Scale:	1:3,500
Created By:	JLZ
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	May 22, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 240 480 Feet

0 60 120 Meters

Path: N:\Projects\61000\61235_VA_NEPA\MXD_APRX\NR\Report\61235_AltB_Delineation.mxd

SWCA ENVIRONMENTAL CONSULTANTS Sound Science. Creative Solutions.	VA RALEIGH OUTPATIENT CLINIC ALTERNATIVE B FIGURE 4 DELINEATION RESULTS WAKE COUNTY, NORTH CAROLINA	Data Point Wetland Flag Alternative B **Potential JD Resources** Ephemeral Channel PEM Wetland PFO Wetland

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Background:	ESRI World Imagery 2017
Scale:	1:3,200
Created By:	JLZ
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	May 22, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 220 440 Feet

0 50 100 Meters

APPENDIX B

Data Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WA_Wet1

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Williams Crossroads

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.652848 Long: -78.665774 Datum: NAD83

Soil Map Unit Name: Rains sandy loam NWI classification: PFO

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 _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 4

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Surface water not present in immediate vicinity of data plot, but inundation is present in portions of the wetland.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WA_Wet1

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	60	YES	FAC
2. Liriodendron tulipifera	10	NO	FACU
3. Liquidambar styraciflua	10	NO	FAC
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Acer rubrum	20	YES	FAC
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	30	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Boehmeria cylindrica	30	YES	FACW
2. Microstegium vimineum	20	YES	FAC
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	50	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1. Smilax rotundifolia	10	NO	FAC
2. Lonicera japonica	5	NO	FACU
3. Toxicodendron radicans	30	YES	FAC
4. Vitis rotundifolia	20	YES	FAC
5.		-	-
6.		-	-
	65	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ___

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

SOIL Sampling Point: WA_Wet1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	85	10YR 4/6	15	C	PL	SCL	ORCs
6-10	10YR 2/1	100					SCL	
10-12+	10YR 4/1	100					SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WA_Up1

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Williams Crossroads

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.652949 Long: -78.665829 Datum: NAD83

Soil Map Unit Name: Rains sandy loam NWI classification: Upland

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 _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Vegetation comprised of all FAC and FACU species.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology indicators present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WA_Up1

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	10	NO	FACU
2. Juglans nigra	20	YES	FACU
3. Liquidambar styraciflua	40	YES	FAC
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Liquidambar styraciflua	30	YES	FAC
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	30	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1. Smilax rotundifolia	10	YES	FAC
2. Lonicera japonica	10	YES	FACU
3. Vitis rotundifolia	20	YES	FAC
4.		-	-
5.		-	-
6.		-	-
	40	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ___

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

SOIL

Sampling Point: WA_Up1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100					sandy loam	
6-10	10YR 6/4	100					SCL	
10-14+	2.5Y 5/6	100					SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators present.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WA_Wet2

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Williams Crossroads

Landform (hillslope, terrace, etc.): drainage/swale Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.652836 Long: -78.666666 Datum: NAD83

Soil Map Unit Name: Rains sandy loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Grass swale from wooded wetland to Old Stage Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 10

Wetland Hydrology Present? Yes ✓ 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: WA_Wet2

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Juncus effusus	30	YES	FACW
2. Microstegium vimineum	5	NO	FAC
3. unidentified herbaceous	30	YES	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ___

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

Unable to identify some present herbaceous plants. However, based on observations and best professional judgment I believe hydrophytic vegetation exists.

SOIL Sampling Point: WA_Wet2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	85	10YR 5/4	15	C	M	SCL	prominent mottles
12-16+	10YR 6/2	90	10YR 5/4	10	C	M	SCL	few distinct mottles

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WA_Up2

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Williams Crossroads

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.652344 Long: -78.665833 Datum: NAD83

Soil Map Unit Name: Rains sandy loam NWI classification: Upland

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 ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Upland plot taken in active farm field that has recently been sprayed and disked. As a result, absolutely no vegetation is present and the soil surface was disturbed. Plot was taken to reference soil conditions adjacent to wetland data point WA_Wet3.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology indicators present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WA_Up2

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ✓

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

No vegetation of any kind present.

SOIL

Sampling Point: WA_Up2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3						sandy loam	
4-12+	2.5Y 6/4						SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators present.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WA_Wet3

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Williams Crossroads

Landform (hillslope, terrace, etc.): drainage/seep Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.652313 Long: -78.665555 Datum: NAD83

Soil Map Unit Name: Rains sandy loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Wetland draw that extended into a plowed agricultural field. Historical aerials show that this draw may be planted or not planted depending on year-to-year conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): <2

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 10

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Surface water not present in immediate vicinity of data plot, but inundation is present in portions of the wetland.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WA_Wet3

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Juncus effusus	30	YES	FACW
2. Microstegium vimineum	10	YES	FAC
3. unidentified herbaceous	10	YES	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ___

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

SOIL

Sampling Point: WA_Wet3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	85	10YR 5/4	15	C	M	SCL	prominent mottles
12-16+	10YR 6/2	90	10YR 5/4	10	C	M	SCL	few distinct mottles

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WB_Wet1

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Williams Crossroads

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.652671 Long: -78.662457 Datum: NAD83

Soil Map Unit Name: Rains sandy loam NWI classification: PFO

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 _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 12

Wetland Hydrology Present? Yes ✓ 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: WB_Wet1

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	60	YES	FAC
2. Liriodendron tulipifera	20	YES	FACU
3. Liquidambar styraciflua	10	NO	FAC
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Acer rubrum	10	YES	FAC
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	20	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Boehmeria cylindrica	5	NO	FACW
2. Microstegium vimineum	15	YES	FAC
3. Carex sp. (species unknown)	20	YES	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	40	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1. Smilax rotundifolia	5	YES	FAC
2. Vitis rotundifolia	10	YES	FAC
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	15	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ___

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

SOIL Sampling Point: WB_Wet1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	85	10YR 4/4	15	C	PL	sandy loam	ORCs
6-10	10YR 4/1	100					sandy loam	
10-18	10YR 6/2	100					sandy loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ✓ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Soil profile most closely matches indicator F13 (umbric surface) with ORCs present in the top 6". Also meets indicator F8 (redox depressions) and the wetland may flood/pond occasionally, but does not appear to flood/pond frequently.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WB_Up1

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Williams Crossroads

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.652714 Long: -78.662703 Datum: NAD83

Soil Map Unit Name: Rains sandy loam NWI classification: Upland

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 ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology indicators present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WB_Up1

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	20	YES	FAC
2. Liriodendron tulipifera	40	YES	FACU
3. Prunus serotina	15	NO	FACU
4. Acer rubrum	5	NO	FAC
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Liriodendron tulipifera	5	YES	FACU
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	5	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. Phytolacca americana	10	YES	FACU
2. Microstegium vimineum	20	YES	FAC
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	30	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. Lonicera japonica	30	YES	FACU
2. Vitis rotundifolia	20	YES	FAC
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	50	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	95	x 4 =	380
UPL species	0	x 5 =	0
Column Totals:	160 (A)		575 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ✓

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

SOIL

Sampling Point: WB_Up1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					fine sandy loam	salt & pepper
6-10	10YR 6/3	100					sandy loam	
10-14	10YR 6/4	100					sandy loam	
14-18	10YR 6/5	100					sandy loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators present.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WB_Wet2

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Williams Crossroads

Landform (hillslope, terrace, etc.): draw Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.653311 Long: -78.662500 Datum: NAD83

Soil Map Unit Name: Rains sandy loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

PEM portion of Wetland WB adjacent to Ten Ten Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 10

Wetland Hydrology Present? Yes ✓ 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: WB_Wet2

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Pinus taeda	2	-	FAC
2. Acer rubrum	5	YES	FAC
3. Liquidambar styraciflua	5	YES	FAC
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	12	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Juncus effusus	30	YES	FACW
2. Scirpus cyperinus	5	NO	FACW
3. Andropogon virginicus	40	YES	FACU
4. unidentified herbaceous	10	NO	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	85	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ___

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

SOIL

Sampling Point: WB_Wet2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	85	10YR 5/4	15	C	PL	sandy loam	ORCs
12-16+	10YR 6/2	90	10YR 5/4	10	C	M	sandy loam	few distinct mottles

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Raleigh / Wake Sampling Date: 5/14/2020

Applicant/Owner: US Department of Veterans Affairs State: NC Sampling Point: WB_Up2

Investigator(s): M. Mickley, L. Coleman Section, Township, Range: Williams Crossroads

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.653316 Long: -78.662386 Datum: NAD83

Soil Map Unit Name: Rains sandy loam NWI classification: Upland

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 ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology indicators present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WB_Up2

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Acer rubrum	2	YES	FAC
2. Cornus florida	2	YES	FACU
3. Liquidambar styraciflua	5	YES	FAC
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	9 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Andropogon virginicus	40	YES	FACU
2. Rubus argutus	15	YES	FACU
3. Solidago sp.	15	YES	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	7	x 3 =	21
FACU species	57	x 4 =	228
UPL species		x 5 =	
Column Totals:	64 (A)		249 (B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 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 ✓

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

SOIL

Sampling Point: WB_Up2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3						sandy loam	
4-12+	2.5Y 6/4						SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
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- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
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- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators present.

NC DWQ Stream Identification Form Version 4.11

Date: 5/14/2020	**Project/Site:** VA Clinic - Alternative B	**Latitude:** 35.6501555
Evaluator: M. Mickley, L. Coleman	**County:** Wake	**Longitude:** -78.665555
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 11.0	**Stream Determination (circle one)** **Ephemeral** **Intermittent** **Perennial**	**Other** *e.g. Quad Name*: Lake Wheeler

A. Geomorphology (Subtotal = 3.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	**2**	3
2. Sinuosity of channel along thalweg	0	**1**	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	**0**	1	2	3
4. Particle size of stream substrate	**0**	1	2	3
5. Active/relict floodplain	**0**	1	2	3
6. Depositional bars or benches	**0**	1	2	3
7. Recent alluvial deposits	**0**	1	2	3
8. Headcuts	**0**	1	2	3
9. Grade control	**0**	0.5	1	1.5
10. Natural valley	0	**0.5**	1	1.5
11. Second or greater order channel	No = **0**		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3.5)				
12. Presence of Baseflow	**0**	1	2	3
13. Iron oxidizing bacteria	**0**	1	2	3
14. Leaf litter	1.5	1	0.5	**0**
15. Sediment on plants or debris	**0**	0.5	1	1.5
16. Organic debris lines or piles	0	**0.5**	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = **3**	

C. Biology (Subtotal = 4.0)				
18. Fibrous roots in streambed	3	**2**	1	0
19. Rooted upland plants in streambed	3	**2**	1	0
20. Macrobenthos (note diversity and abundance)	**0**	1	2	3
21. Aquatic Mollusks	**0**	1	2	3
22. Fish	**0**	0.5	1	1.5
23. Crayfish	**0**	0.5	1	1.5
24. Amphibians	**0**	0.5	1	1.5
25. Algae	**0**	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = **0**			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

APPENDIX C

Photographs

Photograph 1. Wetland WA; PFO (May 14, 2020 by L. Coleman).

Photograph 2. Inundated portion of Wetland WA; PFO (May 14, 2020 by L. Coleman).

Photograph 3. Wetland WA; PEM, looking east from Old State Road (May 14, 2020 by L. Coleman).

Photograph 4. Wetland WA; PEM, looking southwest across agricultural field (May 14, 2020 by M. Mickley).

Photograph 5. Wetland WB; PFO (May 14, 2020 by M. Mickley).

Photograph 6. Wetland WB; PEM, view from near Ten Ten Road (May 14, 2020 by M. Mickley).

Photograph 7. Representative herbaceous upland (May 14, 2020 by L. Coleman).

Photograph 8. Representative herbaceous upland with recently plowed fields, looking southwest from Ten Ten Road (May 14, 2020 by L. Coleman).

Photograph 9. Representative upland forest (May 14, 2020 by L. Coleman).

Photograph 10. Western end of ephemeral channel EPH1, facing east (May 14, 2020 by L. Coleman).

D.4 Jurisdictional Determination Request to USACE for Alternative B

F. JURISDICTIONAL DETERMINATION (JD) TYPE (Select One)

☑ I am requesting that the Corps provide a preliminary JD for the property identified herein.

A Preliminary Jurisdictional Determination (PJD) provides an indication that there may be "waters of the United States" or "navigable waters of the United States"on a property. PJDs are sufficient as the basis for permit decisions. For the purposes of permitting, all waters and wetlands on the property will be treated as if they are jurisdictional "waters of the United States". PJDs cannot be appealed (33 C.F.R. 331.2); however, a PJD is "preliminary" in the sense that an approved JD can be requested at any time. PJDs do not expire.

☑ I am requesting that the Corps provide an approved JD for the property identified herein.

An Approved Jurisdictional Determination (AJD) is a determination that jurisdictional "waters of the United States" or "navigable waters of the United States" are either present or absent on a site. An approved JD identifies the limits of waters on a site determined to be jurisdictional under the Clean Water Act and/or Rivers and Harbors Act. Approved JDs are sufficient as the basis for permit decisions. AJDs are appealable (33 C.F.R. 331.2). The results of the AJD will be posted on the Corps website. A landowner, permit applicant, or other "affected party" (33 C.F.R. 331.2) who receives an AJD may rely upon the AJD for five years (subject to certain limited exceptions explained in Regulatory Guidance Letter 05-02).

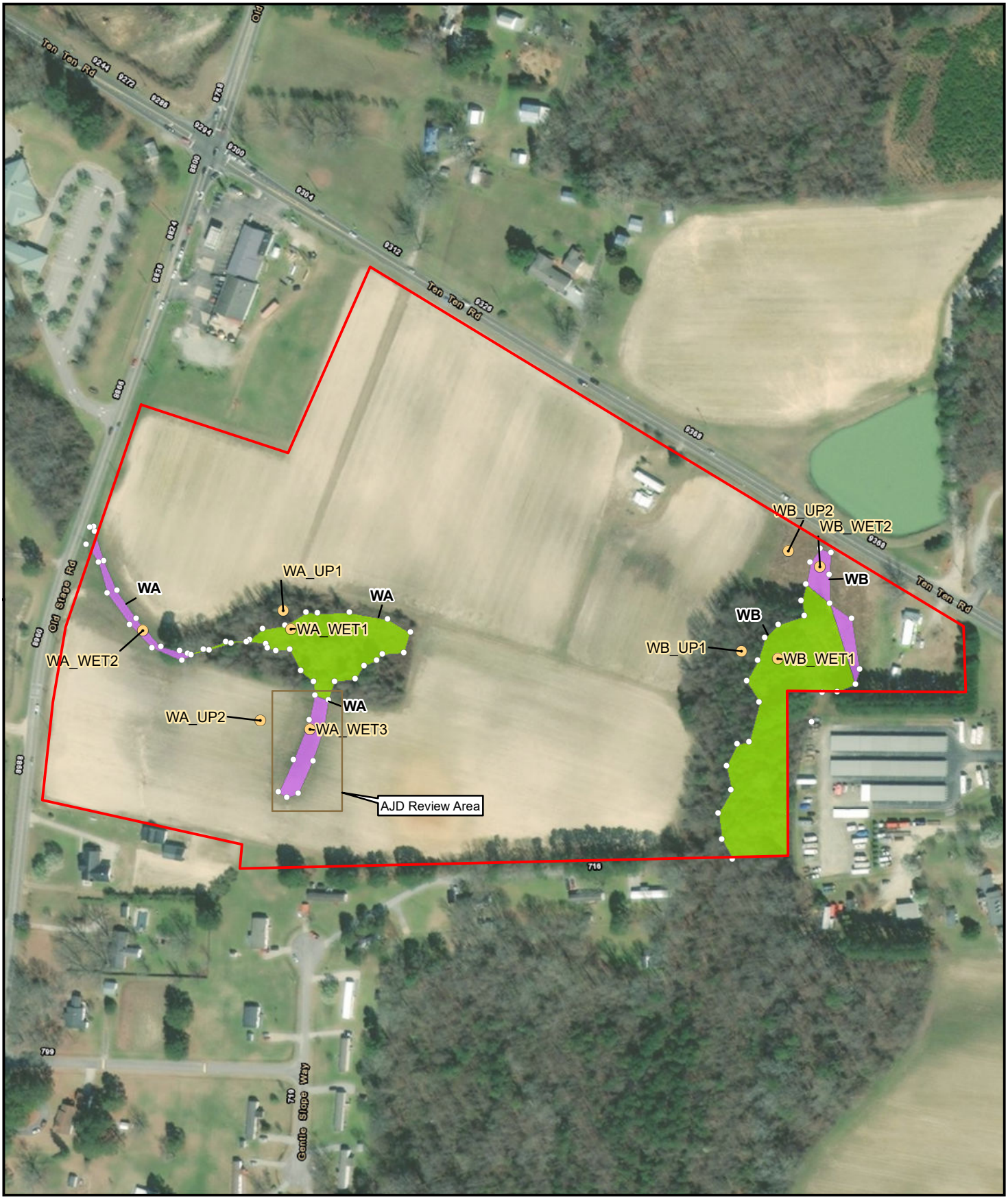
☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

G. ALL REQUESTS

☐ Map of Property or Project Area. This Map must clearly depict the boundaries of the review area.

☐ Size of Property or Review Area 32.88 acres.

☐ The property boundary (or review area boundary) is clearly physically marked on the site.



Path: N:\Projects\61000\61235_VA_NEPA\MXD_APRX\NR\Report\61235_AIB_04_Delineation_20200716.mxd

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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE B
FIGURE 4

DELINEATION RESULTS
WAKE COUNTY, NORTH CAROLINA

- Data Point
- Wetland Flag

JD Resources

- PEM Wetland
- PFO Wetland
- Alternative B Boundary

Background:	ESRI World Imagery 2017
Scale:	1:3,200
Created By:	EWS
Approved By:	MM
SWCA Project No.:	061235.00
Date Produced:	July 16, 2020

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 220 440 Feet

0 50 100 Meters