D Appendix D: Wetlands Reports and Jurisdictional Determination Requests

- D.1 Wetland and Waterbody Delineation Report for Alternative A
- D.2 Jurisdictional Determination Request to USACE for Alternative A
- D.3 Wetland and Waterbody Delineation Report for Alternative B
- D.4 Jurisdictional Determination Request to USACE for Alternative B

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

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

1	Introduction	.1
2	Methodology	.1
	2.1 Desktop Analysis Methodology	. 2
	2.2 Field Methodology	
3	Desktop Results	.3
	3.1 Landscape Setting	
	3.2 Soils	.3
	3.3 Hydrology	3
4	Field results	
	4.1 Vegetation Communities	
	4.2 Wetlands	. 5
	4.3 Waterbodies	5
5	Conclusions	. 6
6	Literature Cited	.7

Appendices

Appendix A. Figures Appendix B. Data Forms Appendix C. Photographs

Tables

Table 1. NRCS Soil Types within the Raleigh Outpatient Clinic - Alternative A Study Area	3
Table 2. Antecedent Rainfall Conditions for the Raleigh Outpatient Clinic – Alternative A Study	
Area	4
Table 3. Wetlands Identified within the Raleigh Outpatient Clinic – Alternative A Study Area	5

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 submeter 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.

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

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

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).

Derion Month	WETS Rainfall Percentile (inches)		Measured	Evaluation Month: May 2020			
Prior Month			Rainfall (inches)	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

 $^{\rm c}$ 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, groundtruth 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.

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

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

* 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.

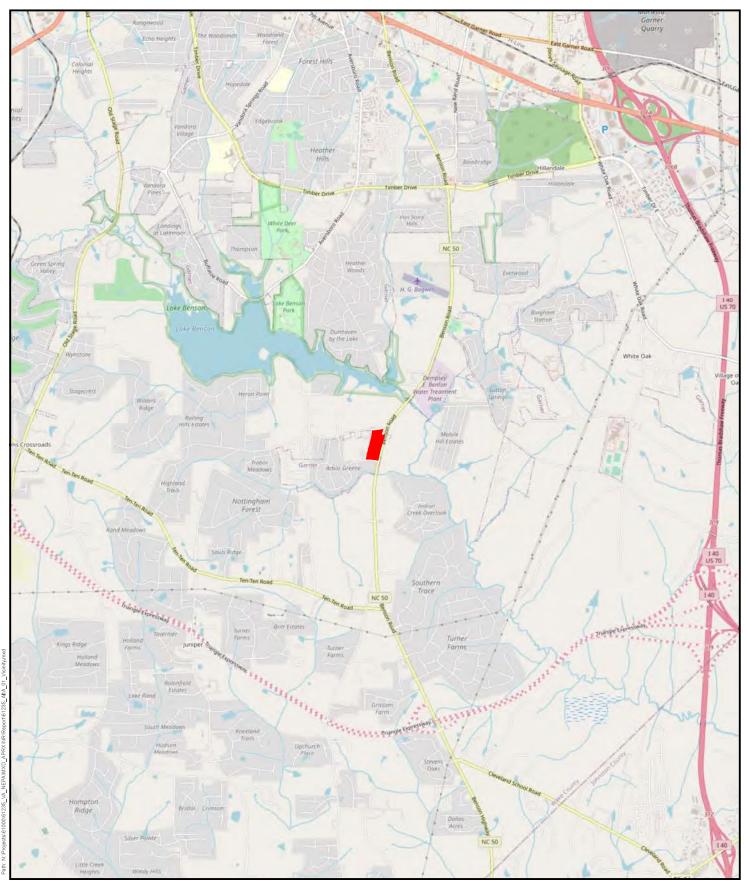
6 LITERATURE CITED

- 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.

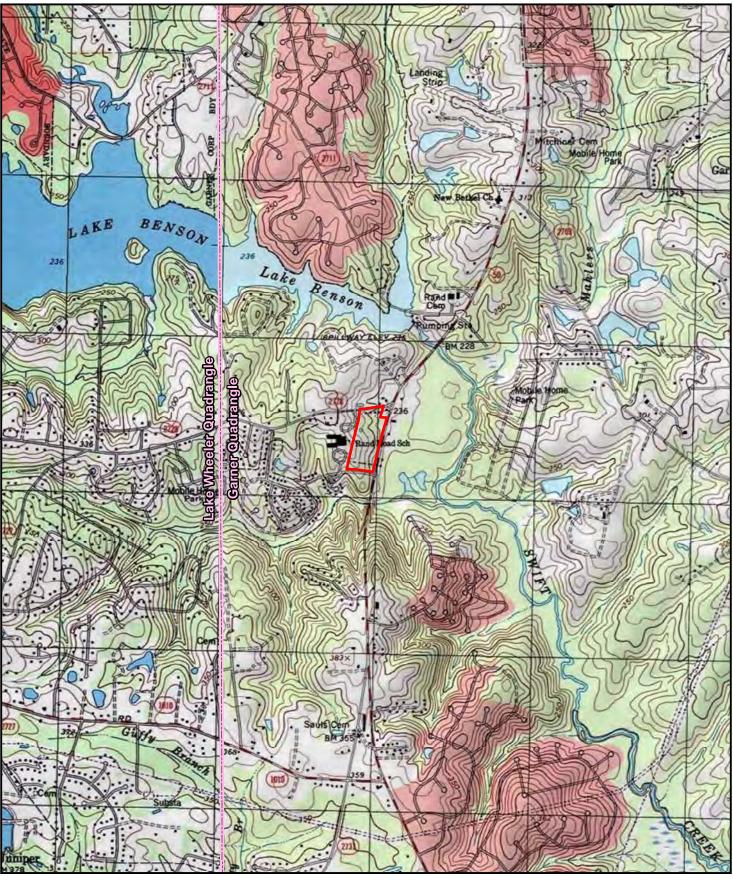
- ———. 2020. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/. Accessed May 2020.
- North Carolina Department of Environmental Quality (NCDEQ). 2003. Wetlands Interactive Mapping. Available at: https://deq.nc.gov/about/divisions/coastal-management/coastal-managementdata/setback-factor-maps-1998-shoreline/wetlands-interactive-mapping. 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.
- 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.

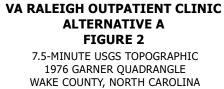
APPENDIX A

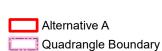
Figures



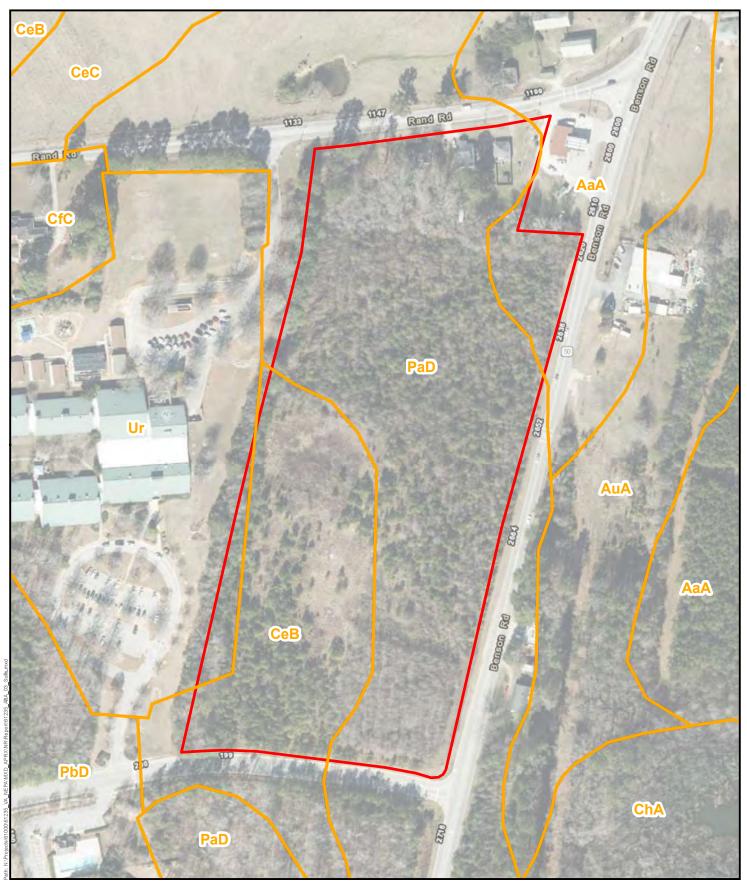


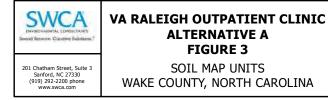


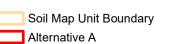




(_	Background:	USGS Topographic
		Scale:	1:24,000
		Created By:	JLZ
		Approved By:	MM
		SWCA Project No.:	061235.00
		Date Produced:	May 22, 2020
I		NAD 1983 StatePlan	e North Carolina FIPS 3200 Feet
I	0	1,600	3,200
			Feet
1			Meters
	0	450	900

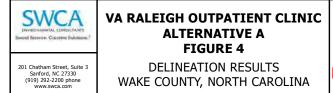






	Background:	ESRI World Imagery 2017	
	Scale:	1:2,400	
	Created By:	JLZ	
	Approved By:	MM	
	SWCA Project No.:	061235.00	
	Date Produced:	May 22, 2020	
	NAD 1983 StatePlan	e North Carolina FIPS 3200 Feet	
0	160	320	
		Feet	
		Meters	
0	40	80	





Data Point
 Wetland Flag
 Culvert

Culvert Eph 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 StatePlan	e North Carolina FIPS 3200 Feet
0	140	280
		Feet
		Meters
0	30	60

APPENDIX B

Data Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpa	tient Clini	c - Alter	native A	City/County: Ra	leigh / Wake	9	_ Sampling Date:	5/14/2020
			_ City/County: Raleigh / Wake State: NC			Sampling Point	utWet	
Investigator(s): M. Mickley,	L. Colema	an						
Landform (hillslope, terrace, e							Slop	e (%): 1
Subregion (LRR or MLRA): L								
Soil Map Unit Name: Pacole	t sandy lc	am				NWI classifi	cation: PFO	
Are climatic / hydrologic condi			cal for this time of y					
Are Vegetation, Soil							present? Yes 🖌	No
Are Vegetation, Soil						explain any answ		
SUMMARY OF FINDING								atures, etc.
Hydrophytic Vegetation Pres Hydric Soil Present? Wetland Hydrology Present? Remarks:		Yes	✓ No ✓ No ✓ No	within a \	mpled Area Wetland?	Yes_	, No	
Wetland appears to uplands. Water leve feature.		•	• .				•	•
HYDROLOGY								
Wetland Hydrology Indicat	ors:					Secondary Indic	ators (minimum of t	wo required)
Primary Indicators (minimum	<u>ı of one is r</u>	required;	check all that apply)	1		Surface Soi	l Cracks (B6)	
✓ Surface Water (A1)			True Aquatic F				urface (B8)	
\checkmark High Water Table (A2)				ulfide Odor (C1) Drainage Patterns (B10)				
 ✓ Saturation (A3) Water Marks (B1) 				zospheres on Living Roots (C3) Moss Trim Lines (B16)				
Sediment Deposits (B2)				Reduced Iron (C4) Dry-Season Water Table (C2) Reduction in Tilled Soils (C6) Crayfish Burrows (C8)				
Drift Deposits (B3)			Thin Muck Su				agery (C9)	
Algal Mat or Crust (B4)				in in Remarks) Stunted or Stressed Plants (D1)				
Iron Deposits (B5)						Geomorphic	c Position (D2)	
Inundation Visible on Ae	-	ry (B7)				Shallow Aq		
✓ Water-Stained Leaves (I	B9)						aphic Relief (D4)	
Aquatic Fauna (B13)						FAC-Neutra	l Test (D5)	
Field Observations:			Danth (inchas	->- 6				
Surface Water Present? Water Table Present?			Depth (inches Depth (inches					
Saturation Present?			Depth (inches		Wetland F	lydrology Prese	nt? Yes	No
(includes capillary fringe)								
Describe Recorded Data (str	eam gauge	e, monitoi	ring well, aerial phot	tos, previous inspe	ections), if ava			
Remarks:								

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

Sampling	Point [.]	WA_	_Wet

	Absolute	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)		Species?		Number of Dominant Species	
1Pinus taeda	20	YES	FAC		A)
2. Liquidambar styraciflua	20	YES	FAC	·	
3		-	-	Total Number of Dominant Species Across All Strata: <u>3</u> (E	B)
4			-)
			<u> </u>	Percent of Dominant Species	
5				That Are OBL, FACW, or FAC: 100 (A	A/B)
6				Prevalence Index worksheet:	
7				Total % Cover of: Multiply by:	
8				OBL species x1 =	
o redus	40	= Total Cov	er		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15' radius</u>) 1 Liquidambar styraciflua	20	YES	FAC	FACW species x 2 = FACW species x 2 =	
	·			FAC species x 3 =	
2. Salix nigra	5	NO	OBL	FACU species x 4 =	
3. Ligustrum sinense	5	NO	FACU	UPL species x 5 =	
4				Column Totals: <u>0</u> (A) <u>0</u>	(B)
5				0	
6			-	Prevalence Index = B/A =	
7			-	Hydrophytic Vegetation Indicators:	
8			-	1 - Rapid Test for Hydrophytic Vegetation	
			_	✓ 2 - Dominance Test is >50%	
9	·			3 - Prevalence Index is ≤3.0 ¹	
10	30			4 - Morphological Adaptations ¹ (Provide suppor	rting
Herb Stratum (Plot size: ^{5'} radius)		= Total Cov	er	data in Remarks or on a separate sheet)	-
1. Carex sp. (species unknown)	20	_	_	Problematic Hydrophytic Vegetation ¹ (Explain)	
	·				
2				¹ Indicators of hydric soil and wetland hydrology mus	st
3				be present, unless disturbed or problematic.	
4				Definitions of Four Vegetation Strata:	
5	·			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless	
7				height.	
8				Sapling/Shrub – Woody plants, excluding vines, le	
9			-	than 3 in. DBH and greater than 3.28 ft (1 m) tall.	:55
10		-	-		
11		-	-	Herb – All herbaceous (non-woody) plants, regardle	ess
12.		-	-	of size, and woody plants less than 3.28 ft tall.	
·	20	– Total Cov		Woody vine - All woody vines greater than 3.28 ft	in
Woody Vine Stratum (Plot size: <u>30' radius</u>)		- 10(a) 000	CI	height.	
1		-	-		
2		-	-		
			_		
3					
4				Hydrophytic	
5				Vegetation Present? Yes No	
6				Present? Yes <u>V</u> No	
		= Total Cov	er		
Remarks: (Include photo numbers here or on a separate s	sheet.)			·	

Profile Des	cription: (Describe	to the de	pth needed to docu	nent the	indicator	or confir	m the absence	of indicators.)
Depth	Matrix		Redo	x Feature	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 4/1	90	10YR 5/6	10	С	PL	SCL	faint ORCs
4-8	10YR 5/2	80	10YR 5/6	20	С	М	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=C	oncentration. D=Der		/=Reduced Matrix, M	- S=Maske		ains	² Location: Pl	Pore Lining, M=Matrix.
Hydric Soil								ators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			2	cm Muck (A10) (MLRA 147)
	oipedon (A2)		Polyvalue Be		ace (S8) (I	MLRA 147		Coast Prairie Redox (A16)
Black H	istic (A3)		Thin Dark Su	Irface (S	9) (MLRA	147, 148)	· · · <u> </u>	(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix	(F2)		F	viedmont Floodplain Soils (F19)
Stratifie	d Layers (A5)		✓ Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm Mi	uck (A10) (LRR N)		Redox Dark	Surface ((F6)			
Deplete	d Below Dark Surfac	ce (A11)	Depleted Da	rk Surfac	e (F7)		V	/ery Shallow Dark Surface (TF12)
Thick D	ark Surface (A12)		Redox Depre	essions (I	F8)		C	Other (Explain in Remarks)
	/lucky Minera l (S1) (LRR N,	Iron-Mangan		ses (F12)	(LRR N,		
	A 147, 148)		MLRA 13	•				
	eleyed Matrix (S4)		Umbric Surfa		-			licators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo	•	• • •	•		vetland hydrology must be present,
	Matrix (S6)		Red Parent I	Material (F21) (MLF	RA 127, 14	17) u	nless disturbed or problematic.
Restrictive	Layer (if observed)	:						
Туре:								1
Depth (in	ches):						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	е	Sampling Date: 5/14/2020
Applicant/Owner: US Department of Veterans Affairs	_ ,		Sampling Point: <u>WA_Up</u>
	Section, Township, Range: _G		
,	Local relief (concave, convex, no		Slope (%): 5
Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.65617	7 Long -78	.615116	Datum: NAD83
Soll Map Unit Name: Pacolet sandy loam		NWI classific	Datum
Are climatic / hydrologic conditions on the site typical for this time of	/		
Are Vegetation, Soil, or Hydrology significant			resent? Yes _ ✓ No
Are vegetation, Soil, or Hydrology signification, Soil, or Hydrology naturally		explain any answe	
SUMMARY OF FINDINGS – Attach site map showi			
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks: Yes No	Is the Sampled Area within a Wetland?	Yes	No
Vegetation comprised of FAC and FACU spe	ecies only.		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that app	<u>ly)</u>	Surface Soil	Cracks (B6)
Surface Water (A1) True Aquati	c Plants (B14)	Sparsely Veg	etated Concave Surface (B8)
	ulfide Odor (C1)	Drainage Pat	
Saturation (A3) Oxidized Rh	izospheres on Living Roots (C3)	Moss Trim Li	nes (B16)
Water Marks (B1) Presence of	Reduced Iron (C4)	Dry-Season	Water Table (C2)
Sediment Deposits (B2) Recent Iron	Reduction in Tilled Soils (C6)	Crayfish Burr	rows (C8)
Drift Deposits (B3) Thin Muck S	Surface (C7)	Saturation Vi	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Expla	ain in Remarks)	Stunted or St	tressed Plants (D1)
Iron Deposits (B5)		Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aqui	
Water-Stained Leaves (B9)			phic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral	Test (D5)
Field Observations:			
Surface Water Present? Yes No Depth (inch			
Water Table Present? Yes No Depth (inch	nes):		1
Saturation Present? Yes <u>No</u> Depth (inch (includes capillary fringe)	nes): Wetland H	lydrology Presen	t? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial ph	notos, previous inspections), if ava	ailable:	
Remarks:			
No hydrology indicators present.			

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

Sampling	Point [.]	WA_	_Up

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)		Species?		Number of Dominant Species
1. Pinus taeda	20	YES	FAC	That Are OBL, FACW, or FAC: 5 (A)
2. Liquidambar styraciflua	20	YES	FAC	
3. Quercus phellos	20	YES	FAC	Total Number of Dominant Species Across All Strata: ⁸ (B)
4		-	-	
5		-	-	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>62.5</u> (A/B)
6			-	
7			_	Prevalence Index worksheet:
8		_	-	Total % Cover of: Multiply by:
0	~~	= Total Cov		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: <u>15' radius</u>)			CI	FACW species x 2 =
1. Liquidambar styraciflua	10	YES	FAC	FAC species x 3 =
2. Quercus phellos	10	YES	FAC	FACU species x 4 =
3. Ligustrum sinense	15	YES	FACU	UPL species x 5 =
4. Prunus serotina	10	YES	FACU	Column Totals: <u>0</u> (A) <u>0</u> (B)
5		-	-	
6			-	Prevalence Index = B/A =
7			-	Hydrophytic Vegetation Indicators:
8			-	1 - Rapid Test for Hydrophytic Vegetation
9			-	✓ 2 - Dominance Test is >50%
10.		_	<u> </u>	3 - Prevalence Index is ≤3.0 ¹
10	45	– Total Cov	er	4 - Morphological Adaptations ¹ (Provide supporting
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)				data in Remarks or on a separate sheet)
1		-	-	Problematic Hydrophytic Vegetation ¹ (Explain)
2			-	
3			-	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4			-	
5			-	Definitions of Four Vegetation Strata:
6			-	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7			-	more in diameter at breast height (DBH), regardless of height.
8			-	
9			-	Sapling/Shrub – Woody plants, excluding vines, less
10		_	-	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
11		_	_	Herb – All herbaceous (non-woody) plants, regardless
			-	of size, and woody plants less than 3.28 ft tall.
12	0	– Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: <u>30' radius</u>)			ei	height.
1. Lonicera japonica	5	YES	FACU	
2.		-	-	
2			-	
		-	-	
4 5				Hydrophytic
6.			_	Vegetation Present? Yes V
0	5	– Total Cov		
Demonstra (Include alcate and back and back			CI	
Remarks: (Include photo numbers here or on a separate s	neet.)			

Profile Desc	ription: (Describe	to the depth n	eeded to docun	nent the i	ndicator	or confirm	the absence of indi	cators.)
Depth	Matrix		Redo	x Features	5			
(inches)	Color (moist)	<u>%</u> (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=Co	oncentration, D=Dep	letion, RM=Red	Juced Matrix, MS	S=Masked	Sand Gra	ains.	² Location: PL=Pore	Lining, M=Matrix.
Hydric Soil I								or Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2 cm Mu	ck (A10) (MLRA 147)
Histic Ep	pipedon (A2)	_	Polyvalue Be	low Surfac	ce (S8) (M	ILRA 147,	148) Coast Pr	airie Redox (A16)
Black Hi		_	Thin Dark Su	rface (S9)	(MLRA 1	47, 148)	(MLR/	A 147, 148)
Hydroge	n Sulfide (A4)	_	Loamy Gleye	d Matrix (I	=2)		Piedmon	it Floodplain Soils (F19)
Stratified	l Layers (A5)	_	Depleted Mat	trix (F3)			(MLR/	A 136, 147)
2 cm Mu	ck (A10) (LRR N)	_	Redox Dark \$	Surface (F	6)			
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface	(F7)		Very Sha	allow Dark Surface (TF12)
Thick Da	ark Surface (A12)	_	Redox Depre	ssions (F8	3)		Other (E	xp l ain in Remarks)
Sandy N	lucky Minera l (S1) (L	_RR N, _	Iron-Mangan	ese Masse	es (F12) (I	_RR N,		
MLRA	147, 148)		MLRA 13	6)				
Sandy G	leyed Matrix (S4)		Umbric Surfa	ce (F13) (MLRA 13	6, 122)	³ Indicators	of hydrophytic vegetation and
Sandy R	edox (S5)		Piedmont Flo	odplain So	oi l s (F19)	(MLRA 14	8) wetland	hydrology must be present,
	Matrix (S6)	_	Red Parent N	-		-	•	sturbed or problematic.
Restrictive L	_ayer (if observed):							
Type: see	e below							
Depth (inc	ches): <u>10"</u>		_				Hydric Soil Preser	nt? 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 13.0 if ≥ 19 or perennial if $\geq 30^*$	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
 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	Nc	o = <mark>0</mark>	Yes	= 3
^a artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = <u>1.5</u>)			1	r
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?	Nc	o = <mark>0</mark>	Yes	= 3
C. Biology (Subtotal = <u>5.0</u>)				
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
		FACW = 0.75;	OBL = 1.5 Other = (0
26. Wetland plants in streambed				
26. Wetland plants in streambed *perennial streams may also be identified using other method	ds. See p. 35 of manua	l		

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 13.0 if ≥ 19 or perennial if $\geq 30^*$	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name: Garner

A. Geomorphology (Subtotal = 5.0 a. Continuity of channel bed and bank c. Sinuosity of channel along thalweg b. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence c. Particle size of stream substrate c. Active/relict floodplain c. Depositional bars or benches c. Recent alluvial deposits c. Headcuts c. Grade control	0 0 0 0 0 0 0	1 1 1 1 1 1 1	2 2 2 2 2 2 2	3 3 3 3	
B. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence Particle size of stream substrate Active/relict floodplain Depositional bars or benches Recent alluvial deposits Headcuts	0 0 0 0	1 1 1	2	3	
ripple-pool sequence Particle size of stream substrate Active/relict floodplain Depositional bars or benches Recent alluvial deposits Headcuts	0 0 0	1 1	2	3	
Particle size of stream substrate Active/relict floodplain Depositional bars or benches Recent alluvial deposits Headcuts	0	1		-	
5. Active/relict floodplain 5. Depositional bars or benches 7. Recent alluvial deposits 8. Headcuts	0	1		-	
Depositional bars or benches Recent alluvial deposits Headcuts	0	•	2	3	
7. Recent alluvial deposits 8. Headcuts			2	3	
B. Headcuts	•	1	2	3	
	0	1	2	3	
	0	0.5	1	1.5	
0. Natural valley	0	0.5	1	1.5	
1. Second or greater order channel	•	=0	Yes = 3		
artificial ditches are not rated; see discussions in manual	110		103	- 5	
3. Hydrology (Subtotal = 5.0)					
2. Presence of Baseflow	0	1	2	3	
3. Iron oxidizing bacteria	0	1	2	3	
4. Leaf litter	1.5	1	0.5	0	
5. Sediment on plants or debris	0	0.5	1	1.5	
6. Organic debris lines or piles	0	0.5	1	1.5	
7. Soil-based evidence of high water table?	No = 0		Yes = 3		
C. Biology (Subtotal = <u>3.0</u>)					
8. Fibrous roots in streambed	3	2	1	0	
9. 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 = C		
*perennial streams may also be identified using other methods. S	See p. 35 of manual				
Notes:					

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 <u>approved</u> 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

 $|\checkmark|$

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

Size of Property or Review Area <u>16.76</u> acres.

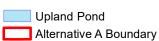
The property boundary (or review area boundary) is clearly physically marked on the site.





201 Chatham Street, Suite 3 Sanford, NC 27330 (919) 292-2200 phone www.swca.com VA RALEIGH OUTPATIENT CLINIC ALTERNATIVE A FIGURE 4

DELINEATION RESULTS WAKE COUNTY, NORTH CAROLINA



 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
 10

 0
 140
 280

 0
 30
 40

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

1	Introduction	l
2	Methodology	l 2
	2.2 Field Methodology	2
3	Desktop Results	3
4	Field results 4 4.1 Vegetation Communities 4 4.2 Wetlands 4 4.3 Waterbodies 6	1 5
5	Conclusions	5
6	Literature Cited	7

Appendices

Appendix A. Figures Appendix B. Data Forms Appendix C. Photographs

Tables

Table 1. NRCS Soil Types within the Raleigh Outpatient Clinic - Alternative B Study Area	. 3
Table 2. Antecedent Rainfall Conditions for the Raleigh Outpatient Clinic – Alternative B Study	
Area	.4
Table 3. Wetlands Identified within the Raleigh Outpatient Clinic - Alternative B Study Area	. 5

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: Education:	Mark Mickley B.S. Biology, 2003
Experience:	Sr. Project Manager, SWCA, Inc., January 2019 - Present
1	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 submeter 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.

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).

Derion Month		all Percentile hes)	Measured	Evaluation Month: May 2020				
Prior Month	30th	70th	Rainfall (inches)	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			

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

^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, groundtruth 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.

Vegetation Communities 4.1

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.

Feature ID	Survey Date	Soil Series	Jurisdictional Status*	Classification [‡]	Acreage within Project Study Area
XX7 41 1 XX7 A	Rains sand		T. 1 1 4 1	PEM	0.28
Wetland WA	05/14/2020	(hydric)	Jurisdictional	PFO	0.68
Wetland WB	05/14/2020	Rains sandy loam (hydric)	T	PEM	0.16
wetland wB	05/14/2020		Jurisdictional	PFO	1.46
Total PEM					0.44
Total PFO					2.14
Overall Total					2.58

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

* 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.

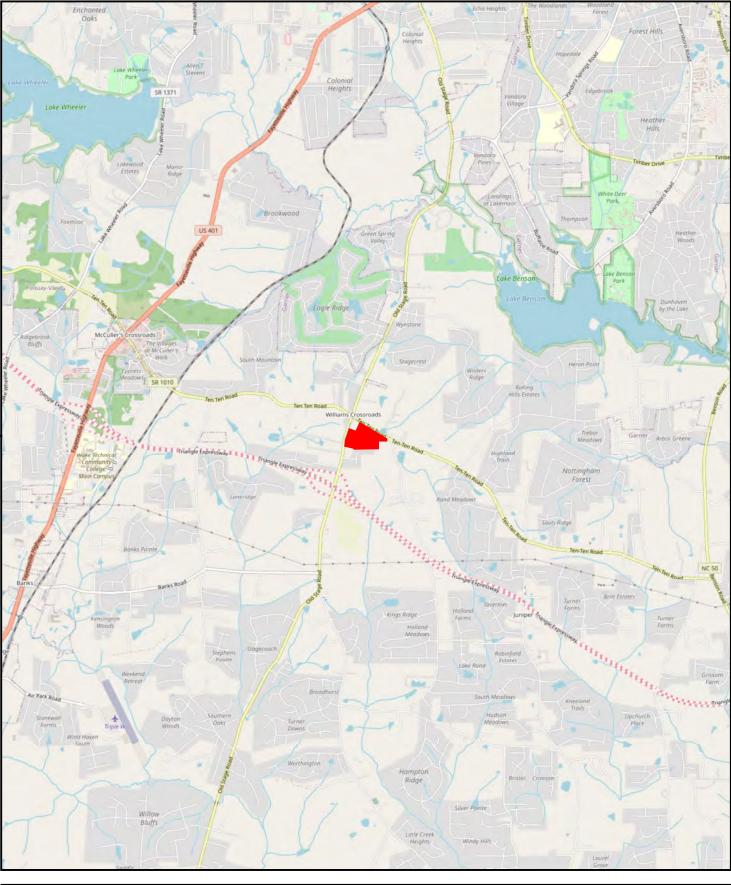
6 LITERATURE CITED

- 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.

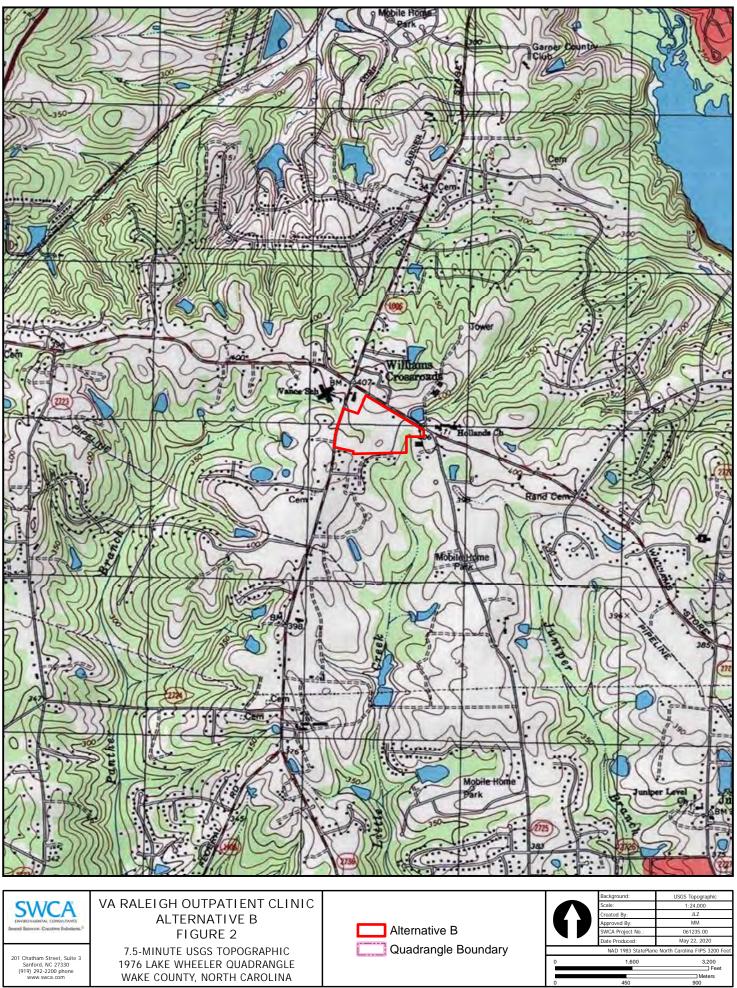
- ———. 2020. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/. Accessed May 2020.
- North Carolina Department of Environmental Quality (NCDEQ). 2003. Wetlands Interactive Mapping. Available at: https://deq.nc.gov/about/divisions/coastal-management/coastal-managementdata/setback-factor-maps-1998-shoreline/wetlands-interactive-mapping. 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

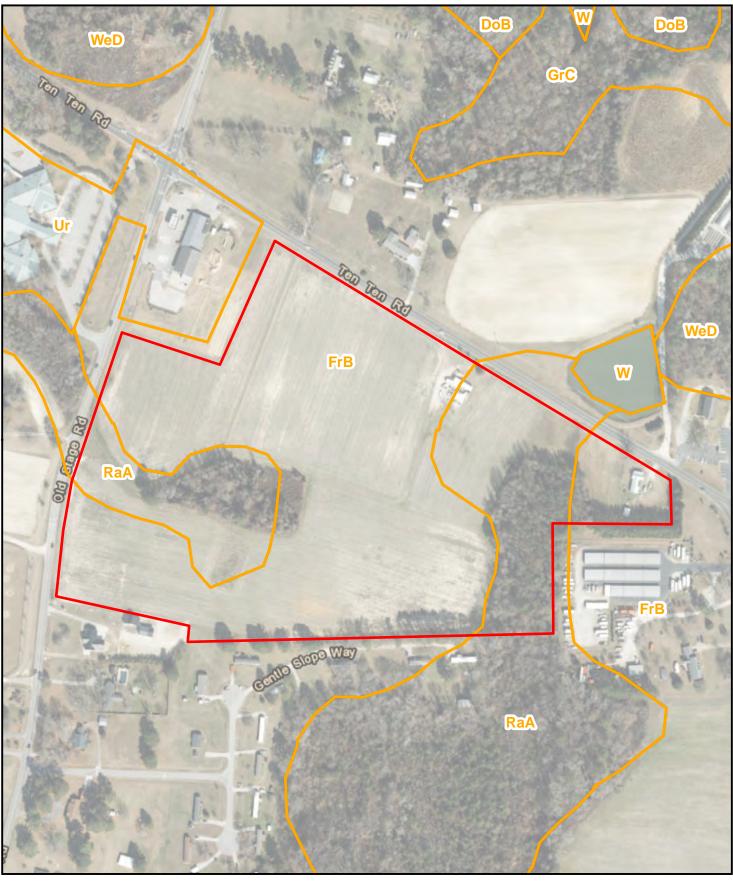


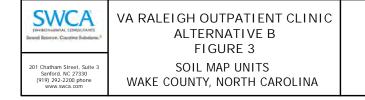




A-2

WAKE COUNTY, NORTH CAROLINA





Soil Map Unit Boundary

	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 StatePlan	e North Carolina FIPS 3200 Feet			
0	240	480			
	Feet				
0 60 120					
2		120			





VA RALEIGH OUTPATIENT CLINIC ALTERNATIVE B FIGURE 4 DELINEATION RESULTS WAKE COUNTY, NORTH CAROLINA Data Point Wetland Flag Alternative B

 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

 220
 440

 Exercised
 Feet

 0
 50
 100

ullet

APPENDIX B

Data Forms

Project/Site: Raleigh Outpat	ient Clinic	- Alterna	tive B 🛛	_{Citv/County:} R	aleigh / Wake	Э	Sampling Date: 5/14/2020	
Applicant/Owner: US Department of Veterans Affairs				,,. <u> </u>		State: NC	_ Sampling Date: <u>5/14/2020</u> Sampling Point: <u>WA_Wet1</u>	
Investigator(s): M. Mickley, L								
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								
Soil Map Unit Name: Rains s								
Are climatic / hydrologic condit	ions on the	site typica	for this time of yea				,	
Are Vegetation, Soil	, or Hy	drology	significantly of	disturbed?	Are "Norma	I Circumstances"	present? Yes 🖌 No	
Are Vegetation, Soil	, or Hy	drology	naturally pro	b l ematic?	(If needed, e	exp l ain any answe	ers in Remarks.)	
	∋S – Atta	ach site	map showing	sampling p	oint locatio	ons, transects	s, important features, etc.	
Hydrophytic Vegetation Prese Hydric Soil Present? Wetland Hydrology Present? Remarks:		Yes✓	No No No		ampled Area Wetland?	Yes 🗸	No	
HYDROLOGY								
Wetland Hydrology Indicate	ors:					Secondary Indica	ators (minimum of two required)	
Primary Indicators (minimum		auired: ch	eck all that apply)					
✓ Surface Water (A1)		<u>quirou, on</u>	_ True Aquatic Pla	ants (B14)	Surface Soil Cracks (B6) ts (B14) Sparsely Vegetated Concave Surface (B8)			
High Water Table (A2)			Hydrogen Sulfid					
Saturation (A3)					neres on Living Roots (C3) Moss Trim Lines (B16)			
Water Marks (B1)			Presence of Red				Water Table (C2)	
Sediment Deposits (B2)			_ Recent Iron Rec			✓ Crayfish Bur		
Drift Deposits (B3)			Thin Muck Surfa	ace (C7)		Saturation V	ísible on Aerial Imagery (C9)	
Algal Mat or Crust (B4)			Other (Explain i	n Remarks)		Stunted or S	Stressed Plants (D1)	
Iron Deposits (B5)						Geomorphic	Position (D2)	
Inundation Visible on Aer	rial Imagery	(B7)				Shallow Aqu	itard (D3)	
✓ Water-Stained Leaves (E	39)					Microtopogra	aphic Relief (D4)	
Aquatic Fauna (B13)						FAC-Neutra	Test (D5)	
Field Observations:								
Surface Water Present?			Depth (inches):					
Water Table Present?			Depth (inches):		_			
Saturation Present? (includes capillary fringe)			Depth (inches):				nt? Yes 🖌 No	
Describe Recorded Data (stre	eam gauge,	monitorin	g well, aerial photos	s, previous insp	pections), if ava	ailable:		
Remarks:								
	rocont iu	a immo	diata vicinity	of data pl	ot butipu	ndation is n	resent in portions of	
-	lesent ii	1 IIIIIIe		or uata pr	oi, bui mu	nuation is p	esent in portions of	
the wetland.								
1								

Sampling Point:	WA_	_Wet1

	Absolute	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)		Species?		Number of Dominant Species	
1. Acer rubrum	60	YES	FAC	That Are OBL, FACW, or FAC: $\frac{7}{(A)}$	
2. Liriodendron tulipifera	10	NO	FACU		
3. Liquidambar styraciflua	10	NO	FAC	Total Number of Dominant Species Across All Strata: 7(B)	
4		-	-		
5		_	-	Percent of Dominant Species That Are OBL, FACW, or FAC: ¹⁰⁰ (A/B)	
6		_	-		
7			_	Prevalence Index worksheet:	
		_	_	Total % Cover of: Multiply by:	
8	00			OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: <u>15' radius</u>)		= Total Cov	er	FACW species x 2 =	
1. Liquidambar styraciflua	10	YES	FAC	FAC species x 3 =	
2. Acer rubrum	20	YES	FAC	FACU species x 4 =	
3		_	-	UPL species x 5 =	
			_	Column Totals: $\underline{0}$ (A) $\underline{0}$ (B)	
4					
5				Prevalence Index = $B/A = 0$	
6				Hydrophytic Vegetation Indicators:	
7				1 - Rapid Test for Hydrophytic Vegetation	
8				✓ 2 - Dominance Test is >50%	
9				3 - Prevalence Index is $\leq 3.0^1$	
10				4 - Morphological Adaptations ¹ (Provide supporting	
5' radius	<u> </u>		er	data in Remarks or on a separate sheet)	
<u>Herb Stratum</u> (Plot size: ^{5' radius) 1. Boehmeria cylindrica}	30	YES	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)	
2. Microstegium vimineum	20	YES	FAC	¹ Indicators of hydric soil and wetland hydrology must	
3				be present, unless disturbed or problematic.	
4				Definitions of Four Vegetation Strata:	
5					
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of	
7			-	height.	
8			-		
9		-	-	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
10		-	-		
11.		-	-	Herb – All herbaceous (non-woody) plants, regardless	
12.		_	_	of size, and woody plants less than 3.28 ft tall.	
·	50	= Total Cov		Woody vine – All woody vines greater than 3.28 ft in	
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)			CI	height.	
1. Smilax rotundifolia	10	NO	FAC		
2. Lonicera japonica	5	NO	FACU		
3. Toxicodendron radicans	30	YES	FAC		
 Vitis rotundifolia 	20	YES	FAC		
¬		_	_	Hydrophytic	
5		<u> </u>		Vegetation Present? Yes Ves	
6	65				
		= Total Cov	er		
Remarks: (Include photo numbers here or on a separate s	heet.)				

Profile Desc	ription: (Describe	to the de	oth needed to docur	nent the	indicator	or confirr	n the absence	of indicators.)	
Depth	Matrix			x Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-6	10YR 3/1	85	10YR 4/6	15	<u> </u>	PL	SCL	ORCs	
6-10	10YR 2/1	100					SCL		
10-12+	10YR 4/1	100					SCL		
				·					
¹ Type: C=Cc Hydric Soil I Histosol	ndicators:	letion, RN	=Reduced Matrix, MS		d Sand Gr	ains.	Indica	=Pore Lining, M=Matrix. ators for Problematic Hydric S cm Muck (A10) (MLRA 147)	oils ³ :
Histic Ep Black His Hydroge	ipedon (A2)		Polyvalue Be Thin Dark Su Loamy Gleye Depleted Ma Redox Dark S	low Surfa rface (S9 d Matrix trix (F3)	9) (MLRA * (F2)		, 148) C	oast Prairie Redox (A16) (MLRA 147, 148) iedmont Floodplain Soils (F19) (MLRA 136, 147)	
Thick Da Sandy M	l Below Dark Surface irk Surface (A12) lucky Mineral (S1) (L 147, 148)	· · /	── Depleted Dat ✓ Redox Depre ── Iron-Mangan MLRA 13	ssions (F ese Mass	8)	LRR N,		ery Shallow Dark Surface (TF12 ther (Explain in Remarks)	2)
Sandy R Stripped	leyed Matrix (S4) edox (S5) Matrix (S6)		Umbric Surfa Piedmont Flo Red Parent N	odplain S	Soi l s (F19)	(MLRA 1	48) w	icators of hydrophytic vegetatior etland hydrology must be prese nless disturbed or problematic.	
Restrictive L	ayer (if observed):								
Туре:								1	
Depth (inc	ches):						Hydric Soil	Present? Yes 🖌 No	
Remarks:									

Project/Site: Raleigh Outpatient Clinic - Alternative B	City/County: Ralei	gh / Wake	Sampling Date: 5/14/2020
Applicant/Owner: US Department of Veterans Affairs	, ,	_{State:} NC	_ Sampling Date: <u>5/14/2020</u> Sampling Point: <u>WA_Up1</u>
	Section, Township,		
	Local relief (concave, c		
Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.			Datum: NAD83
Soll Map Unit Name: Rains sandy loam	I	NWI classific	Datum
Are climatic / hydrologic conditions on the site typical for this Are Vegetation, Soil, or Hydrology si	•		Remarks.) present? Yes No
Are Vegetation, Soil, or Hydrology n		f needed, explain any answe	
SUMMARY OF FINDINGS – Attach site map			
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks: Yes No	o o ✓ Is the Samp within a We	led Area tland? Yes	No
Vegetation comprised of all FAC and F	ACU species.		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all t	hat apply)	Surface Soil	Cracks (B6)
Surface Water (A1) True	Aquatic Plants (B14)	Sparsely Ve	getated Concave Surface (B8)
High Water Table (A2) Hydr	rogen Sulfide Odor (C1)	Drainage Pa	atterns (B10)
	lized Rhizospheres on Living R	coots (C3) Moss Trim L	ines (B16)
	ence of Reduced Iron (C4)		Water Table (C2)
Sediment Deposits (B2) Rece	ent Iron Reduction in Tilled Soi	ls (C6) Crayfish Bur	rows (C8)
Drift Deposits (B3) Thin	Muck Surface (C7)	Saturation V	/isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Othe	er (Exp l ain in Remarks)	Stunted or S	Stressed Plants (D1)
Iron Deposits (B5)		Geomorphic	Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aqu	
Water-Stained Leaves (B9)		Microtopogra	aphic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutra	I Test (D5)
Field Observations:			
Surface Water Present? Yes No∕_ Dep	oth (inches):		
	oth (inches):		(
(includes capillary fringe)		Wetland Hydrology Prese	nt? Yes No 🖌
Describe Recorded Data (stream gauge, monitoring well, a	aerial photos, previous inspecti	ons), if avai l ab l e:	
Demotor			
Remarks:			
No hydrology indicators present.			

Sampling	Point [.]	WA_	_Up1
Samuriu	F UIIIL.		

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1Prunus serotina	10	NO	FACU	That Are OBL, FACW, or FAC: (A)
2. Juglans nigra	20	YES	FACU	Tatal Number of Deminent
3. Liquidambar styraciflua	40	YES	FAC	Total Number of Dominant Species Across All Strata: 6 (B)
4		_	-	
5			_	Percent of Dominant Species
			-	That Are OBL, FACW, or FAC: _67 (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of:Multiply by:
8	70			OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' radius)	70	= Total Cov	er	FACW species x 2 =
Liquidambar styraciflua	30	YES	FAC	FAC species x 3 =
2				FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: <u>0</u> (A) <u>0</u> (B)
5		-		Prevalence Index = $B/A = 0$
6			-	
7		-		Hydrophytic Vegetation Indicators:
8			-	1 - Rapid Test for Hydrophytic Vegetation
9				✓ 2 - Dominance Test is >50%
10		-	-	3 - Prevalence Index is ≤3.0 ¹
10	20	– Total Cov		4 - Morphological Adaptations ¹ (Provide supporting
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)			CI	data in Remarks or on a separate sheet)
1		-	-	Problematic Hydrophytic Vegetation ¹ (Explain)
2			-	
3			_	¹ Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8			-	Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		-		
11		-		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12.		-	-	
	0	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)				height.
1. Smilax rotundifolia	10	YES	FAC	
2. Lonicera japonica	10	YES	FACU	
3. Vitis rotundifolia	20	YES	FAC	
4.		-	-	
5	·	_	_	Hydrophytic
	·	<u> </u>	<u> </u>	Vegetation Present? Yes V
6	40			
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

Profile Desc	ription: (Describe	to the dep	th needed to docun	nent the ir	ndicator	or confirn	n the absence of	i indicators.)	
Depth	Matrix		Redo	x Features					
(inches)	Color (moist)	%	Color (moist)	%	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=Co	oncentration, D=Dep	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	² Location: PL=	Pore Lining, M=Matrix.	
Hydric Soil	Indicators:						Indicate	ors for Problematic H	ydric Soils³:
Histosol	(A1)		Dark Surface	(S7)			2 cr	m Muck (A10) (MLRA ′	147)
Histic Ep	oipedon (A2)		Polyvalue Be	low Surfac	æ (S8) (N	ILRA 147	, 148) Coa	ast Prairie Redox (A16))
Black Hi	stic (A3)		Thin Dark Su	rface (S9)	(MLRA 1	47, 148)	(1	MLRA 147, 148)	
Hydroge	en Sulfide (A4)		Loamy Gleye	d Matrix (F	-2)		Piec	dmont Floodplain Soils	(F19)
Stratified	d Layers (A5)		Depleted Ma	trix (F3)			(MLRA 136, 147)	
	ick (A10) (LRR N)		Redox Dark	Surface (F	6)				
	d Below Dark Surfac	e (A11)	Depleted Dar		-		Ver	y Shallow Dark Surface	e (TF12)
Thick Da	ark Surface (A12)	. ,	Redox Depre	ssions (F8	3)			er (Explain in Remarks	
Sandy M	lucky Mineral (S1) (LRR N,	Iron-Mangan			LRR N,		、	,
	A 147, 148)		MLRA 13		· / ·				
	eved Matrix (S4)		Umbric Surfa	•	MLRA 13	6, 122)	³ Indica	ators of hydrophytic ve	getation and
	Redox (S5)		Piedmont Flo					land hydrology must be	-
,	Matrix (S6)		Red Parent M			-	•	ess disturbed or proble	
Restrictive I	Layer (if observed)	:							
Туре:									1
Depth (ind	ches):						Hydric Soil P	resent? Yes	No
Remarks:							1		
N	o hydric soil i	ndicator	rs present.						

Project/Site: Raleigh Outpat	tient Clinic	- Alterr	native	В	Citv/C	ounty: Rale	eigh / Wake	Ð	Sampling Date:	5/14/2020
Applicant/Owner: US Depart				rs		•••••• <u> </u>		_{State:} NC	Sampling Date: Sampling Poir	_{nt:} WA_Wet2
Investigator(s): M. Mickley, I								/illiams Cross		
Landform (hillslope, terrace, et										pe (%); 1
Subregion (LRR or MLRA): LF										
Soil Map Unit Name: Rains s	andy loan	 ו						NWI classi	ification. PEM	
Are climatic / hydrologic condit			ical for	this time of v	voar? V					
									" present? Yes	
Are Vegetation, Soil										• NU
Are Vegetation, Soil									wers in Remarks.)	
	3S - Atta	ach sit	te ma	ip showing	g sam	pling po	int locatio	ons, transec	ts, important te	eatures, etc.
Hydrophytic Vegetation Pres Hydric Soil Present? Wetland Hydrology Present? Remarks:		Yes	<u>√</u>	No No No	-	Is the San within a V	npled Area Vetland?	Yes 💆	No	
Grass swale from w	'ooaea v	vetlar	ים נט	ΟΙΟ Sta	ge Ku					
HYDROLOGY										
Wetland Hydrology Indicate									icators (minimum of	two required)
Primary Indicators (minimum	of one is re	quired; o						Surface So		
Surface Water (A1)				rue Aquatic F					/egetated Concave	Surface (B8)
High Water Table (A2)				lydrogen Sulf			$D_{-} = t_{0} (C_{2})$		Patterns (B10)	
Saturation (A3)				Dxidized Rhiz			Roots (U3)		Lines (B16)	
Water Marks (B1)				Presence of R Recent Iron Re			oile (C6)	Dry-Seaso Crayfish B	on Water Table (C2) aurrows (C8)	
Drift Deposits (B3)				hin Muck Su					Visible on Aerial Im	pagery (C9)
Algal Mat or Crust (B4)				Other (Explain					Stressed Plants (D	••••
Iron Deposits (B5)				,		,			ic Position (D2)	•)
Inundation Visible on Ae	rial Imagery	(B7)							quitard (D3)	
Water-Stained Leaves (B		. ,						Microtopog	graphic Relief (D4)	
Aquatic Fauna (B13)								FAC-Neutr	ral Test (D5)	
Field Observations:										
Surface Water Present?				Depth (inches						
Water Table Present?				Depth (inches					./	
Saturation Present? (includes capillary fringe)	Yes 🖌	No		Depth (inches	s): <u>10</u>		Wetland H	lydrology Pres	ent? Yes <u> </u>	No
Describe Recorded Data (str	eam gauge	, monitor	ring we	ell, aerial phot	tos, pre	vious inspe	ctions), if ava	ailable:		
Domorko										
Remarks:										

Sampling Point: <u>WA_Wet2</u>

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: _1 (A)
2				Total Number of Dominant
3		-	-	Species Across All Strata: <u>2</u> (B)
4				
5		-	-	Percent of Dominant Species That Are OBL, FACW, or FAC: ⁵⁰ (A/B)
6				
7			-	Prevalence Index worksheet:
8		-	-	Total % Cover of:Multiply by:
	0	= Total Cov	/er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' radius)				FACW species x 2 =
1			-	FAC species x 3 =
2			-	FACU species x 4 =
3			-	UPL species x 5 =
4			-	Column Totals: <u>0</u> (A) <u>0</u> (B)
5			_	
6			-	Prevalence Index = B/A = _0
7			_	Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
8				✓ 2 - Dominance Test is >50%
9			_	3 - Prevalence Index is ≤3.0 ¹
10				4 - Morphological Adaptations ¹ (Provide supporting
<u>Herb Stratum</u> (Plot size: ^{5'} radius)		= Total Cov	/er	data in Remarks or on a separate sheet)
1. Juncus effusus	30	YES	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Microstegium vimineum	5	NO	FAC	
3. unidentified herbaceous	30	YES	_	¹ Indicators of hydric soil and wetland hydrology must
4		_	_	be present, unless disturbed or problematic.
			_	Definitions of Four Vegetation Strata:
5			_	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10	·			Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12				Mandussing Allowed using a prostor than 2.20 ft in
30' radius	65	= Total Cov	/er	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>30' radius</u>)				
1	·			
2	·			
3				
4		-		Hudrophytic
5				Hydrophytic Vegetation
6				Present? Yes <u>V</u> No
	0	= Total Cov	/er	

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.

Profile Desc	ription: (Describe	to the de	pth needed to docu	ment the	indicator	or confirm	m the absence	e of indicators.)
Depth	Matrix			ox Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-12	10YR 4/2	85	10YR 5/4	15	<u> </u>	M	SCL	prominent mottles
12-16+	10YR 6/2	90	10YR 5/4	10	С	М	SCL	few distinct mottles
					_			
						·	·	
		<u> </u>						
						·		
		letion, RN	I=Reduced Matrix, M	S=Maske	ed Sand Gr	ains.		L=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indic	ators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			2	2 cm Muck (A10) (MLRA 147)
Histic Ep	oipedon (A2)		Polyvalue Be	elow Surf	ace (S8) (I	MLRA 147	', 148) <u> </u>	Coast Prairie Redox (A16)
Black Hi	istic (A3)		Thin Dark Si	urface (S	9) (MLRA	147, 148)		(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gley	ed Matrix	(F2)		F	Piedmont Floodplain Soils (F19)
	d Layers (A5)		✓ Depleted Ma		· /			(MLRA 136, 147)
2 cm Mı	ıck (A10) (LRR N)		Redox Dark	Surface ((F6)			
Deplete	d Below Dark Surfac	e (A11)	Depleted Da	irk Surfac	e (F7)		\	/ery Shallow Dark Surface (TF12)
Thick Da	ark Surface (A12)		Redox Depr				(Other (Explain in Remarks)
Sandy N	/lucky Mineral (S1) (I	LRR N,	Iron-Mangar	nese Mas	ses (F12) ((LRR N,		
-	A 147, 148)		MLRA 13		. ,			
Sandy G	Bleyed Matrix (S4)		Umbric Surfa	ace (F13)	(MLRA 1	36, 122)	³ Inc	licators of hydrophytic vegetation and
	Redox (S5)		Piedmont Fl	oodplain	Soi l s (F19)	(MLRA 1	48) v	vetland hydrology must be present,
	Matrix (S6)		Red Parent					nless disturbed or problematic.
Restrictive	Layer (if observed):	:						
Туре:								1
Depth (in	ches):						Hydric Soi	I Present? Yes _✔ No
Remarks:								

Project/Site: Raleigh Outpatient Clinic - Alternativ	/e B City/County: Raleigh /	Wake	Sampling Date: 5/14/2020
Applicant/Owner: US Department of Veterans Aff		State NC	Sampling Point WA_Up2
	Section, Township, Rar		
Landform (hillslope, terrace, etc.): hillslope			
Subregion (LRR or MLRA): LRR P; MLRA 136 Lat	. 35.652344	-78.665833	Datum: NAD83
Soil Map Unit Name: Rains sandy loam		NWI classifi	Datum
Are climatic / hydrologic conditions on the site typical f	,		
Are Vegetation, Soil, or Hydrology			present? Yes No
Are Vegetation, Soil, or Hydrology		eded, explain any answe	
SUMMARY OF FINDINGS – Attach site n		ocations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes Remarks: Upland plot taken in active farm field	_ No within a Wetlan	nd? Yes	N₀ d. As a result.
absolutely no vegetation is present soil conditions adjacent to wetland o	and the soil surface was di		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indic	ators (minimum of two required)
Primary Indicators (minimum of one is required; chec	k all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1)	True Aquatic Plants (B14)		getated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Drainage Pa	
Saturation (A3)	Oxidized Rhizospheres on Living Roots		
	Presence of Reduced Iron (C4)		Water Table (C2)
	Recent Iron Reduction in Tilled Soils (C		
	Thin Muck Surface (C7)		ísible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Remarks)		Stressed Plants (D1)
Iron Deposits (B5)			Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aqu	
Water-Stained Leaves (B9)			aphic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutra	Test (D5)
Field Observations:			
Surface Water Present? Yes No V	_ Depth (inches):		
	_ Depth (inches):		
(includes capillary fringe)	,	tland Hydrology Prese	nt? Yes No▼
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspections)	ı, if available:	
Remarks:			
No hydrology indicators present.			
, , , , , , , , , , , , , , , , , , ,			

	Absolute		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)		Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3	<u> </u>		Species Across All Strata: (B)
4			Percent of Dominant Species
5		<u> </u>	That Are OBL, FACW, or FAC: (A/B)
6			
7			Prevalence Index worksheet:
8			Total % Cover of:Multiply by:
		= Total Cover	OBL species x 1 =
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15' radius</u>)			FACW species x 2 =
1			FAC species x 3 =
2			FACU species x 4 =
3			UPL species x 5 =
4			Column Totals: <u>0</u> (A) <u>0</u> (B)
5			
6			Prevalence Index = $B/A = 0$
			Hydrophytic Vegetation Indicators:
7			1 - Rapid Test for Hydrophytic Vegetation
8			2 - Dominance Test is >50%
9			3 - Prevalence Index is ≤3.0 ¹
10			4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: <u>5' radius</u>)	0	= Total Cover	data in Remarks or on a separate sheet)
			Problematic Hydrophytic Vegetation ¹ (Explain)
1			
2			¹ Indicators of hydric soil and wetland hydrology must
3			be present, unless disturbed or problematic.
4			Definitions of Four Vegetation Strata:
5			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6			more in diameter at breast height (DBH), regardless of
7			height.
8		<u> </u>	Sapling/Shrub – Woody plants, excluding vines, less
9		<u> </u>	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10			
11			Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12.			
	0	= Total Cover	Woody vine – All woody vines greater than 3.28 ft in
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)			height.
1			
2			
3.			
4			
5			Hydrophytic
			Vegetation Present? Yes No
6	0	- Total Cause	
		= Total Cover	
Remarks: (Include photo numbers here or on a separate s	sneet.)		

No vegetation of any kind present.

SOIL

Depth	Matrix		Redo	x Features	6					
inches)	Color (moist)	<u>%</u> Co	or (moist)	%	Type ¹	_Loc ²	Texture		Remarks	
)-4	10YR 4/3						sandy loam	<u>ו</u>		
l-12+	2.5Y 6/4						SCL			
							2			
	Concentration, D=Depleti I Indicators:	on, RIVI=Reduc	ed Matrix, Ma	S=Masked	Sand Gra	ains.			ng, M=Matrix. roblematic H	
-				(07)						-
_ Histoso	· · /		Dark Surface	. ,				```	A10) (MLRA	,
_	Epipedon (A2)		Polyvalue Be				148)		e Redox (A16))
	Histic (A3)		Thin Dark Su			47, 148)		(MLRA 14		(540)
	en Sulfide (A4)		Loamy Gleye	-	FZ)				oodplain Soils	s (F19)
	ed Layers (A5)		Depleted Mat		~			(MLRA 13	36, 147)	
	luck (A10) (LRR N)		Redox Dark S	-	-					(
	ed Below Dark Surface (/	A11)	Depleted Dar					-	v Dark Surfac	
	Dark Surface (A12)		Redox Depre		,			Other (Expla	in in Remarks	5)
	Mucky Mineral (S1) (LRF	ΚΝ ,	Iron-Mangan		es (F12) (LRR N,				
	RA 147, 148)		MLRA 13	•			3.			
	Gleyed Matrix (S4)		Umbric Surfa						ydrophytic ve	
-	Redox (S5)		Piedmont Flo	-		-	-		rology must be	
Chainsan	ed Matrix (S6) • Layer (if observed):		Red Parent N	/laterial (F		A 127, 147	() 	uniess distur	bed or proble	matic.
	e l'aver ut observeo):									
estrictive										
								oil Present?		No 🗸

Project/Site: Raleigh Outpatient Clinic - Alternative B City/County: Rale	gh / Wake Si	ampling Date: 5/14/2020
Applicant/Owner: US Department of Veterans Affairs	gh / Wake S. _{State:} <u>NC</u>	Sampling Point: WA_Wet3
Investigator(s): M. Mickley, L. Coleman Section, Township		
Landform (hillslope, terrace, etc.): drainage/seep Local relief (concave,		
Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.652313		
Soil Map Unit Name: Rains sandy loam	NWI classificati	Datum
Are climatic / hydrologic conditions on the site typical for this time of year? Yes 📝 N		
Are Vegetation, Soil, or Hydrology significantly disturbed?	Are "Normal Circumstances" pres	sent? Yes <u>♥</u> No
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers i	in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling poin	nt locations, transects, i	mportant features, etc.
Hydrophytic Vegetation Present? Yes _ ✓ No Is the Sample Hydric Soil Present? Yes _ ✓ No within a We Wetland Hydrology Present? Yes _ ✓ No within a We Remarks: No No No No	etland? Yes <u>V</u>	
Wetland draw that extended into a plowed agricultural field. may be planted or not planted depending on year-to-year control of the second sec		w that this draw
	Socondary Indicator	ra (minimum of two required)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)		rs (minimum of two required)
<u>✓</u> Surface Water (A1) True Aquatic Plants (B14)	Surface Soil Cra Sparsely Veget	acks (BO) ated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patter	
Saturation (A3) Oxidized Rhizospheres on Living F		
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Wa	ater Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	ils (C6) <u>✓</u> Crayfish Burrow	vs (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visib	e on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)		ssed Plants (D1)
Iron Deposits (B5)	Geomorphic Po	
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitar	
✓ Water-Stained Leaves (B9)	Microtopograph	
Aquatic Fauna (B13)	FAC-Neutral Te	est (D5)
Field Observations:		
Surface Water Present? Yes _ ✓ No Depth (inches): <2 Water Table Present? Yes No _ ✓ Depth (inches):		
	Wetland Hydrology Present?	Yes 🗸 No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ions), if avai l ab l e:	
Devede		
Remarks:		
Surface water not present in immediate vicinity of data plot,	but inundation is pres	sent in portions of
the wetland.		

Sampling Point: WA_Wet3

Tree Stratum (Plot size: 30' radius) ½ Cover Species 2 Status 1 1 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - </th <th></th> <th>Absolute</th> <th>Dominant</th> <th>Indicator</th> <th>Dominance Test worksheet:</th>		Absolute	Dominant	Indicator	Dominance Test worksheet:
2				Status	Number of Dominant Species
3. - - Species Aross All Stratus 3 (B) 4. - - - Species Aross All Stratus 3 (B) 6. - - - - Frevalence Index worksheet: - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -					That Are OBL, FACW, or FAC: 2 (A)
	2				Total Number of Dominant
5. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	3				Species Across All Strata: <u>3</u> (B)
5.	4				Percent of Dominant Species
7. - - - - - Total % Cover of: Multiply by: 8. 0 = Total Cover FACU species × 1 = - 3. - - - FACU species × 3 = - 3. - - - FACU species × 3 = - - 4. - - - - FACU species × 4 = - - - - FACU species × 4 = - - - - FACU species × 5 = - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - </td <td>5</td> <td></td> <td>-</td> <td>-</td> <td></td>	5		-	-	
7	6		-		
8. 0 = Total Cover Inditicy by: Sagling/Shrub Stratum (Plot size: 15' radius) 0 = Total Cover OEL species	7		-	-	
0 = Total Cover OBL species x 1 = 2 - - FAC species x 2 = 3. - - - FAC species x 3 = 4. - - - - FAC species x 3 = 5. - - - UPL species x 4 = - 6. - - - Column Totals: 0 0 (B) 7. - - - - Hydrophytic Vegetation Indicators: - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>					
1. - - - FAC species x 3 = 2. - - - FAC species x 4 = - 3. - - - FAC species x 4 = - 3. - - - UPL species x 5 = - - 4. - - - Column Totals: 0 (A) 0 (B) 5. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - <td></td> <td>0</td> <td>= Total Cov</td> <td>/er</td> <td></td>		0	= Total Cov	/er	
2.	Sapling/Shrub Stratum(Plot size: 15' radius)				
3.	1		-	-	FAC species x 3 =
4.	2		-	-	FACU species x 4 =
4. - - - - Column Totals: 0 (A) 0 (B) 5. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	3		-	-	
5. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -				-	Column Totals: <u>0</u> (A) <u>0</u> (B)
6. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -				-	
7.				-	
8. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -				-	Hydrophytic Vegetation Indicators:
9. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -				-	
10. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -				-	
0 = Total Cover 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) 1. Juncus effusus 30 YES FACW 2. Microstegium vimineum 10 YES FAC 3. unidentified herbaceous 10 YES FAC 4. - - - 5. - - - 6. - - - 7. - - - 8. - - - 9. - - - 10. - - - 7. - - - 8. - - - 9. - - - 10. - - - 11. - - - 12. - - - 13. - - - 14. - - - 15. - - - 16. - - - <td< td=""><td></td><td></td><td>_</td><td>_</td><td> 3 - Prevalence Index is ≤3.0¹</td></td<>			_	_	3 - Prevalence Index is ≤3.0 ¹
Herb Stratum (Plot size: 5' radius) 30 YES FACW 1. Juncus effusus 30 YES FACW 2. Microstegium vimineum 10 YES FAC 3. unidentified herbaceous 10 YES FAC 4. - - - 5. - - - 6. - - - 7. - - - 8. - - - 9. - - - 10. - - - 8. - - - 9. - - - 10. - - - 10. - - - 11. - - - 12. - - - 13. - - - 14. - - - 15. - - - 16. - - - 17. - - <td>10</td> <td>2</td> <td>- Total Ca</td> <td></td> <td></td>	10	2	- Total Ca		
1. Juncus effusus 30 YES FACW	<u>Herb Stratum</u> (Plot size: ^{5'} radius)				
2 Intersegnmentation Intersegnmentation Intersegnmentation Intersegnmentation 3 unidentified herbaceous 10 YES Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 4 - - - Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 5 - - - Indicators of Four Vegetation Strata: 7 - - - Indicators of Four Vegetation Strata: 7 - - - - 8 - - - - 9 - - - - 10 - - - - 9 - - - - 10 - - - - 11 - - - - 12 - - - - 13 - - - - 14 - - - - 150 = Total Cover - - -		30	YES	FACW	Problematic Hydrophytic Vegetation' (Explain)
3. undertailed herbaceous 10 1ES - - be present, unless disturbed or problematic. 4. - - - - Definitions of Four Vegetation Strata: 5. - - - - - - 6. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	2. Microstegium vimineum	10	YES	FAC	
4.	3. unidentified herbaceous	10	YES	-	
5.	4		-	-	
6.				-	Definitions of Four Vegetation Strata:
7. - - - - - hole in diameter at breach height (bbn), fegatures of height. 8. - - - - - height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. 10. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - </td <td></td> <td></td> <td></td> <td>_</td> <td></td>				_	
8. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -				-	
9.					l neight.
10.				<u> </u>	
11.					than 3 in. DBH and greater than 3.28 ft (1 m) tall.
12. $ -$					Herb – All herbaceous (non-woody) plants, regardless
Woody Vine Stratum (Plot size: 30' radius) 50 = Total Cover Woody vine – All woody vines greater than 3.28 ft in height. 1.					of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30' radius) 1. 2. 3. 4. 5.	12				Woody vine – All woody vines greater than 3 28 ft in
1. - - - 2. - - - 3. - - - 4. - - - 5. - - -	Woody Vine Stratum (Plot size: 30' radius	50	= Total Cov	/er	
3.			_	-	
3.	1				
4 Hydrophytic 5 Hydrophytic Vegetation			- <u> </u>		
5 —					
				<u> </u>	Hydrophytic
					Vegetation
	6	•	-	-	Present? Yes <u>V</u> No
0 = Total Cover			= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate sheet.)	Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL

Profile Desc	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth	h Matrix Redox Features									
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		Remarks		
0-12	10YR 4/2	85	10YR 5/4	15	C	М	SCL	prominent mottles		
12-16+	10YR 6/2	90	10YR 5/4	10	С	М	SCL	few distinct mottles		
		·					·			
						·	·			
							·			
				·			·			
							·			
<u> </u>						·	·			
¹ Type: C=Co	oncentration, D=Dep	letion, RN	=Reduced Matrix, M	S=Maske	ed Sand G	ains.	² Location: Pl	L=Pore Lining, M=Matrix.		
Hydric Soil	Indicators:						Indic	ators for Problematic Hydric Soils ³ :		
Histosol	(A1)		Dark Surface	e (S7)			2	2 cm Muck (A10) (MLRA 147)		
	oipedon (A2)		Polyvalue Be	low Surf	ace (S8) (I	MLRA 147	', 148) C	Coast Prairie Redox (A16)		
Black Hi			Thin Dark Sι			147, 148)		(MLRA 147, 148)		
	n Sulfide (A4)		Loamy Gleye		(F2)		F	Piedmont Floodplain Soils (F19)		
	Layers (A5)		✓ Depleted Ma	· · /				(MLRA 136, 147)		
	ck (A10) (LRR N)	(Redox Dark				,			
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)							/ery Shallow Dark Surface (TF12)			
	ark Surface (A12)		Redox Depre	•	,		C	Other (Exp l ain in Remarks)		
-	lucky Mineral (S1) (L \ 147, 148)	_KK N,	Iron-Mangan MLRA 13		ses (FTZ)	LKK N,				
	leyed Matrix (S4)				(MI RA 1	36, 122)	³ Ind	licators of hydrophytic vegetation and		
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 14)							vetland hydrology must be present,			
-	Matrix (S6)		Red Parent	-		-	-	nless disturbed or problematic.		
Restrictive I	_ayer (if observed):				,,,	,				
Type:	,									
Depth (inc	ches):						Hydric Soil	Present? Yes 🖌 No		
Remarks:	· · · · · · · · · · · · · · · · · · ·									

Project/Site: Raleigh Outpat	ient Clinic - Alternati [,]	ve B	City/County: Rale	eigh / Wake		Sampling Date: 5	/14/2020	
Applicant/Owner: US Depart						Sampling Point:		
Investigator(s): M. Mickley, L			Section, Township, Range:Williams Crossroads					
Landform (hillslope, terrace, et						Slope	e (%): 0	
Subregion (LRR or MLRA): LF						Datum:		
Soil Map Unit Name: Rains s					NWI classific	ation: PFO		
Are climatic / hydrologic condit		for this time of ve	ar? Yes 🗸	No (
Are Vegetation, Soil						oresent? Yes 🧹	No	
							NO	
Are Vegetation, Soil					xplain any answe		turaa ata	
SUMMARY OF FINDING		nap snowing			115, ITANSECIS		itures, etc.	
Hydrophytic Vegetation Prese Hydric Soil Present? Wetland Hydrology Present? Remarks:	Yes <u>√</u>	No No No	Is the Sam within a W	npled Area /etland?	Yes 🗸	No		
HYDROLOGY								
Wetland Hydrology Indicate						tors (minimum of tv	vo required)	
Primary Indicators (minimum	of one is required; chec				Surface Soil			
Surface Water (A1)		True Aquatic Pl				getated Concave Su	urface (B8)	
High Water Table (A2)		Hydrogen Sulfic						
Saturation (A3)			izospheres on Living Roots (C3) Moss Trim Lines (B16)					
Water Marks (B1) Sediment Deposits (B2)			Reduced Iron (C4) Dry-Season Water Table (C2)					
Drift Deposits (B3)		Thin Muck Surfa	Reduction in Tilled Soils (C6) <u>✓</u> Crayfish Burrows (C8) Surface (C7) Saturation Visible on Aerial Imagery (C9)					
Algal Mat or Crust (B4)		Other (Explain i						
Iron Deposits (B5)			,			Position (D2)		
Inundation Visible on Ae	rial Imagery (B7)				Shallow Aqui			
🖌 Water-Stained Leaves (E	39)				Microtopogra	phic Relief (D4)		
Aquatic Fauna (B13)					FAC-Neutral	Test (D5)		
Field Observations:								
Surface Water Present?	Yes No 🗸	_ Depth (inches)):					
Water Table Present?	Yes No 🗸	_ Depth (inches)):			1		
Saturation Present? (includes capillary fringe)	Yes 🖌 No	_ Depth (inches)	. <u>12</u>	Wetland H	ydrology Preser	nt? Yes <u></u> ✓	No	
Describe Recorded Data (stre	eam gauge, monitoring	well, aerial photo	os, previous inspec	tions), if avai	ilable:			
Descelar								
Remarks:								

Sampling Point: V	NB_\	Net1
-------------------	------	------

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)		Species?		Number of Dominant Species
1. Pinus taeda	60	YES	FAC	That Are OBL, FACW, or FAC: 6 (A)
2. Liriodendron tulipifera	20	YES	FACU	
3. Liquidambar styraciflua	10	NO	FAC	Total Number of Dominant Species Across All Strata: 8 (B)
-		-	_	
	·	_	_	Percent of Dominant Species
5			_	That Are OBL, FACW, or FAC: 75 (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of:Multiply by:
8	~~	<u> </u>		OBL species
Sapling/Shrub Stratum (Plot size: 15' radius)	90	= Total Cov	er	FACW species x 2 =
1. Liquidambar styraciflua	10	YES	FAC	FAC species x 3 =
o Acer rubrum	10	YES	FAC	FACU species x 4 =
				UPL species x 5 =
3				Column Totals: 0 (A) 0 (B)
4				
5				Prevalence Index = B/A = _0
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9	·	-		3 - Prevalence Index is ≤3.0 ¹
10				4 - Morphological Adaptations ¹ (Provide supporting
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)	20	= Total Cov	er	data in Remarks or on a separate sheet)
<u>1.</u> Boehmeria cylindrica	5	NO	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Microstegium vimineum	15	YES	FAC	
	·			¹ Indicators of hydric soil and wetland hydrology must
3. <u>Carex sp. (species unknown)</u>	20	YES		be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7			-	height.
8			-	
9			-	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		-	-	
11		-	-	Herb – All herbaceous (non-woody) plants, regardless
12.	·		-	of size, and woody plants less than 3.28 ft tall.
12	40	– Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: <u>30' radius</u>)			ei	height.
1. Smilax rotundifolia	5	YES	FAC	
2. Vitis rotundifolia	10	YES	FAC	
3		-	-	
	·	_		
4	·		_	Hydrophytic
5	·			Vegetation Present? Yes V
6	15			Present? Yes Ves No
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

Profile Desc	cription: (Describe	to the dep	pth needed to docu	ment the	indicator	or confir	m the absence	of indicators.)
Depth	Matrix		Redo	ox Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10YR 3/1	85	10YR 4/4	15	<u> </u>	PL	sandy loam	ORCs
6-10	10YR 4/1	100					sandy loam	
10-18	10YR 6/2	100					sandy loam	
							. <u> </u>	
					_	·	·	
¹ Type: C=C	oncentration, D=Dep	etion, RN	I=Reduced Matrix, M	S=Maske	d Sand G	ains.		_=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indica	ators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			2	. cm Muck (A10) (MLRA 147)
Histic E	oipedon (A2)		Polyvalue Be	elow Surf	ace (S8) (I	MLRA 147	7, 148) C	Coast Prairie Redox (A16)
Black Hi	istic (A3)		Thin Dark S	urface (S	9) (MLRA	147, 148)		(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gley	ed Matrix	(F2)		F	edmont Floodplain Soils (F19)
Stratified	d Layers (A5)		Depleted Ma	atrix (F3)				(MLRA 136, 147)
2 cm Mı	uck (A10) (LRR N)		Redox Dark	Surface ((F6)			
Deplete	d Below Dark Surfac	æ (A11)	Depleted Da	irk Surfac	e (F7)		v	/ery Shallow Dark Surface (TF12)
Thick Da	ark Surface (A12)		✓ Redox Depr	essions (F8)		C	Other (Explain in Remarks)
Sandy N	/lucky Mineral (S1) (LRR N,	Iron-Mangar			(LRR N,		
MLRA	A 147, 148)		MLRA 13	86)				
Sandy G	Gleyed Matrix (S4)		✓ Umbric Surfa	ace (F13)	(MLRA 1	36, 122)	³ Ind	licators of hydrophytic vegetation and
	Redox (S5)		Piedmont F	oodplain	Soils (F19)	(MLRA 1	48) v	vetland hydrology must be present,
Stripped	I Matrix (S6)		Red Parent	Material (F21) (MLF	RA 127, 14	17) u	nless disturbed or problematic.
Restrictive	Layer (if observed)	:						
Туре:								1
Depth (in	ches):						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.

Project/Site: Raleigh Outpatient Clinic - A	Alternative B	_ City/County: <u>Raleigh</u> / W	ake	_ Sampling Date: <u>5/14/2020</u>
Applicant/Owner: US Department of Vete	rans Affairs		State: NC	Sampling Point: <u>WB_</u> Up1
Investigator(s): M. Mickley, L. Coleman		_ Section, Township, Range	Williams Crossr	oads
Landform (hillslope, terrace, etc.): hillslope				Slope (%): 2
Subregion (LRR or MLRA): LRR P; MLRA	136 Lat. 35.652714			Datum: NAD83
Soil Map Unit Name: Rains sandy loam	200	2011g	NWI classi	fication: Upland
Are climatic / hydrologic conditions on the site	e typical for this time of	/		
Are Vegetation, Soil, or Hydro				' present? Yes 🖌 No
Are Vegetation, Soil, or Hydro			ed, explain any answ	
SUMMARY OF FINDINGS – Attac	a site map showin		auons, transect	is, important reatures, etc.
Hydric Soil Present? Ye	es No✓ es No✓ es No✓	- within a Wetland?	ea Yes	No
Remarks:				
HYDROLOGY				
Wetland Hydrology Indicators:			Secondary Indi	cators (minimum of two required)
Primary Indicators (minimum of one is requi	red; check all that apply	()	Surface Sc	il Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)				egetated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Odor (C1)		Drainage F	Patterns (B10)
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)			Lines (B16)
Water Marks (B1)	Water Marks (B1) Presence of Reduced Iron (C4)			
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6)				urrows (C8) Visible on Aerial Imagery (C9)
Drift Deposits (B3)				
Algal Mat or Crust (B4)	Other (Explai	n in Remarks)		Stressed Plants (D1)
Iron Deposits (B5)			Geomorph	ic Position (D2)

()						
Algal Mat or Crust (B4) Other (Explain in Remarks)) Stunted or Stressed Plants (D1)		
Iron Deposits (B5)				Geomorphic Position (D2)		
Inundation Visible on A	erial Imager	y (B7)	Shallow Aquitard (D3)			
Water-Stained Leaves ((B9)		Microtopographic Relief (D4)			
Aquatic Fauna (B13)				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		
	ream gauge	, monitoring	y well, aerial photos, previous	inspections), if available:		
Remarks:						
No hydrology indica	atore pro	acont				
	ators pre	550111.				

Sampling	Doint:	WB_	Up1
Sampling	Point	_	

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	<u>% Cover</u>	Species?		Number of Dominant Species
1. Pinus taeda	20	YES	FAC	That Are OBL, FACW, or FAC: <u>3</u> (A)
2. Liriodendron tulipifera	40	YES	FACU	Tatal Number of Demain ant
3. Prunus serotina	15	NO	FACU	Total Number of Dominant Species Across All Strata: 7 (B)
4. Acer rubrum	5	NO	FAC	
5	·	_	_	Percent of Dominant Species
		_	_	That Are OBL, FACW, or FAC: 43 (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of:Multiply by:
8	00	<u> </u>		OBL species 0 x 1 = 0
Sapling/Shrub Stratum (Plot size: 15' radius)	00	= Total Cov	/er	FACW species $0 x 2 = 0$
Liriodendron tulipifera	5	YES	FACU	FAC species $\frac{65}{x_3} = \frac{195}{x_3}$
2				
3	·			UPL species $\frac{0}{100}$ x 5 = $\frac{0}{575}$
4				Column Totals: <u>160</u> (A) <u>575</u> (B)
5		-	-	Prevalence Index = $B/A = 3.6$
6		-	-	
7			-	Hydrophytic Vegetation Indicators:
8			-	1 - Rapid Test for Hydrophytic Vegetation
9			_	2 - Dominance Test is >50%
10		_	_	$_$ 3 - Prevalence Index is $\leq 3.0^1$
10	-			4 - Morphological Adaptations ¹ (Provide supporting
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)		= Total Cov	/ei	data in Remarks or on a separate sheet)
1 Phytolacca americana	10	YES	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2 Microstegium vimineum	20	YES	FAC	
	·			¹ Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8		-	-	Sapling/Shrub – Woody plants, excluding vines, less
9		-	-	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		-	-	
11.		-	-	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12.		_	-	
	30	= Total Cov		Woody vine – All woody vines greater than 3.28 ft in
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)				height.
1. Lonicera japonica	30	YES	FACU	
2. Vitis rotundifolia	20	YES	FAC	
	·		_	
3				
4	·			Hydrophytic
5	·			Vegetation Present? Yes No
6				Present? Yes <u>No</u>
	50	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

S	Ο	

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth <u>Matrix</u>			Redox Features							
(inches)	Color (moist)	%	Color (moist)	<u>%</u> Typ	e 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				
		· ·								
				- <u> </u>						
				·						
				·						
				·						
		·		· ·						
1 			De du ce d Matrix M			21	-Dana Lining M-Matrix			
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix.										
-	Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :									
Histosol	· · /			_ Dark Surface (S7) 2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16)							
Black Histic (A3)				Irface (S9) (MLF	RA 147, 148)	(MLRA 147, 148)				
Hydrogen Sulfide (A4)				d Matrix (F2)		Piedmont Floodplain Soils (F19)				
Stratified Layers (A5)			Depleted Ma	· · /			(MLRA 136, 147)			
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6)								(75.40)		
· ·	d Below Dark Surfac	e (A11)	Depleted Dark Surface (F7) Redox Depressions (F8)			Very Shallow Dark Surface (TF12)				
	ark Surface (A12)			· · ·		0	Other (Explain in Remarks)			
Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) MLRA 136)										
MLRA 147, 148) MLRA 136) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)						³ Ind	icators of hydrophytic veg	etation and		
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148							
Sandy Redox (SS)			Red Parent Material (F21) (MLRA 140							
	Layer (if observed)		ried i alent i							
Type:										
Depth (inches):			—			Hydric Soil Present? Yes No				
Remarks:										
	No hydric soil indicators present.									

Project/Site: Raleigh Outpatient Clinic - Alternative B	City/County: Raleigh / Wake	e	Sampling Date: 5/14/2020				
Applicant/Owner: US Department of Veterans Affairs	City/County: Raleigh / Wake	_{State:} NC	Sampling Point: WB_Wet2				
		Section, Township, Range: Williams Crossroads					
	Local relief (concave, convex, no						
Subregion (LRR or MLRA): LRR P; MLRA 136 Lat: 35.65							
Soil Map Unit Name: Rains sandy loam	Long	NWI classifi	cation: PEM				
Are climatic / hydrologic conditions on the site typical for this ti	me of year? Yes No	(If no, explain in F	Remarks.)				
Are Vegetation, Soil, or Hydrology sign			present? Yes 🖌 No				
Are Vegetation, Soil, or Hydrology nat		explain any answe					
SUMMARY OF FINDINGS – Attach site map sh							
Hydrophytic Vegetation Present? Yes ✓ No Hydric Soil Present? Yes ✓ No Wetland Hydrology Present? Yes ✓ No Remarks: PEM portion of Wetland WB adjacent to T	within a Wetland?	Yes_	No				
HYDROLOGY							
Wetland Hydrology Indicators:		Secondary Indic	ators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that	it apply)	Surface Soil Cracks (B6)					
Surface Water (A1) True A	quatic Plants (B14)		getated Concave Surface (B8)				
	gen Sulfide Odor (C1)	✓ Drainage Pa	-				
✓ Saturation (A3) Oxidiz	ed Rhizospheres on Living Roots (C3)	Moss Trim L	ines (B16)				
Water Marks (B1) Preser	nce of Reduced Iron (C4)	Dry-Season	Water Table (C2)				
Sediment Deposits (B2) Recen	t Iron Reduction in Tilled Soils (C6)	✓ Crayfish Burrows (C8)					
Drift Deposits (B3) Thin M	luck Surface (C7)	Saturation Visible on Aerial Imagery (C9)					
Algal Mat or Crust (B4) Other	(Explain in Remarks)	Stunted or Stressed Plants (D1)					
Iron Deposits (B5)		Geomorphic	Position (D2)				
Inundation Visible on Aerial Imagery (B7)		Shallow Aqu	uitard (D3)				
✓ Water-Stained Leaves (B9)		Microtopographic Relief (D4)					
Aquatic Fauna (B13)		FAC-Neutra	I Test (D5)				
Field Observations:							
Surface Water Present? Yes No _✓ Depth							
Water Table Present? Yes No _✓ Depth			1				
Saturation Present? Yes 🖌 No Depth	(inches): <u>10</u> Wetland H	lydrology Prese	nt? Yes <u> </u>				
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, ae	rial photos, previous inspections), if ave	ailable:					
Remarks:							

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

Sampling Point: <u>WB_Wet2</u>

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	% Cover	Species?	Status	Number of Dominant Species
1		-	-	That Are OBL, FACW, or FAC: <u>3</u> (A)
2		-	-	Total Number of Dominant
3				Species Across All Strata: <u>4</u> (B)
4			-	
5			-	Percent of Dominant Species
6			_	That Are OBL, FACW, or FAC: 75 (A/B)
				Prevalence Index worksheet:
7				Total % Cover of:Multiply by:
8	•			OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' radius)	<u> </u>	= Total Cov	ver	FACW species x 2 =
1. Pinus taeda	2	-	FAC	FAC species x 3 =
2. Acer rubrum	5	YES	FAC	FACU species x 4 =
3. Liquidambar styraciflua	5	YES	FAC	
				UPL species x 5 =
4				Column Totals: <u>0</u> (A) <u>0</u> (B)
5				Prevalence Index = $B/A = 0$
6		-	-	
7		-	-	Hydrophytic Vegetation Indicators:
8			-	1 - Rapid Test for Hydrophytic Vegetation
9			-	✓ 2 - Dominance Test is >50%
10		-	-	3 - Prevalence Index is ≤3.0 ¹
····	40	= Total Cov		4 - Morphological Adaptations ¹ (Provide supporting
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)		- 10(a) 000		data in Remarks or on a separate sheet)
1. Juncus effusus	30	YES	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Scirpus cyperinus	5	NO	FACW	
3. Andropogon virginicus	40	YES	FACU	¹ Indicators of hydric soil and wetland hydrology must
4. unidentified herbaceous	10	NO		be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7	·		-	height.
8			-	Sapling/Shrub – Woody plants, excluding vines, less
9		-		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				
11.		-	-	Herb – All herbaceous (non-woody) plants, regardless
12.		-	-	of size, and woody plants less than 3.28 ft tall.
·	85	= Total Cov		Woody vine - All woody vines greater than 3.28 ft in
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)		- 10(a) 001		height.
1.		-	-	
2		-	-	
			_	
3	·			
	·			Hydrophytic
5	·			Vegetation
6	·			Present? Yes <u>V</u> No
	0	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

SOIL

Profile Desc	ription: (Describe	to the dep	oth needed to docu	nent the	indicator	or confir	m the absence	of indicators.)
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	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	С	М	sandy loam	few distinct mottles
						· · · · · · · · · · · · · · · · · · ·		
		·				·	·	
							·	
		·					·	
		·				·	·	
¹ Type: C=Co	oncentration, D=Dep	letion, RM	Reduced Matrix, M	S=Maske	ed Sand G	ains.	² Location: PL	Pore Lining, M=Matrix.
Hydric Soil			,					ators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			2	cm Muck (A10) (MLRA 147)
Histic Ep	pipedon (A2)		Polyvalue Be	low Surf	ace (S8) (I	MLRA 147	', 148)	Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Sι	Irface (S	9) (MLRA	147, 148)		(MLRA 147, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix	(F2)		P	viedmont Floodplain Soils (F19)
Stratified	l Layers (A5)		✓ Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface ((F6)			
Depleted	d Below Dark Surfac	e (A11)	Depleted Da	rk Surfac	e (F7)		V	/ery Shallow Dark Surface (TF12)
Thick Da	ark Surface (A12)		Redox Depre	essions (F8)		C	Other (Explain in Remarks)
Sandy N	lucky Minera l (S1) (I	_RR N,	Iron-Mangan	ese Mas	ses (F12)	(LRR N,		
	\ 147, 148)		MLRA 13	6)				
Sandy G	leyed Matrix (S4)		Umbric Surfa	. ,	•			licators of hydrophytic vegetation and
Sandy R	edox (S5)		Piedmont Flor	odplain	Soils (F19)) (MLRA 1	48) w	vetland hydrology must be present,
	Matrix (S6)		Red Parent I	/laterial (F21) (MLF	RA 127, 14	1 7) ui	nless disturbed or problematic.
Restrictive I	_ayer (if observed):							
Туре:								1
Depth (ind	ches):						Hydric Soil	Present? Yes 🖌 No
Remarks:							1	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Raleigh Outpatient Clinic - Altern		_{County:} Raleigh / Wake	9	_ Sampling Date: <u>5/14/2020</u>
Applicant/Owner: US Department of Veterans	Affairs		_ _{State:} NC	Sampling Point: <u>WB_Up2</u>
Investigator(s): M. Mickley, L. Coleman	Sect	on, Township, Range: <u>W</u>	/illiams Crossro	bads
Landform (hillslope, terrace, etc.): hillslope				
Subregion (LRR or MLRA): LRR P; MLRA 136				
Soil Map Unit Name: Rains sandy loam	Lat.	Long	NWI classif	ication: Upland
Are climatic / hydrologic conditions on the site typic		,		
Are Vegetation, Soil, or Hydrology _	-			present? Yes 🖌 No
Are Vegetation, Soil, or Hydrology _	naturally problem	atic? (If needed, e	exp l ain any answ	ers in Remarks.)
SUMMARY OF FINDINGS – Attach site	e map showing sar	npling point locatio	ons, transect	s, important features, etc
Hydric Soil Present? Yes	No <u>✓</u> No <u>✓</u> No <u>✓</u>	Is the Sampled Area within a Wetland?	Yes	No
HYDROLOGY				
Wetland Hydrology Indicators:			Secondary Indic	ators (minimum of two required)
Primary Indicators (minimum of one is required; cl	heck all that apply)		Surface So	I Cracks (B6)
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Ve	egetated Concave Surface (B8)
	Hydrogen Sulfide Oc	lor (C1)	Drainage P	atterns (B10)
		res on Living Roots (C3)	Moss Trim	Lines (B16)
	Presence of Reduce		Dry-Seasor	n Water Tab l e (C2)
	Recent Iron Reduction	on in Tilled Soils (C6)	Crayfish Bu	rrows (C8)
	Thin Muck Surface (C7)	Saturation	/isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Re	marks)	Stunted or Stunted or Stundard Structure	Stressed Plants (D1)
Iron Deposits (B5)			Geomorphi	c Position (D2)
Inundation Visible on Aerial Imagery (B7)			Shallow Aq	uitard (D3)
Water-Stained Leaves (B9)			Microtopoa	raphic Relief (D4)

Aquatic Fauna (B13)				FAC-Neutral Test (D5)	
Field Observations:					
Surface Water Present?	Yes	No	Depth (inches):		
Water Table Present?	Yes	No	Depth (inches):		1
Saturation Present? (includes capillary fringe)	Yes	No _✓	Depth (inches):	Wetland Hydrology Present? Yes	No✔
Describe Recorded Data (st	ream gauge	, monitoring w	ell, aerial photos, previous	inspections), if available:	
Remarks:					
No hydrology indica	ators pre	esent.			
	•				

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

	Abaoluto	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: ^{30' radius)}		Species?		
1)			-	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
2				Total Number of Dominant
3				Species Across All Strata: <u>6</u> (B)
4		-		Demonstraf Demoissant Conscisus
5		-	-	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
6			-	
				Prevalence Index worksheet:
7			<u> </u>	Total % Cover of:Multiply by:
8			<u> </u>	OBL species
1El redius	0	= Total Cov	ver	
Sapling/Shrub Stratum (Plot size: 15' radius)				FACW species x 2 =
1. Acer rubrum	2	YES	FAC	FAC species <u>7</u> x 3 = <u>21</u>
2. Cornus florida	2	YES	FACU	FACU species <u>57</u> x 4 = <u>228</u>
3. Liquidambar styraciflua	5	YES	FAC	UPL species x 5 =
			_	Column Totals: <u>64</u> (A) <u>249</u> (B)
4				
5				Prevalence Index = $B/A = \frac{3.89}{1000000000000000000000000000000000000$
6		-	-	
7				Hydrophytic Vegetation Indicators:
8			-	1 - Rapid Test for Hydrophytic Vegetation
			_	2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 ¹
10				4 - Morphological Adaptations ¹ (Provide supporting
El rodiuo	9	= Total Cov	ver	data in Remarks or on a separate sheet)
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Andropogon virginicus	40	YES	FACU	
2. Rubus argutus	15	YES	FACU	
3. Solidago sp.	15	YES	-	¹ Indicators of hydric soil and wetland hydrology must
		_	_	be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7			-	height.
8			-	
			_	Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12				
	70	= Total Cov	ver	Woody vine – All woody vines greater than 3.28 ft in
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)				height.
1		-	-	
2		_	-	
3				
4				Hydrophytic
5			-	Vegetation
6				Present? Yes No V
	0	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate				
Temains. (Include photo numbers here of on a separate	sneet.)			

Profile Desc	ription: (Describe t	o the depth	needed to docun	nent the indi	icator o	or confirm	n the absence of indicators.)	
Depth	Matrix			x Features	1			
(inches)	Color (moist)		Color (moist)	<u> % </u>	Type'	Loc ²	Texture Remarks	
0-4	10YR 4/3			·			sandy loam	
4-12+	2.5Y 6/4						SCL	
								_
				·				—
				· ·				—
				·				_
								_
								_
								—
							²	—
Hydric Soil	oncentration, D=Deple	etion, RM=R	educed Matrix, MS	S=Masked Sa	and Gra	uns.	² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ :	
Histosol			Dark Surface	(\$7)			2 cm Muck (A10) (MLRA 147)	
	bipedon (A2)		Polyvalue Be	. ,	(S8) (M	LRA 147.		
Black Hi	• • • •		Thin Dark Su				(MLRA 147, 148)	
Hydroge	n Sulfide (A4)		Loamy Gleye				Piedmont Floodplain Soils (F19)	
	l Layers (A5)		Depleted Mat	trix (F3)			(MLRA 136, 147)	
	ıck (A10) (LRR N)		Redox Dark S	()				
·	d Below Dark Surface	(A11)	Depleted Dar		7)		Very Shallow Dark Surface (TF12)	
	ark Surface (A12)		Redox Depre	. ,	(540) (1		Other (Explain in Remarks)	
	lucky Mineral (S1) (L \ 147, 148)	KK N,	Iron-Mangane MLRA 13		(F12) (L	KKN,		
	Bleyed Matrix (S4)		Umbric Surfa	,	-RA 136	6, 122)	³ Indicators of hydrophytic vegetation and	
-	ledox (S5)		Piedmont Flo					
-	Matrix (S6)		Red Parent M	-		-		
Restrictive I	_ayer (if observed):							
Туре:								
Depth (in	ches):						Hydric Soil Present? Yes No	_
Remarks:							1	
N	o hydric soil in	dicators	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 11.0 if ≥ 19 or perennial if $\geq 30^*$	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
 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
3. 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	o = 0	Yes	= 3
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = <u>3.5</u>)				1
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 0.5		1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No	No = 0		= 3
C. Biology (Subtotal = <u>4.0</u>)				
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
	ds. See p. 35 of manua	Ι.		
*perennial streams may also be identified using other method				

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 <u>approved</u> 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

 \checkmark

|√|

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

Size of Property or Review Area <u>32.88</u> acres.

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

