C Appendix C: Biological Surveys

C.1 Biological Survey Report for Alternative A

C.2 Biological Survey Report for Alternative B

C.1 Biological Survey Report for Alternative A

U.S. Department of Veterans Affairs

BIOLOGICAL SURVEY REPORT FOR THE RALEIGH OUTPATIENT CLINIC – ALTERNATIVE A, WAKE COUNTY, NORTH CAROLINA

June 2020

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

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

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1 INTRODUCTION

The United States Department of Veterans Affairs (VA) is proposing construction and operation of an approximately 222,325 square foot outpatient clinic near Raleigh, North Carolina. The facility will include other site improvements, amenities, and landscaped open space areas and would be designed and built to VA design criteria and in accordance with local building and zoning codes. VA established the size of the facility and land required for the outpatient clinic based on the number of Veterans currently receiving health care services in the Raleigh area and the forecasted number of Veterans requiring these services. VA plans to select a developer who would construct the proposed outpatient clinic and then lease the facility to VA for up to 20 years. In early 2020, VA requested lease proposals from offerors. VA received offers for the proposed outpatient clinic and identified two reasonable alternatives.

Alternative A is approximately 16.76 acres along the west site of Benson Road (Highway 50) in Garner and in the southern portion of the Raleigh metro area (Figure 1). The Alternative A study area (project study area) consists of scrub growth and new growth forest, with a few rural residences in the northern portion of the project study area. Primary access would be from Benson Road with secondary access from the north at Rand Road and from the south at Arbor Green Drive. An L-shaped building would be situated toward the western boundary with parking towards the north and east with additional parking to the south. Surrounding properties include farmland, residential neighborhoods, a convenience store, an elementary school, an auto shop, and undeveloped land zoned for office and institutional use.

The following Biological Survey 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 potential affects to federally and state-listed protected species under the jurisdiction of the United States Fish and Wildlife Service (USFWS), the North Carolina Wildlife Resources Commission (NCWRC), and the North Carolina Plant Conservation Program (NCPCP). This report describes the methods used to conduct preliminary and on-site evaluations, results of the evaluations, and provides summary conclusions regarding the potential affects to protected species. Results and conclusions provided in this report represent SWCA's professional opinion based on knowledge and experience with federal and state agencies. Concurrence on the results of this report from USFWS, NCWRC, and NCPCP has not been received 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:	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:	GPS/GIS data collection

2 METHODS

In support of the NEPA process a site assessment was completed using a combination of desktop evaluation and subsequent field reconnaissance survey to determine if the project will have an effect on any protected species or designated critical habitat within the proposed project area. For the purposes of this report, protected species are defined as:

- threatened and endangered species pursuant to the Endangered Species Act of 1973 (ESA), Section 4, as amended;
- species designated by the USFWS as Proposed, Candidate, Species of Concern, and Nonessential Experimental Populations;
- North Carolina state-listed threatened, endangered, and special concern species protected under Endangered and Threatened Wildlife and Wildlife Species of Concern of the State of North Carolina (Chapter 113 Article 25) and Plant Protection and Conservation Act (Chapter 106 Article 19B); and
- Bald eagles (*Haliaeetus leucocephalus*) protected under the Bald and Golden Eagle Protection Act of 1940 (BGEPA)

2.1 Desktop Review

The following publicly available data sources, all accessed in May and June 2020, were used to complete a desktop review of resources within the project study area:

- Google Earth™ (2019); (*https://earth.google.com/*);
- North Carolina Natural Heritage Program (NCNHP) data and planning tools (NCNHP 2020); (*https://www.ncnhp.org/*)
- North Carolina Wildlife Resource Commission (NCWRC 2020); (*https://www.ncwildlife.org/Learning/Species/Birds/Bald-Eagle*)
- U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) Web Soil Survey (NRCS 2020); (*https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx*);
- USFWS Information for Planning and Consultation (IPaC; USFWS 2020); (*https://ecos.fws.gov/ipac/*); and
- USGS topographic maps

From these sources, SWCA biologists were able to identify any protected species or critical habitats that may occur within the project study area. In addition, SWCA submitted a data request to the NCNHP in May 2020 to obtain occurrence records for protected species, critical habitat, or documented natural areas known to occur in or within one mile of the project study area.

2.2 Field Review

A field evaluation of the project study area was conducted via pedestrian survey on May 14, 2020 to complete the following:

- Document readily observable features, if any, that may serve to attract wildlife;
- Record incidental plant and wildlife observations while in the project study area;

- Document the presence/absence of suitable habitat for identified protected species; and
- Perform transect surveys, as necessary, to determine the presence/absence of protected species in areas of suitable habitat.

Prior to performing field reviews, SWCA biologists visited a reference population of Michaux's sumac (*Rhus michauxii*) located on Legacy Oaks Drive between Raleigh and Knightdale, North Carolina. Review of this reference population occurred on the afternoon of May 13, 2020 and was coordinated with USFWS biologist Dale Suiter. Numerous stems of Michaux's sumac were observed, with some stems beginning to form flowers.

3 RESULTS

3.1 Site Characteristics

The project study area lies within the Southeastern Plains U.S. Environmental Protection Agency Level III Ecoregion (Griffith et al. 2002). These irregular plains with broad interstream areas have a mosaic of cropland, pasture, woodland, and forest. The Cretaceous or Tertiary-age sands, silts, and clays of the region contrast geologically with the older metamorphic and igneous rocks of the Piedmont and Blue Ridge. Over the past three centuries, naval stores or pine tar production, logging, open range cattle and feral hog grazing, agriculture, and fire suppression have removed most of the once predominant longleaf pine forests of the region.

Elevations and relief are greater than in the Southern Coastal Plain, but generally less than in much of the Piedmont or in the more mountainous Blue Ridge. Streams in this area are relatively low-gradient and sandy-bottomed. (Griffith et al. 2002). Field observations and Google Earth™ (2019) imagery show the project study area has been significantly altered by clearcutting and grading activities. Elevation in the project study area ranges from approximately 229 to 287 feet above mean sea level (Figure 2).

The Project area contains 4 unique soil map units (Figure 3). Soils consist of Pacolet sandy loam, 10 to 15 percent slopes (63% of the project study area); Cecil sandy clay loam, 2 to 6 percent slopes (29% of the project study area); Altavista fine sandy loam, 0 to 4 percent slopes, rarely flooded (5.5% of the project study area); and Urban land (2.5% of the project study area) (NRCS 2020).

3.2 Terrestrial Communities and Wildlife

SWCA observed three primary terrestrial communities within the project study area during field evaluations. These communities include one wetland community-Palustrine Forested Wetland (PFO), and two non-wetland/upland communities-scrub-shrub and forested. A few rural residences, totaling approximately 1 acre (6% of the project study area) were also observed. These communities, both natural and disturbed, may support a diversity of wildlife species. Brief descriptions, including the dominant plant species identified within each terrestrial community type, are listed in the following sections. All incidental wildlife and plant observations recorded during field evaluations are included in Appendix B. A photographic log, which includes a representative subset of all terrestrial communities observed within the project study area is provided in Appendix C.

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*). Forested upland is the most prevalent terrestrial community, comprising approximately 82% of the project study area.

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 raspberry (*Rubus* sp.). The scrub-shrub upland community comprises approximately 11% of the project study area.

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. This community consists of vegetation in the immediate proximity of a 0.02-acre inundated wetland observed during field evaluations. The palustrine forested wetland comprises less than 0.5% of the project study area.

3.3 Protected Species

SWCA biologists completed approximately three manhours of habitat assessments and threatened and endangered species evaluations for the project study area on May 14, 2020. Field evaluations were targeted toward federally listed species (as identified by the USFWS IPaC system) that may occur within the project study area, as well as state-listed species (as identified by NCNHP) that are known to occur within one mile of the project study area. Table 1 below provides additional details regarding these species.

Table 1. Protected species, status, and preferred habitat for species that may occur in the project study area.

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Description
Birds				
Red-cockaded Woodpecker	*Picoides borealis*	FE, SE	Current	Typically occupies open, mature stands of southern pines, particularly longleaf pine (*Pinus palustris*), for foraging and nesting/roosting habitat. Excavates cavities for nesting and roosting in living pine trees, aged 60 years or older, which are contiguous with pine stands at least 30 years of age to provide foraging habitat.
Bald eagle	*Haliaeetus leucocephalus*	BGEPA, ST	Current	Breeds near wetland habitats such as seacoasts, rivers, large lakes and marshes where fish are abundant; winters in upland terrestrial habitats. This species is resident provided there is open water where they can forage.
Amphibians				
Neuse River waterdog	*Necturus lewisi*	PT, SC	Current	Relatively high oxygen levels and water quality. Found among large accumulations of submerged leaves in eddies, or backwaters of streams. This species is strictly aquatic and cannot cross upland habitat. Range includes the Neuse and Tar-Pamlico river basins of the Piedmont and Coastal Plain, North Carolina.
Fish				
Carolina madtom	*Noturus furiosus*	PE, ST	Current	Habitat includes sand-, gravel-, and detritus-bottomed riffles and runs of small to medium rivers. Usually occurs in very shallow water with little or no current over fine to coarse sand bottom. Range includes the Neuse and Tar river drainages, North Carolina, on the Piedmont and inner Coastal Plain, with most records from the vicinity of the fall line.
Bivalves				
Atlantic pigtoe	*Fusconaia masoni*	PT, SE	Current	Known from the Roanoke, Tar, Neuse, Cape Fear, and Yadkin-Pee Dee drainages. Requires fast flowing, well oxygenated streams and is restricted to fairly pristine habitats, typically found in headwaters or rural watersheds. Preferred habitat is coarse sand and gravel at the downstream edge of riffles.
Creeper	*Strophitus undulatus*	-, ST	Current	Known from the Roanoke, Tar, Neuse, Cape Fear, Yadkin-Pee Dee, Catawba, Broad, and French Broad drainages. This species is a habitat generalist, with a wide distribution. It is usually found in streams and rivers in a range of flow conditions (rarely in high-gradient streams of mountainous regions) but can tolerate lakes and ponds, particularly in outlets.

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Description
Dwarf wedgemussel	*Alasmidonta heterodon*	FE, SE	Current	Known from the Neuse and Tar River drainages. Inhabits creek and river areas with a slow to moderate current and sand, gravel, or firm silt bottoms. Water in these areas must be well oxygenated. Stream banks in these areas are generally stable with extensive root systems holding soils in place.
Eastern lampmussel	*Lampsilis radiata*	-, ST	Current	Known from the Chowan, Roanoke, Tar, Neuse, Cape Fear, and Yadkin-Pee Dee drainages. Inhabits a variety of aquatic habitats, including small streams, large rivers, ponds, and lakes. It is found on a wide variety of substrate types but prefers sand or gravel.
Roanoke slabshell	*Elliptio roanokensis*	-, SC	Current	Known from the Roanoke, Tar, Neuse, White Oak, Cape Fear, Lumber, and Yadkin-Pee Dee drainages. Usually found in near-shore trough habitats in sand / gravel substrates.
Triangle floater	*Alasmidonta undulata*	-, ST	Current	Known from the Roanoke, Chowan, Tar, Neuse, and Cape Fear drainages. Typically occurs in coarse to fine gravel with sand and mud in smaller streams with slow current in the northern part of its range, even extending into lakes and ponds where it is never abundant. Southern populations are also found in big rivers in muddy sand with moderate current.
Yellow lance	*Elliptio lanceolata*	FT, SE	Current	Known from the Neuse and Tar River drainages. Prefers clean, coarse to medium sized sands as substrate, on occasion, specimens are also found in gravel substrates. This species is found in the main channels of drainages down to streams as small as a meter across.
Plants				
Michaux's sumac	*Rhus michauxii*	FE, SE	Current	Habitat consists of sandy or rocky open woods in association with basic soils. This plant survives best in areas where some form of disturbance has provided an open area. Several populations in North Carolina are on highway rights-of way, roadsides, or on the edges of artificially maintained clearings

Sources: NCNHP 2020; USFWS 2020

[1] FE = Federal-endangered; FT = Federal-threatened; PE = Federal-proposed endangered; PT = Federal-proposed threatened; SE = State-endangered; ST = State-threatened; SC = State-special concern, BGEPA = Bald and Golden Eagle Protection Act

[2] Current = the species has been seen recently in the County; Historical = the species has not been seen recently in the County

3.3.1 Federally Listed Threatened and Endangered Species

The USFWS (2020) identified a total of 7 threatened, endangered, or candidate species (proposed threatened or endangered) as having the potential to occur within the project study area. A brief description of each species' habitat requirements is included in Table 1. Habitat requirements for each species are based on the current best available information from referenced literature and/or USFWS. Biological conclusions for federally listed species, rendered based on survey results in the study area, are provided below.

Red-cockaded woodpecker

Suitable foraging habitat for red-cockaded woodpecker is not present in the project study area. Wooded stands within the project study area contain a mixture of loblolly pine and various deciduous trees. Pine trees present in the wooded areas appeared less than 30 years of age (less than 10 in. dbh), and a review of Google Earth historic aerial photography confirmed that the project study area was completely cleared and grubbed sometime between July 2006 and June 2007. Additionally, the project study area is not contiguous with other suitable forested stands in the project vicinity. A review of NHP records on May 18, 2020 indicates no known occurrences of this species within 1.0 mile of the study area.

Biological Conclusion: **No Effect**

Neuse River waterdog

Suitable habitat for Neuse River waterdog is not present in the project study area. One small, inundated wetland area and one relic stormwater device were identified; however, no streams or other surface waters are present at the project site. A review of NHP records on May 18, 2020 indicates no known occurrence of this species within 1.0 mile of the project study area.

Biological Conclusion: **No Effect**

Carolina madtom

Suitable habitat for Carolina madtom is not present in the project study area. One small, inundated wetland area and one relic stormwater device were identified; however, no streams or other surface waters are present at the project site. A review of NHP records on May 18, 2020 indicates no known occurrence of this species within 1.0 mile of the project study area.

Biological Conclusion: **No Effect**

Atlantic pigtoe

Suitable habitat for Atlantic pigtoe is not present in the project study area. One small, inundated wetland area and one relic stormwater device were identified; however, no streams or other surface waters are present at the project site. A review of NHP records on May 18, 2020 indicates one known occurrence of this species within 1.0 mile of the project study area. Element Occurrence 11695 is documented in Swift Creek downstream of the project study area.

Biological Conclusion: **No Effect**

Dwarf wedgemussel

Suitable habitat for dwarf wedgemussel is not present in the project study area. One small, inundated wetland area and one relic stormwater device were identified; however, no streams or other surface waters are present at the project site. A review of NHP records on May 18, 2020 indicates one known occurrence of this species within 1.0 mile of the project study area. Element Occurrence 13799 is documented in Swift Creek downstream of the project study area.

Biological Conclusion: **No Effect**

Yellow lance

Suitable habitat for yellow lance is not present in the project study area. One small, inundated wetland area and one relic stormwater device were identified; however, no streams or other surface waters are present at the project site. A review of NHP records on May 18, 2020 indicates no known occurrence of this species within 1.0 mile of the project study area.

Biological Conclusion: **No Effect**

Michaux's sumac
USFWS Recommended Survey Window: May - October

Suitable habitat for Michaux's sumac is present in the project study area in the form of sandy, open, upland woods on basic soils. SWCA biologists performed pedestrian surveys of all open and disturbed areas, including roadsides, areas of early successional growth, and open wooded areas, on May 14, 2020. No stems of Michaux's sumac were observed. Additionally, a review of NHP records on May 18, 2020 indicates no known occurrences of this species within 1.0 mile of the study area.

Biological Conclusion: **No Effect**

3.3.2 Bald Eagle

The bald eagle is protected under the Bald and Golden Eagle Protection Act and enforced by the USFWS. Habitat for the bald eagle primarily consists of mature forests in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within 1.0 mile of open water.

A desktop-GIS assessment of the project study area, as well as the area within a 1.0-mile radius of the project limits, was performed on May 13, 2020 using Google Earth imagery. One waterbody, Lake Benson, was identified as large enough and sufficiently open to be considered a potential feeding source. A survey of the project study area and the area within 660 feet of the project limits (where visible from public roadways) was performed. No eagles or eagle nests were observed during the survey. A review of the NHP database on May 18, 2020 revealed no known occurrences of this species within 1.0 mile of the project study area. Based on the results of surveys, the lack of mature forest from recent clearing and grubbing, and the lack of known occurrences, it has been determined that this project will not affect this species.

3.3.3 State-listed Threatened, Endangered, and Special Concern Species

In North Carolina, endangered, threatened, and special concern animals have legally protected status through the NCWRC, and plants have legally protected status through the NCPCP. Significantly rare

designations indicate rarity and the need for population monitoring and conservation action; however, it is a non-regulatory NCNHP designation. The NCNHP also maintains watch lists for species of plants and animals that are rare or uncommon, are not well studied, or are otherwise threatened with serious decline but are not currently legally protected or designated as significantly rare (NCNHP 2020).

According to data provided by NCNHP (2020), no state-listed threatened, endangered, or special concern species were identified within the project study area. Three state-threatened animal species; creeper (Element Occurrence 14759), eastern lampmussel (Element Occurrence 52), and triangle floater (Element Occurrence 8700) have been identified by NCNHP as occurring within 1.0 mile of the project study area. Additionally, one state-special concern animal species, Roanoke slabshell (Element Occurrence 7828), has been identified by NCNHP as occurring within 1.0 mile of the project study area. All four of these element occurrences are aquatic species and are documented in Swift Creek downstream of the project study area. Suitable habitat for these state-listed aquatic species is not present in the project study area. One wetland area and one relic stormwater device were identified; however, no streams or other surface waters are present at the project site. Based on the absence of suitable habitat it has been determined that this project will not affect these species.

In addition to the four state protected species identified by NCNHP as occurring within 1.0 mile of the project study area, NCNHP identifies an additional 41 species currently or historically known to exist in Wake County, North Carolina. The list of species, a brief habitat description, and likelihood of occurrence within the project study are identified in Appendix D. Overall, when present, potentially suitable habitat for state protected species is of low quality and is not abundant. Additionally, no state protected species were observed during field evaluations. As a result, it has been determined that this project will not affect any state protected species.

3.3.4 Significant Natural Areas

NCNHP (2020) occurrence records indicate the presence of one natural area within 1.0 mile of the project study area. NCNHP identifies Swift Creek, downstream of the project study area, as a Significant Natural Heritage Area. According to NHP, Swift Creek aquatic habitat is significant because it supports numerous rare mussel and fish species. Federally listed species include the dwarf wedgemussel, yellow lance, Atlantic pigtoe, and Carolina madtom. Other rare species known to occur in Swift Creek include green floater (*Lasmigona subviridis*), triangle floater, creeper, notched rainbow (*Villosa constricta*), Cape Fear spike (*Elliptio marsupiobesa*), Roanoke slabshell, and the eastern lampmussel.

4 CONCLUSIONS

Based on reviews of available information and the results of field evaluations performed during appropriate survey windows, it is SWCA's opinion that the proposed project will have **No Effect** on any federally protected species.

Additionally, based on the lack of documented occurrences, absent or low-quality habitat within the project study area, and no observations during field evaluations, it is SWCA's opinion that the proposed project will not affect any state protected species.

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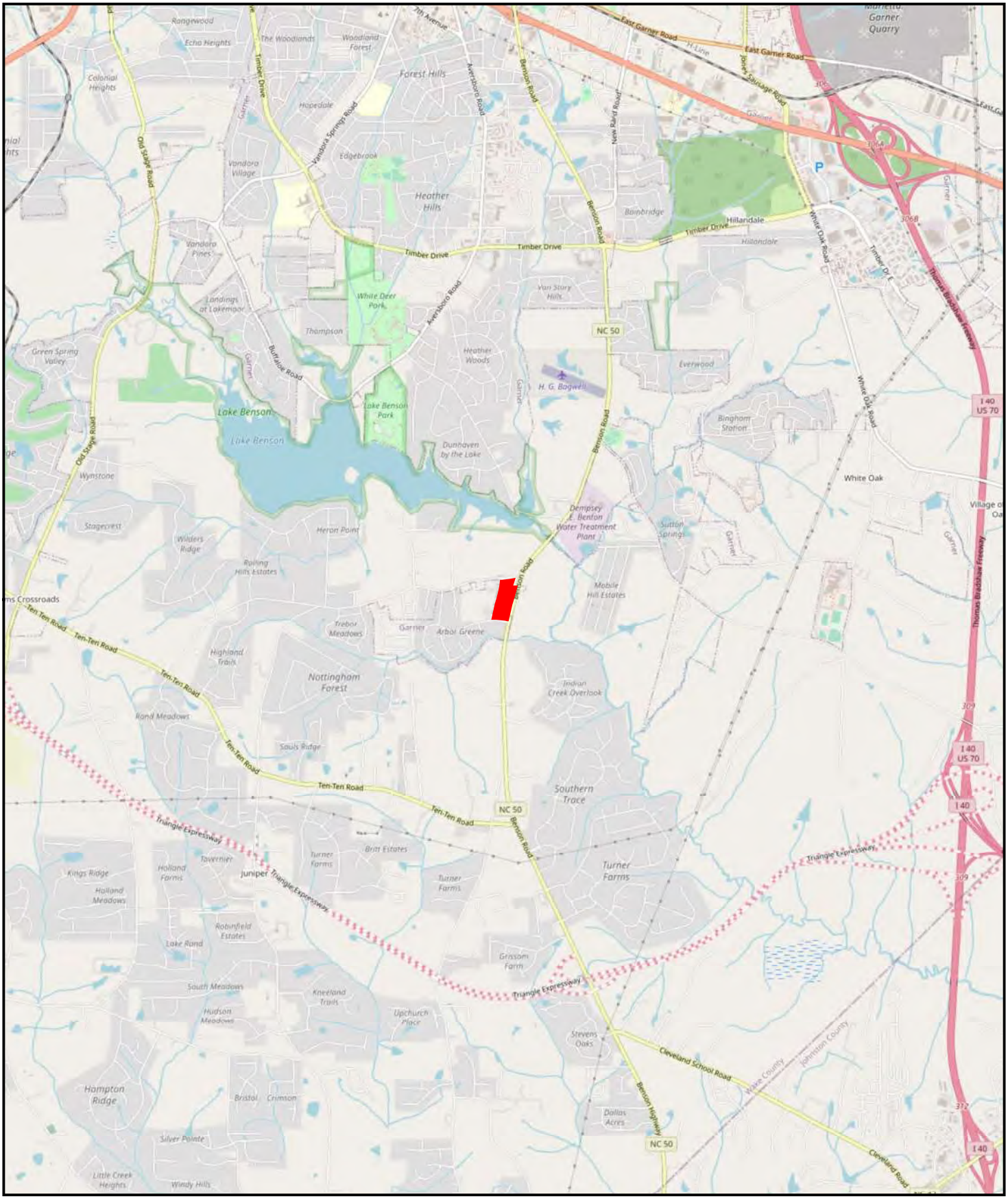
APPENDIX A

Figures



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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE A
FIGURE A-1

VICINITY MAP
WAKE COUNTY, NORTH CAROLINA

Alternative A

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

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 3,000 6,000 Feet
0 800 1,600 Meters

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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE A
FIGURE A-2

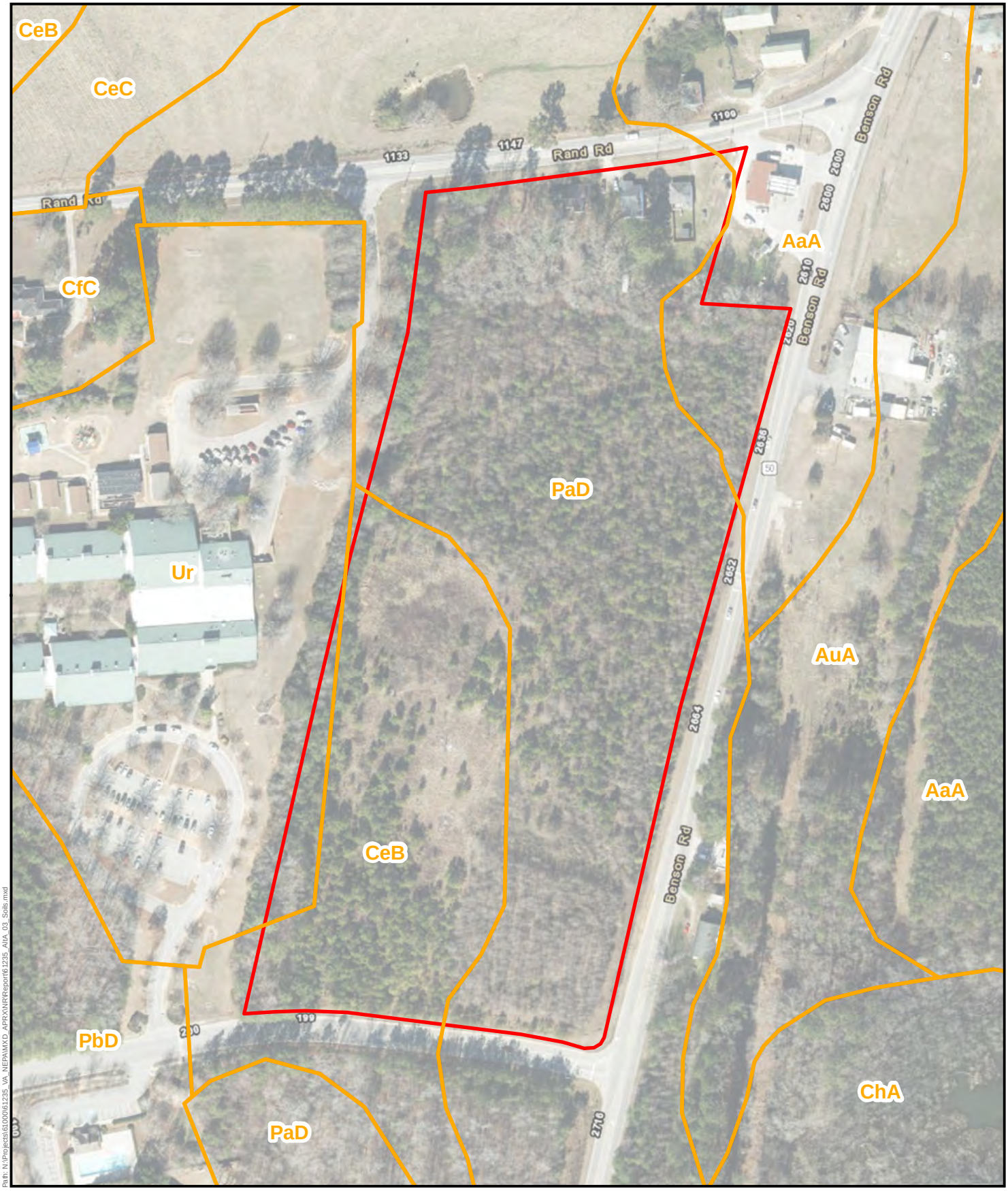
7.5-MINUTE USGS TOPOGRAPHIC
1976 GARNER QUADRANGLE
WAKE COUNTY, NORTH CAROLINA

Alternative A
Quadrangle Boundary

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

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

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



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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE A
FIGURE **A-**3
SOIL MAP UNITS
WAKE COUNTY, NORTH CAROLINA

Soil Map Unit Boundary
Alternative A

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

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 160 320 Feet

0 40 80 Meters

APPENDIX B

Incidental Wildlife and Plant Observations List

Appendix B. Incidental wildlife and plant observations within the project study area.

Common Name	Scientific Name
Flora	
Black cherry	*Prunus serotina*
Black walnut	*Juglans nigra*
Black willow	*Salix nigra*
Bradford pear	*Pyrus calleryana*
Broomsedge	*Andropogon virginicus*
Chinese privet	*Ligustrum sinense*
Goldenrod sp.	*Solidago* sp.
Japanese honeysuckle	*Lonicera japonica*
Japanese stiltgrass	*Microstegium vimineum*
Loblolly pine	*Pinus taeda*
Meadow fescue	*Schedonorus pratensis*
Mimosa	*Albizia julibrissin*
Multiflora rose	*Rosa multiflora*
Common persimmon	*Diospyros virginiana*
Raspberry sp.	*Rubus* sp.
Red Cedar	*Juniperus virginiana*
Red maple	*Acer rubrum*
Poison ivy	*Toxicodendron radicans*
Shortleaf pine	*Pinus echinata*
Southern magnolia	*Magnolia grandiflora*
Southern red oak	*Quercus falcata*
Sweetgum	*Liquidambar styraciflua*
Tulip poplar	*Liriodendron tulipifera*
Virginia creeper	*Parthenocissus quinquefolia*
Water oak	*Quercus nigra*
Wax myrtle	*Morella cerifera*
White oak	*Quercus alba*
Winged sumac	*Rhus copallinum*
Fauna	
American crow	*Corvus brachyrhynchos*
Canada goose	*Branta canadensis*
Eastern bluebird	*Sialia sialis*

Common Name	**Scientific Name**
Eastern gray squirrel	*Sciurus carolinensis*
Northern cardinal	*Cardinalis cardinalis*
Turkey vulture	*Cathartes aura*
White-tailed deer	*Odocoileus virginianus*

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. Small inundated wetland area; palustrine forested wetland community (May 14, 2020 by L. Coleman).

Photograph 6. Rural residences present in the project study area (May 14, 2020 by L. Coleman).

APPENDIX D

Additional State Protected Species

Appendix D. Additional state protected species known to occur in Wake County, North Carolina.

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Note	Habitat Present (Yes/No)	Likelihood of Occurrence in Project Study Area[3]
Amphibians						
Eastern tiger Salamander	*Ambystoma tigrinum*	ST	Current	breeds in fish-free semipermanent ponds; forages in adjacent woods, usually sandy pinewoods	No	None
Four-toed salamander	*Hemidactylium scutatum*	SC	Current	pools, bogs, and other wetlands in hardwood forests	No	None
Mole salamander	*Ambystoma talpoideum*	SC	Historical	breeds in fish-free semipermanent woodland ponds; forages in adjacent woodlands	No	None
Dwarf salamander	*Eurycea quadridigitata*	SC	Historical	pocosins, Carolina bays, pine flatwoods, savannas, and other wetland habitats	Yes	Low
Birds						
Henslow's sparrow	*Ammodramus henslowii*	SE	Historical	clearcut pocosins and other damp weedy fields [breeding season only]	No	None
Red crossbill	*Loxia curvirostra*	SC	Historical	coniferous forests, preferably spruce-fir	No	None
Bachman's sparrow	*Peucaea aestivalis*	SC	Historical	open longleaf pine forests, old fields [breeding evidence only]	No	None
Loggerhead shrike	*Lanius ludovicianus*	SC, W2	Current	fields and pastures [breeding season only]	No	None
Crustaceans						
North Carolina spiny crayfish	*Orconectes carolinensis*	SC	Current	rivers and streams in the Chowan, Roanoke, Neuse, and Tar drainages	No	None
Bivalves						
Green floater	*Lasmigona subviridis*	SE	Current	New, Watauga, Roanoke, Tar, Neuse and Yadkin-Pee Dee drainages	No	None
Notched rainbow	*Villosa constricta*	ST	Current	Roanoke, Tar, Neuse, Yadkin-Pee Dee, and Catawba drainages	No	None

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Note	Habitat Present (Yes/No)	Likelihood of Occurrence in Project Study Area[3]
Fish						
Least brook lamprey	*Lampetra aepyptera*	ST	Current	Tar and Neuse drainages	No	None
Mimic shiner	*Notropis volucellus*	ST	Historical	New, French Broad, Little Tennessee, Tar, and Neuse drainages	No	None
Mammals						
Southeastern bat	*Myotis austroriparius*	SC	Current	roosts in buildings, hollow trees; forages near water; mainly in the Coastal Plain	Yes	Low
Star-nosed mole	*Condylura cristata pop. 1*	SC	Historical	moist meadows, bogs, swamps, bottomlands [mountain population not of concern]	No	None
Reptiles						
Timber rattlesnake	*Crotalus horridus*	SC	Historical	wetland forests in the Coastal Plain; rocky, upland forests elsewhere	No	None
Southern hognose snake	*Heterodon simus*	ST	Historical	sandy woods, particularly pine-oak sandhills	No	None
Plants						
Piedmont quillwort	*Isoetes piedmontana*	SE	Current	granite flatrocks and diabase glades	No	None
Low wild-petunia	*Ruellia humilis*	SE	Current	diabase glades	No	None
Veined skullcap	*Scutellaria nervosa*	SE	Current	alluvial forests	No	None
Virginia least trillium	*Trillium pusillum var. virginianum*	SE	Current	mesic to swampy hardwood forests	No	None
American bluehearts	*Buchnera americana*	SE	Historical	glades, open forests, streambanks, probably primarily over mafic or calcareous rocks	No	None

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Note	Habitat Present (Yes/No)	Likelihood of Occurrence in Project Study Area[3]
Carolina thistle	*Cirsium carolinianum*	SE	Historical	forests and disturbed areas, mostly on basic soils	Yes	Low
Littleleaf sneezeweed	*Helenium brevifolium*	SE	Historical	bogs, seeps, riverbanks, other wet sites	No	None
Swamp saxifrage	*Micranthes pensylvanica*	SE	Historical	bogs, seeps	No	None
Grassleaf arrowhead	*Sagittaria weatherbiana*	SE	Historical	fresh to slightly brackish marshes, streams, swamps, and pond margins	No	None
Southern skullcap	*Scutellaria australis*	SE	Historical	alluvial forests	No	None
Western rough goldenrod	*Solidago radula*	SE	Historical	dry woodlands over mafic rocks	No	None
Douglass's bittercress	*Cardamine douglassii*	ST	Current	bottomlands, rich lower slopes	No	None
Granite flatsedge	*Cyperus granitophilus*	ST	Current	granite flatrocks, other rock outcrops	No	None
Indian physic	*Gillenia stipulata*	ST	Current	forests and open woods, mainly over mafic rocks	No	None
Bigleaf magnolia	*Magnolia macrophylla*	ST	Current	rich deciduous forests	No	None
Small's portulaca	*Portulaca smallii*	ST	Current	granite flatrocks and diabase glades	No	None
Virginia spiderwort	*Tradescantia virginiana*	ST	Current	rich woods on circumneutral soils	No	None
Buffalo clover	*Trifolium reflexum*	ST	Current	open woods and clearings	Yes	Low
Kidney sedge	*Carex reniformis*	ST	Historical	swamps, open wet areas	No	None

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Note	Habitat Present (Yes/No)	Likelihood of Occurrence in Project Study Area[3]
Narrow-leaved smooth aster	*Symphyotrichum concinnum*	ST	Historical	forests, woodland borders especially over mafic rocks	No	None
Carolina birdfoot-trefoil	*Acmispon helleri*	SC-V	Current	open woods over clay soils, roadsides	Yes	Low
Sweet pinesap	*Monotropsis odorata*	SC-V	Current	dry forests and bluffs	Yes	Low
Appalachian golden-banner	*Thermopsis mollis*	SC-V	Current	dry ridges and open woodlands	No	None
Pursh's wild-petunia	*Ruellia purshiana*	SC-V	Historical	glades and woodlands, mostly over mafic or calcareous rocks	No	None

Sources: NCNHP 2020

[1] SE = State-endangered; ST = State-threatened; SC = State-special concern; SC-V = State-special concern-vulnerable; W2 = Rare but relatively secure

[2] Current = the species has been seen recently in the County; Historical = the species has not been seen recently in the County

[3] None = no potentially suitable habitat was observed; Low = potentially suitable habitat of low quality is present, though not abundant

C.2 Biological Survey Report for Alternative B

U.S. Department of Veterans Affairs

BIOLOGICAL SURVEY REPORT FOR THE RALEIGH OUTPATIENT CLINIC – ALTERNATIVE B, WAKE COUNTY, NORTH CAROLINA

June 2020

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

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

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1 INTRODUCTION

The United States Department of Veterans Affairs (VA) is proposing construction and operation of an approximately 222,325 square foot outpatient clinic near Raleigh, North Carolina. The facility will include other site improvements, amenities, and landscaped open space areas and would be designed and built to VA design criteria and in accordance with local building and zoning codes. VA established the size of the facility and land required for the outpatient clinic based on the number of Veterans currently receiving health care services in the Raleigh area and the forecasted number of Veterans requiring these services. VA plans to select a developer who would construct the proposed outpatient clinic and then lease the facility to VA for up to 20 years. In early 2020, VA requested lease proposals from offerors. VA received offers for the proposed outpatient clinic and identified two reasonable alternatives.

Alternative B is approximately 32.88 acres and is located at the intersection of Old Stage Road and Ten Ten Road in Garner (Figure 1). The Alternative B study area (project study area) includes cleared agricultural and wooded land with two residential structures, a shed, a septic drain field, and wells. Primary access would be from Old Stage Road and Ten Ten Road. Two secondary access points from Ten Ten Road facilitate entering parking areas on each side of the property. An L-shaped building would be situated in the southeastern portion of the site with primary parking northwest and east of the building while secondary parking would be east and south of the building. Surrounding properties include a residential neighborhood, storage units, a grocery store, an elementary school, and undeveloped land.

The following Biological Survey 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 potential affects to federally and state-listed protected species under the jurisdiction of the United States Fish and Wildlife Service (USFWS), the North Carolina Wildlife Resources Commission (NCWRC), and the North Carolina Plant Conservation Program (NCPCP). This report describes the methods used to conduct preliminary and on-site evaluations, results of the evaluations, and provides summary conclusions regarding the potential affects to protected species. Results and conclusions provided in this report represent SWCA's professional opinion based on knowledge and experience with federal and state agencies. Concurrence on the results of this report from USFWS, NCWRC, and NCPCP has not been received 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:	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:	GPS/GIS data collection

2 METHODS

In support of the NEPA process a site assessment was completed using a combination of desktop evaluation and subsequent field reconnaissance survey to determine if the project will have an effect on any protected species or designated critical habitat within the proposed project area. For the purposes of this report, protected species are defined as:

- threatened and endangered species pursuant to the Endangered Species Act of 1973 (ESA), Section 4, as amended;
- species designated by the USFWS as Proposed, Candidate, Species of Concern, and Nonessential Experimental Populations;
- North Carolina state-listed threatened, endangered, and special concern species protected under Endangered and Threatened Wildlife and Wildlife Species of Concern of the State of North Carolina (Chapter 113 Article 25) and Plant Protection and Conservation Act (Chapter 106 Article 19B); and
- Bald eagles (*Haliaeetus leucocephalus*) protected under the Bald and Golden Eagle Protection Act of 1940 (BGEPA).

2.1 Desktop Review

The following publicly available data sources, all accessed in May and June 2020, were used to complete a desktop review of resources within the project study area:

- Google Earth™ (2019); (*https://earth.google.com/*);
- North Carolina Natural Heritage Program (NCNHP) data and planning tools (NCNHP 2020); (*https://www.ncnhp.org/*);
- North Carolina Wildlife Resource Commission (NCWRC 2020); (*https://www.ncwildlife.org/Learning/Species/Birds/Bald-Eagle*);
- U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) Web Soil Survey (NRCS 2020); (*https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx*);
- USFWS Information for Planning and Consultation (IPaC; USFWS 2020); (*https://ecos.fws.gov/ipac/*); and
- USGS topographic maps

From these sources, SWCA biologists were able to identify any protected species or critical habitats that may occur within the project study area. In addition, SWCA submitted a data request to the NCNHP in May 2020 to obtain occurrence records for protected species, critical habitat, or documented natural areas known to occur in or within one mile of the project study area.

2.2 Field Review

A field evaluation of the project study area was conducted via pedestrian survey on May 14, 2020 to complete the following:

- Document readily observable features, if any, that may serve to attract wildlife;
- Record incidental plant and wildlife observations while in the project study area;

- Document the presence/absence of suitable habitat for identified protected species; and
- Perform transect surveys, as necessary, to determine the presence/absence of protected species in areas of suitable habitat.

Prior to performing field reviews, SWCA biologists visited a reference population of Michaux's sumac (*Rhus michauxii*) located on Legacy Oaks Drive between Raleigh and Knightdale, North Carolina. Review of this reference population occurred on the afternoon of May 13, 2020 and was coordinated with USFWS biologist Dale Suiter. Numerous stems of Michaux's sumac were observed, with some stems beginning to form flowers.

3 RESULTS

3.1 Site Characteristics

The project study area lies within the Southeastern Plains U.S. Environmental Protection Agency Level III Ecoregion (Griffith et al. 2002). These irregular plains with broad interstream areas have a mosaic of cropland, pasture, woodland, and forest. The Cretaceous or Tertiary-age sands, silts, and clays of the region contrast geologically with the older metamorphic and igneous rocks of the Piedmont and Blue Ridge. Over the past three centuries, naval stores or pine tar production, logging, open range cattle and feral hog grazing, agriculture, and fire suppression have removed most of the once predominant longleaf pine forests of the region.

Elevations and relief are greater than in the Southern Coastal Plain, but generally less than in much of the Piedmont or in the more mountainous Blue Ridge. Streams in this area are relatively low-gradient and sandy-bottomed (Griffith et al. 2002). Field observations and Google Earth™ (2019) imagery show the project study area has been significantly altered by clearcutting and agricultural practices. Elevation in the project study area ranges from approximately 395 to 412 feet above mean sea level (Figure 2).

The Project area contains 2 unique soil map units (Figure 3). Soils consist of Fuquay loamy sand, 0 to 6 percent slopes (72% of the project study area) and Rains sandy loam, 0 to 2 percent slopes (28% of the project study area) (NRCS 2020).

3.2 Terrestrial Communities and Wildlife

SWCA observed four primary terrestrial communities within the project study area during field evaluations. These communities include two wetland communities—Palustrine Emergent Wetland (PEM) and Palustrine Forested Wetland (PFO), and two non-wetland/upland communities—herbaceous and forested. Two rural residences, totaling approximately 1 acre (3% of the project study area) were also observed. These communities, both natural and disturbed, may support a diversity of wildlife species. Brief descriptions, including the dominant plant species identified within each terrestrial community type, are listed in the following sections. All incidental wildlife and plant observations recorded during field evaluations are included in Appendix B. A photographic log, which includes a representative subset of all terrestrial communities observed within the project study area is provided in Appendix C.

Palustrine Emergent Wetland (PEM)

The PEM wetland community consists 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.). The PEM wetland community comprises approximately 1.5% of the project study area.

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 (*Liquidambar styraciflua*), red maple (*Acer rubrum*), and loblolly pine (*Pinus taeda*). The PFO wetland community comprises approximately 6.5% of the project study area. One small area of ponding/inundation was observed within the wetland areas comprising this community.

Herbaceous Upland

The herbaceous upland community consist of non-wetland areas dominated by non-woody vegetation. Dominant herbaceous species include broomsedge, goldenrods, raspberry (*Rubus* sp.), henbit (*Lamium amplexicaule*), and meadow false rye grass (*Schedonorus pratensis*). This community includes recently plowed agricultural fields that will likely be planted with crops such as soybeans (*Glycine max*) or corn (*Zea mays*). Due to the abundance of agricultural fields, herbaceous upland is the most prevalent terrestrial community at the site, comprising approximately 82.5% of the project study area.

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*). The forested upland community comprises approximately 6.5% of the project study area.

3.3 Protected Species

SWCA biologists completed approximately four manhours of habitat assessments and threatened and endangered species evaluations for the project study area on May 14, 2020. There are no state-listed threatened, endangered, or special concern species identified by NCNHP within the project study area or within 1.0 mile of the project study area. Therefore, field evaluations were targeted toward federally listed species (as identified by the USFWS IPaC system) that may occur within the project study area. Table 1 below provides additional details regarding these species. Additional discussion of state-listed species can be found in Section 3.3.3 and Appendix D.

Table 1. Protected species, status, and preferred habitat for species that may occur in the project study area.

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Description
Birds				
Red-cockaded Woodpecker	*Picoides borealis*	FE, SE	Current	Typically occupies open, mature stands of southern pines, particularly longleaf pine (*Pinus palustris*), for foraging and nesting/roosting habitat. Excavates cavities for nesting and roosting in living pine trees, aged 60 years or older, which are contiguous with pine stands at least 30 years of age to provide foraging habitat.
Bald eagle	*Haliaeetus leucocephalus*	BGEPA, ST	Current	Breeds near wetland habitats such as seacoasts, rivers, large lakes and marshes where fish are abundant; winters in upland terrestrial habitats. This species is resident provided there is open water where they can forage.
Amphibians				
Neuse River waterdog	*Necturus lewisi*	PT, SC	Current	Relatively high oxygen levels and water quality. Found among large accumulations of submerged leaves in eddies, or backwaters of streams. This species is strictly aquatic and cannot cross upland habitat. Range includes the Neuse and Tar-Pamlico river basins of the Piedmont and Coastal Plain, North Carolina.
Fish				
Carolina madtom	*Noturus furiosus*	PE, ST	Current	Habitat includes sand-, gravel-, and detritus-bottomed riffles and runs of small to medium rivers. Usually occurs in very shallow water with little or no current over fine to coarse sand bottom. Range includes the Neuse and Tar river drainages, North Carolina, on the Piedmont and inner Coastal Plain, with most records from the vicinity of the fall line.
Bivalves				
Atlantic pigtoe	*Fusconaia masoni*	PT, SE	Current	Known from the Roanoke, Tar, Neuse, Cape Fear, and Yadkin-Pee Dee drainages. Requires fast flowing, well oxygenated streams and is restricted to fairly pristine habitats, typically found in headwaters or rural watersheds. Preferred habitat is coarse sand and gravel at the downstream edge of riffles.
Dwarf wedgemussel	*Alasmidonta heterodon*	FE, SE	Current	Known from the Neuse and Tar River drainages. Inhabits creek and river areas with a slow to moderate current and sand, gravel, or firm silt bottoms. Water in these areas must be well oxygenated. Stream banks in these areas are generally stable with extensive root systems holding soils in place.

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Description
Yellow lance	*Elliptio lanceolata*	FT, SE	Current	Known from the Neuse and Tar River drainages. Prefers clean, coarse to medium sized sands as substrate, on occasion, specimens are also found in gravel substrates. This species is found in the main channels of drainages down to streams as small as a meter across.
Plants				
Michaux's sumac	*Rhus michauxii*	FE, SE	Current	Habitat consists of sandy or rocky open woods in association with basic soils. This plant survives best in areas where some form of disturbance has provided an open area. Several populations in North Carolina are on highway rights-of way, roadsides, or on the edges of artificially maintained clearings

Sources: NCNHP 2020; USFWS 2020

[1] FE = Federal-endangered; FT = Federal-threatened; PE = Federal-proposed endangered; PT = Federal-proposed threatened; SE = State-endangered; ST = State-threatened; SC = State-special concern, BGEPA = Bald and Golden Eagle Protection Act

[2] Current = the species has been seen recently in the County; Historical = the species has not been seen recently in the County

3.3.1 Federally Listed Threatened and Endangered Species

The USFWS (2020) identified a total of 7 threatened, endangered, or candidate species (proposed threatened or endangered) as having the potential to occur within the project study area. A brief description of each species' habitat requirements is included in Table 1. Habitat requirements for each species are based on the current best available information from referenced literature and/or USFWS. Biological conclusions for federally listed species, rendered based on survey results in the study area, are provided below.

Red-cockaded woodpecker

Suitable foraging habitat for red-cockaded woodpecker is not present in the project study area. Wooded stands within the project study area contain an even mixture of loblolly pine and various deciduous trees. Pine trees present in the wooded areas appeared less than 30 years of age (less than 10 in. dbh). Additionally, a review of aerial photographs shows that wooded stands within the project study area are not contiguous with other suitable forested stands in the project vicinity. A review of NHP records on May 18, 2020 indicates no known occurrences of this species within 1.0 mile of the study area.

Biological Conclusion: **No Effect**

Neuse River waterdog

Suitable habitat for Neuse River waterdog is not present in the project study area. Two wetland areas were identified; however, no streams or other surface waters are present at the project site. A review of NHP records on May 18, 2020 indicates no known occurrence of this species within 1.0 mile of the project study area.

Biological Conclusion: **No Effect**

Carolina madtom

Suitable habitat for Carolina madtom is not present in the project study area. Two wetland areas were identified; however, no streams or other surface waters are present at the project site. A review of NHP records on May 18, 2020 indicates no known occurrence of this species within 1.0 mile of the project study area.

Biological Conclusion: **No Effect**

Atlantic pigtoe

Suitable habitat for Atlantic pigtoe is not present in the project study area. Two wetland areas were identified; however, no streams or other surface waters are present at the project site. A review of NHP records on May 18, 2020 indicates no known occurrence of this species within 1.0 mile of the project study area.

Biological Conclusion: **No Effect**

Dwarf wedgemussel

Suitable habitat for dwarf wedgemussel is not present in the project study area. Two wetland areas were identified; however, no streams or other surface waters are present at the project site. A review of NHP

records on May 18, 2020 indicates no known occurrence of this species within 1.0 mile of the project study area.

Biological Conclusion: **No Effect**

Yellow lance

Suitable habitat for yellow lance is not present in the project study area. Two wetland areas were identified; however, no streams or other surface waters are present at the project site. A review of NHP records on May 18, 2020 indicates no known occurrence of this species within 1.0 mile of the project study area.

Biological Conclusion: **No Effect**

Michaux's sumac
USFWS Recommended Survey Window: May - October

Suitable habitat for Michaux's sumac is present in the project study area in the form of sandy, open, upland woods on basic soils. SWCA biologists performed pedestrian surveys of all open and disturbed areas, including roadsides, field edges, areas of early successional growth, and open wooded areas on May 14, 2020. No stems of Michaux's sumac were observed. Additionally, a review of NHP records on May 18, 2020 indicates no known occurrences of this species within 1.0 mile of the study area.

Biological Conclusion: **No Effect**

3.3.2 Bald Eagle

The bald eagle is protected under the Bald and Golden Eagle Protection Act and enforced by the USFWS. Habitat for the bald eagle primarily consists of mature forests in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within 1.0 mile of open water.

A desktop-GIS assessment of the project study area, as well as the area within a 1.0-mile radius of the project limits, was performed on May 13, 2020 using Google Earth imagery. No water bodies large enough or sufficiently open to be considered potential feeding sources were identified. Additionally, a survey of the project study area and the area within 660 feet of the project limits (where visible from public roadways) was performed. No eagles or eagle nests were observed during the survey. A review of the NHP database on May 18, 2020 revealed no known occurrences of this species within 1.0 mile of the project study area. Due to the lack of habitat and known occurrences it has been determined that this project will not affect this species.

3.3.3 State-listed Threatened, Endangered, and Special Concern Species

In North Carolina, endangered, threatened, and special concern animals have legally protected status through the NCWRC, and plants have legally protected status through the NCPCP. Significantly rare designations indicate rarity and the need for population monitoring and conservation action; however, it is a non-regulatory NCNHP designation. The NCNHP also maintains watch lists for species of plants and animals that are rare or uncommon, are not well studied, or are otherwise threatened with serious decline but are not currently legally protected or designated as significantly rare (NCNHP 2020).

According to data provided by NCNHP (2020), no state-listed threatened, endangered, or special concern species were identified within the project study area or within 1.0 mile of the project study area. NCNHP

maintains county lists of all state protected species currently or historically known to exist. A review of the Wake County, North Carolina list identified 45 threatened, endangered, or special concern state protected species currently or historically known to exist in the county. The list of species, a brief habitat description, and likelihood of occurrence within the project study are identified in Appendix D. Overall, when present, potentially suitable habitat for state protected species is of low quality and is not abundant. Additionally, no state protected species were observed during field evaluations. As a result, it has been determined that this project will not affect any state protected species.

3.3.4 Significant Natural Areas

NCNHP (2020) occurrence records do not indicate the presence of any Significant Natural Heritage Areas within 1.0 mile of the project study area.

4 CONCLUSIONS

Based on reviews of available information and the results of field evaluations performed during appropriate survey windows, it is SWCA's opinion that the proposed project will have **No Effect** on any federally protected species.

Additionally, based on the lack of documented occurrences, absent or low-quality habitat within the project study area, and no observations during field evaluations, it is SWCA's opinion that the proposed project will not affect any state protected species.

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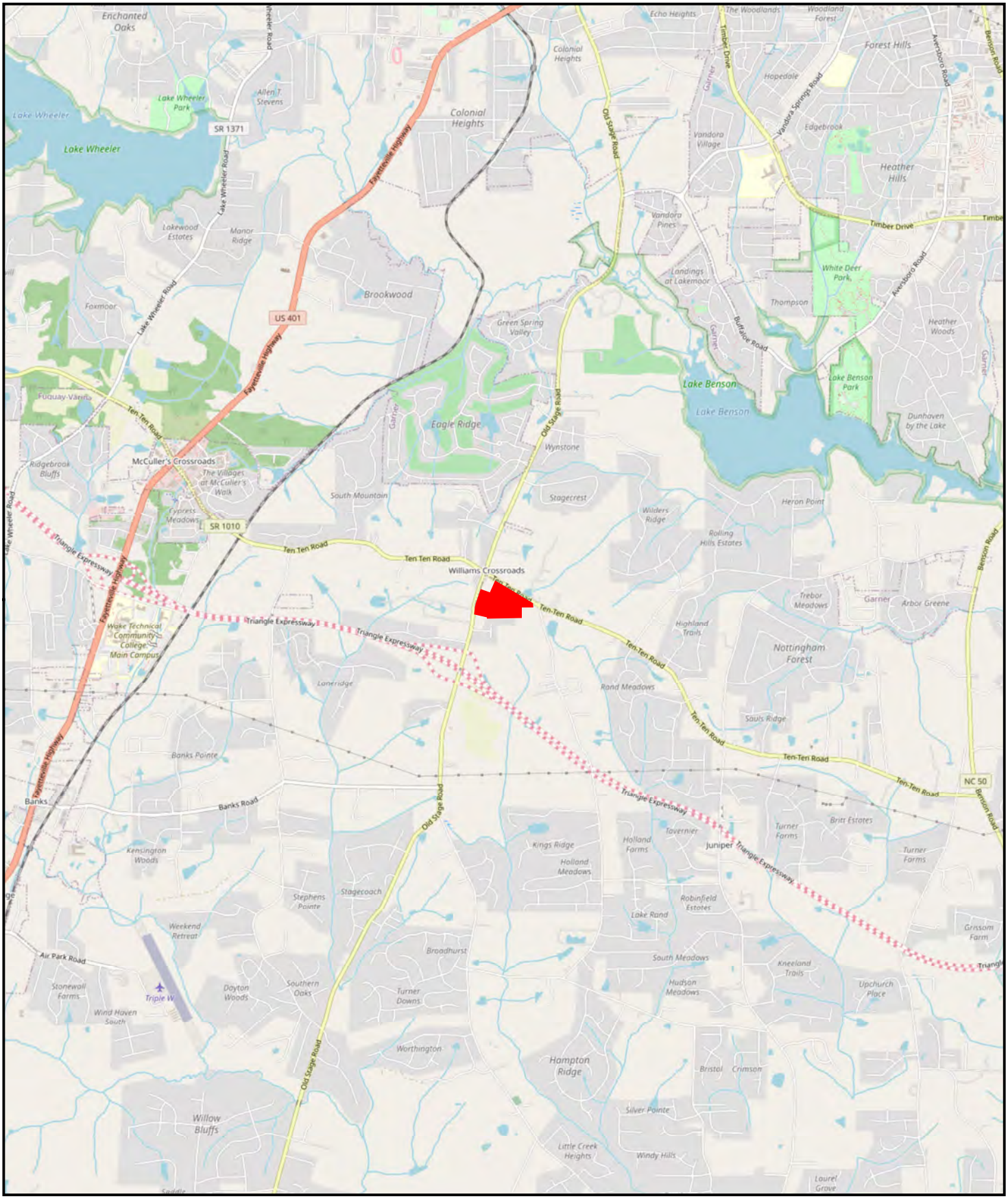
APPENDIX A

Figures



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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE B
FIGURE **A-**1
VICINITY MAP
WAKE COUNTY, NORTH CAROLINA

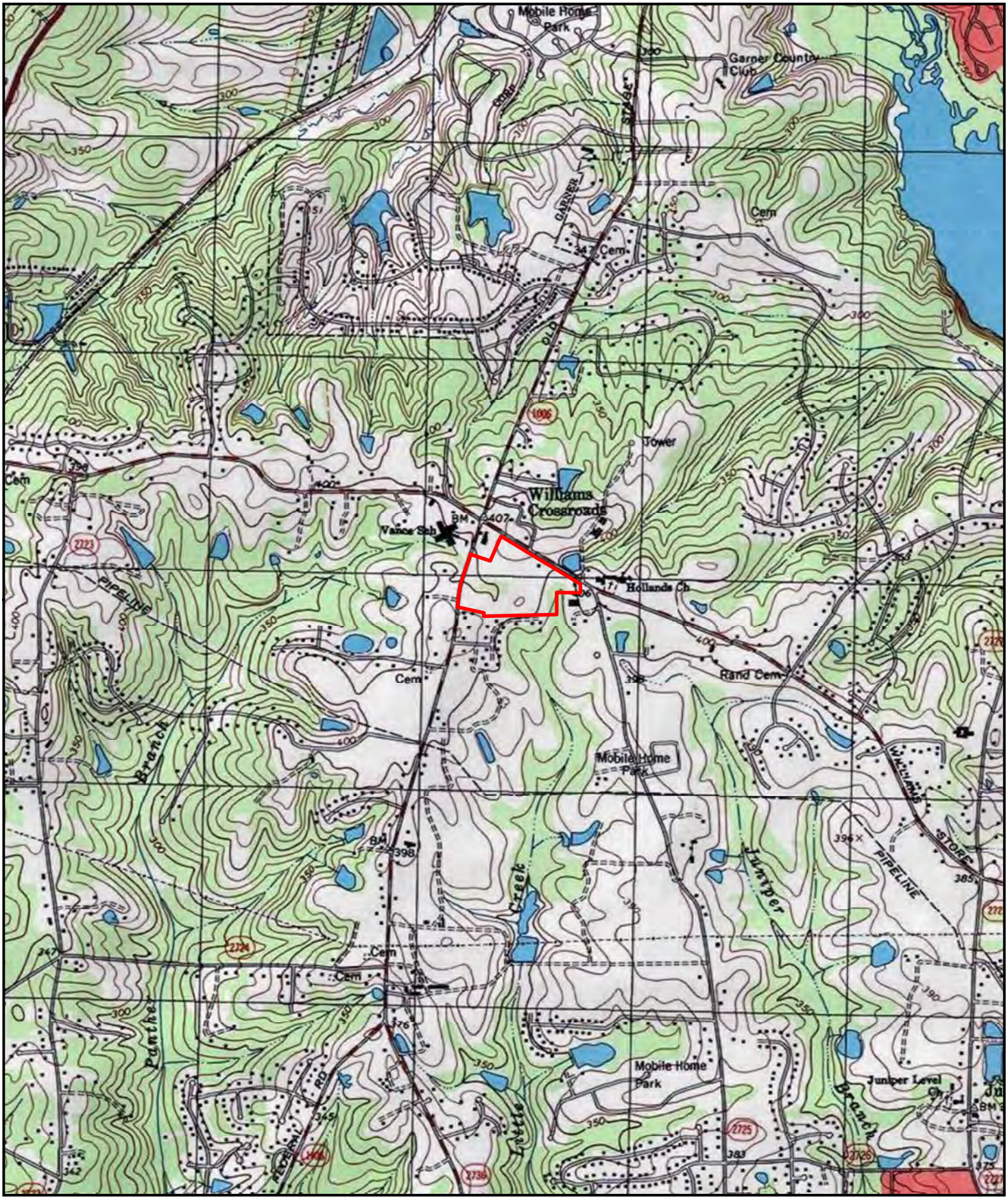
Alternative B

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

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 3,000 6,000 Feet

0 800 1,600 Meters



Path: N:\Projects\61000\61235_VA_NEPA\MXD_APRX\NR\Report\61235_AltB_02_USGS.mxd

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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE B
FIGURE **A-**2

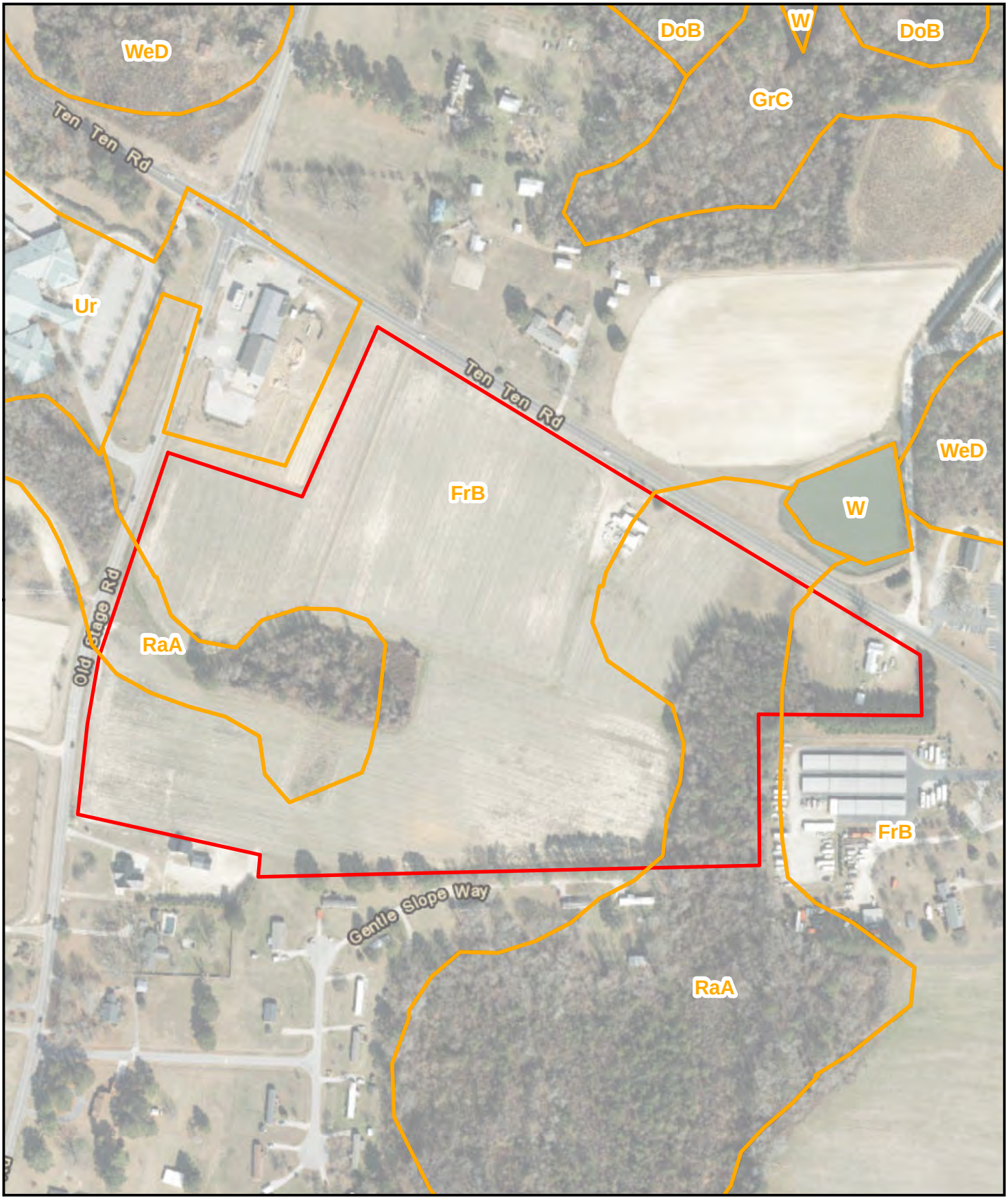
7.5-MINUTE USGS TOPOGRAPHIC
1976 LAKE WHEELER QUADRANGLE
WAKE COUNTY, NORTH CAROLINA

Alternative B
Quadrangle Boundary

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

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

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



Path: N:\Projects\61000\61235_VA_NEPA\MXD_APRX\NRIReport61235_Alt8_02_Soils.mxd

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VA RALEIGH OUTPATIENT CLINIC
ALTERNATIVE B
FIGURE **A-**3
SOIL MAP UNITS
WAKE COUNTY, NORTH CAROLINA

Soil Map Unit Boundary
Alternative B

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

NAD 1983 StatePlane North Carolina FIPS 3200 Feet

0 240 480 Feet
0 60 120 Meters

APPENDIX B

Incidental Wildlife and Plant Observations List

Appendix B. Incidental wildlife and plant observations within the project study area.

Common Name	Scientific Name
Flora	
American pokeweed	*Phytolacca americana*
Black cherry	*Prunus serotina*
Black walnut	*Juglans nigra*
Black willow	*Salix nigra*
Bradford pear	*Pyrus calleryana*
Broomsedge	*Andropogon virginicus*
Chinese privet	*Ligustrum sinense*
Common greenbrier	*Smilax rotundifolia*
Cottongrass bullrush	*Scirpus cyperinus*
Goldenrod sp.	*Solidago* sp.
Henbit	*Lamium amplexicaule*
Japanese honeysuckle	*Lonicera japonica*
Japanese stiltgrass	*Microstegium vimineum*
Lamp rush	*Juncus effusus*
Loblolly pine	*Pinus taeda*
Meadow false rye grass	*Schedonorus pratensis*
Mimosa	*Albizia julibrissin*
Muscadine	*Vitis rotundifolia*
Netted chain fern	*Woodwardia areolata*
Persimmon	*Diospyros virginiana*
Raspberry sp.	*Rubus* sp.
Red Cedar	*Juniperus virginiana*
Red maple	*Acer rubrum*
Poison ivy	*Toxicodendron radicans*
Southern magnolia	*Magnolia grandiflora*
Southern red oak	*Quercus falcata*
Sweetgum	*Liquidambar styraciflua*
Tulip poplar	*Liriodendron tulipifera*
Virginia creeper	*Parthenocissus quinquefolia*
Water oak	*Quercus nigra*
White oak	*Quercus alba*
Winged sumac	*Rhus copallinum*

Common Name	Scientific Name
Fauna	
American crow	*Corvus brachyrhynchos*
Eastern bluebird	*Sialia sialis*
Eastern gray squirrel	*Sciurus carolinensis*
Northern cardinal	*Cardinalis cardinalis*
Rat snake	*Pantherophis obsoletus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Turkey vulture	*Cathartes aura*
White-tailed deer	*Odocoileus virginianus*

APPENDIX C

Photographs

Photograph 1. Representative PFO wetland community (May 14, 2020 by L. Coleman).

Photograph 2. Representative PFO wetland community (May 14, 2020 by M. Mickley).

Photograph 3. Inundated portion of PFO wetland community (May 14, 2020 by L. Coleman).

Photograph 4. Representative PEM wetland community (May 14, 2020 by L. Coleman).

Photograph 5. Representative PEM wetland community (May 14, 2020 by M. Mickley).

Photograph 6. Representative PEM wetland community (May 14, 2020 by M. Mickley).

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

Photograph 8. Representative herbaceous upland community; showing agricultural fields (May 14, 2020 by L. Coleman).

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

Photograph 10. Representative upland forest community along field edge (May 14, 2020 by L. Coleman).

Photograph 11. Rural residence in the project study area (May 14, 2020 by L. Coleman).

Photograph 12. Rural residence in the project study area (May 14, 2020 by L. Coleman).

APPENDIX D

State Protected Species

Appendix D. State protected species known to occur in Wake County, North Carolina.

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Note	Habitat Present (Yes/No)	Likelihood of Occurrence in Project Study Area[3]
Amphibians						
Eastern tiger Salamander	*Ambystoma tigrinum*	ST	Current	breeds in fish-free semipermanent ponds; forages in adjacent woods, usually sandy pinewoods	Yes	Low
Four-toed salamander	*Hemidactylium scutatum*	SC	Current	pools, bogs, and other wetlands in hardwood forests	Yes	Low
Mole salamander	*Ambystoma talpoideum*	SC	Historical	breeds in fish-free semipermanent woodland ponds; forages in adjacent woodlands	Yes	Low
Dwarf salamander	*Eurycea quadridigitata*	SC	Historical	pocosins, Carolina bays, pine flatwoods, savannas, and other wetland habitats	Yes	Low
Birds						
Henslow's sparrow	*Ammodramus henslowii*	SE	Historical	clearcut pocosins and other damp weedy fields [breeding season only]	Yes	Low
Red crossbill	*Loxia curvirostra*	SC	Historical	coniferous forests, preferably spruce-fir	No	None
Bachman's sparrow	*Peucaea aestivalis*	SC	Historical	open longleaf pine forests, old fields [breeding evidence only]	No	None
Loggerhead shrike	*Lanius ludovicianus*	SC, W2	Current	fields and pastures [breeding season only]	Yes	Low
Crustaceans						
North Carolina spiny crayfish	*Orconectes carolinensis*	SC	Current	rivers and streams in the Chowan, Roanoke, Neuse, and Tar drainages	No	None
Bivalves						
Green floater	*Lasmigona subviridis*	SE	Current	New, Watauga, Roanoke, Tar, Neuse and Yadkin-Pee Dee drainages	No	None
Creeper	*Strophitus undulatus*	ST	Current	Roanoke, Tar, Neuse, Cape Fear, Yadkin-Pee Dee, Catawba, Broad, and French Broad drainages	No	None

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Note	Habitat Present (Yes/No)	Likelihood of Occurrence in Project Study Area[3]
Eastern lampmussel	*Lampsilis radiata*	ST	Current	Chowan, Roanoke, Tar, Neuse, Cape Fear, Yadkin-Pee Dee drainages	No	None
Notched rainbow	*Villosa constricta*	ST	Current	Roanoke, Tar, Neuse, Yadkin-Pee Dee, and Catawba drainages	No	None
Triangle floater	*Alasmidonta undulata*	ST	Current	Roanoke, Chowan, Tar, Neuse, Cape Fear drainages	No	None
Roanoke slabshell	*Elliptio roanokensis*	SC	Current	Roanoke, Tar, Neuse, White Oak, Cape Fear, Lumber, and Yadkin-Pee Dee drainages	No	None
Fish						
Least brook lamprey	*Lampetra aepyptera*	ST	Current	Tar and Neuse drainages	No	None
Mimic shiner	*Notropis volucellus*	ST	Historical	New, French Broad, Little Tennessee, Tar, and Neuse drainages	No	None
Mammals						
Southeastern bat	*Myotis austroriparius*	SC	Current	roosts in buildings, hollow trees; forages near water; mainly in the Coastal Plain	Yes	Low
Star-nosed mole	*Condylura cristata pop. 1*	SC	Historical	moist meadows, bogs, swamps, bottomlands [mountain population not of concern]	No	None
Reptiles						
Timber rattlesnake	*Crotalus horridus*	SC	Historical	wetland forests in the Coastal Plain; rocky, upland forests elsewhere	No	None
Southern hognose snake	*Heterodon simus*	ST	Historical	sandy woods, particularly pine-oak sandhills	No	None
Plants						
Piedmont quillwort	*Isoetes piedmontana*	SE	Current	granite flatrocks and diabase glades	No	None
Low wild-petunia	*Ruellia humilis*	SE	Current	diabase glades	No	None

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Note	Habitat Present (Yes/No)	Likelihood of Occurrence in Project Study Area[3]
Veined skullcap	*Scutellaria nervosa*	SE	Current	alluvial forests	No	None
Virginia least trillium	*Trillium pusillum var. virginianum*	SE	Current	mesic to swampy hardwood forests	No	None
American bluehearts	*Buchnera americana*	SE	Historical	glades, open forests, streambanks, probably primarily over mafic or calcareous rocks	No	None
Carolina thistle	*Cirsium carolinianum*	SE	Historical	forests and disturbed areas, mostly on basic soils	Yes	Low
Littleleaf sneezeweed	*Helenium brevifolium*	SE	Historical	bogs, seeps, riverbanks, other wet sites	Yes	Low
Swamp saxifrage	*Micranthes pensylvanica*	SE	Historical	bogs, seeps	No	None
Grassleaf arrowhead	*Sagittaria weatherbiana*	SE	Historical	fresh to slightly brackish marshes, streams, swamps, and pond margins	No	None
Southern skullcap	*Scutellaria australis*	SE	Historical	alluvial forests	No	None
Western rough goldenrod	*Solidago radula*	SE	Historical	dry woodlands over mafic rocks	No	None
Douglass's bittercress	*Cardamine douglassii*	ST	Current	bottomlands, rich lower slopes	No	None
Granite flatsedge	*Cyperus granitophilus*	ST	Current	granite flatrocks, other rock outcrops	No	None
Indian physic	*Gillenia stipulata*	ST	Current	forests and open woods, mainly over mafic rocks	No	None
Bigleaf magnolia	*Magnolia macrophylla*	ST	Current	rich deciduous forests	No	None
Small's portulaca	*Portulaca smallii*	ST	Current	granite flatrocks and diabase glades	No	None

Common Name	Scientific Name	Listing Status[1]	County Status[2]	Habitat Note	Habitat Present (Yes/No)	Likelihood of Occurrence in Project Study Area[3]
Virginia spiderwort	*Tradescantia virginiana*	ST	Current	rich woods on circumneutral soils	No	None
Buffalo clover	*Trifolium reflexum*	ST	Current	open woods and clearings	Yes	Low
Kidney sedge	*Carex reniformis*	ST	Historical	swamps, open wet areas	No	None
Narrow-leaved smooth aster	*Symphyotrichum concinnum*	ST	Historical	forests, woodland borders especially over mafic rocks	No	None
Carolina birdfoot-trefoil	*Acmispon helleri*	SC-V	Current	open woods over clay soils, roadsides	Yes	Low
Sweet pinesap	*Monotropsis odorata*	SC-V	Current	dry forests and bluffs	No	None
Appalachian golden-banner	*Thermopsis mollis*	SC-V	Current	dry ridges and open woodlands	No	None
Pursh's wild-petunia	*Ruellia purshiana*	SC-V	Historical	glades and woodlands, mostly over mafic or calcareous rocks	No	None

Sources: NCNHP 2020

[1] SE = State-endangered; ST = State-threatened; SC = State-special concern; SC-V = State-special concern-vulnerable; W2 = Rare but relatively secure

[2] Current = the species has been seen recently in the County; Historical = the species has not been seen recently in the County

[3] None = no potentially suitable habitat was observed; Low = potentially suitable habitat of low quality is present, though not abundant